FIG. 1

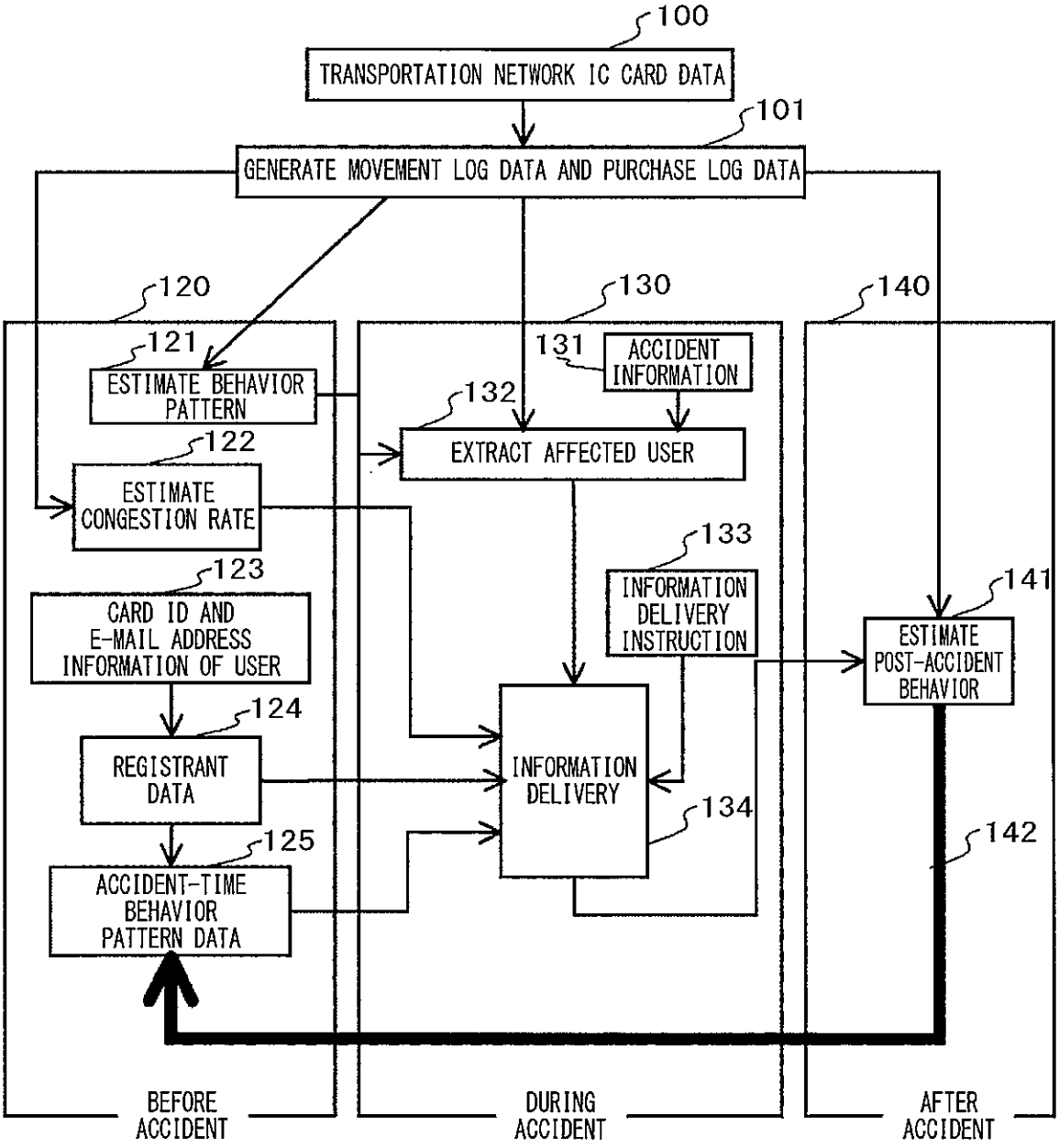

100
TRANSPORTATION NETWORK IC CARD DATA
101
GENERATE MOVEMENT LOG DATA AND PURCHASE LOG DATA
120
130
140
121
ESTIMATE BEHAVIOR PATTERN
131
ACCIDENT INFORMATION
132
EXTRACT AFFECTED USER
122
ESTIMATE CONGESTION RATE
133
INFORMATION DELIVERY INSTRUCTION
141
123
CARD ID AND E-MAIL ADDRESS INFORMATION OF USER
ESTIMATE POST-ACCIDENT BEHAVIOR
124
REGISTRANT DATA
INFORMATION DELIVERY
134
142
125
ACCIDENT-TIME BEHAVIOR PATTERN DATA
BEFORE ACCIDENT
DURING ACCIDENT
AFTER ACCIDENT

FIG. 2

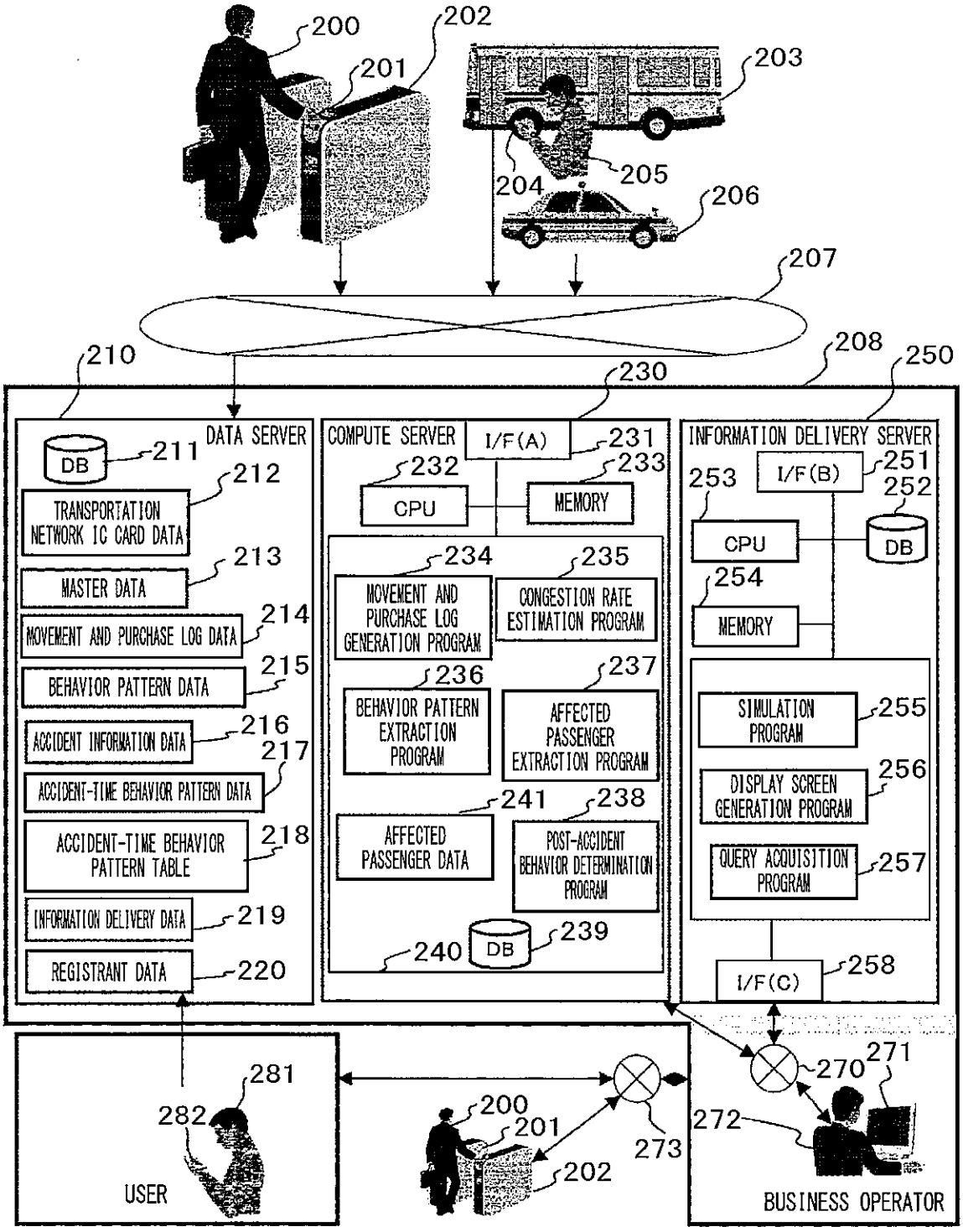

200
201
202
203
204
205
206
207
208
210
230
250
DATA SERVER
DB
211
TRANSPORTATION NETWORK IC CARD DATA
212
MASTER DATA
213
MOVEMENT AND PURCHASE LOG DATA
214
BEHAVIOR PATTERN DATA
215
ACCIDENT INFORMATION DATA
216
ACCIDENT-TIME BEHAVIOR PATTERN DATA
217
ACCIDENT-TIME BEHAVIOR PATTERN TABLE
218
INFORMATION DELIVERY DATA
219
REGISTRANT DATA
220
COMPUTE SERVER
I/F(A)
231
CPU
232
MEMORY
233
MOVEMENT AND PURCHASE LOG GENERATION PROGRAM
234
CONGESTION RATE ESTIMATION PROGRAM
235
BEHAVIOR PATTERN EXTRACTION PROGRAM
236
AFFECTED PASSENGER EXTRACTION PROGRAM
237
AFFECTED PASSENGER DATA
241
POST-ACCIDENT BEHAVIOR DETERMINATION PROGRAM
238
DB
239
240
INFORMATION DELIVERY SERVER
I/F(B)
251
253
CPU
DB
252
254
MEMORY
SIMULATION PROGRAM
255
DISPLAY SCREEN GENERATION PROGRAM
256
QUERY ACQUISITION PROGRAM
257
I/F(C)
258
281
282
USER
200
201
202
273
270
271
272
BUSINESS OPERATOR

FIG. 3

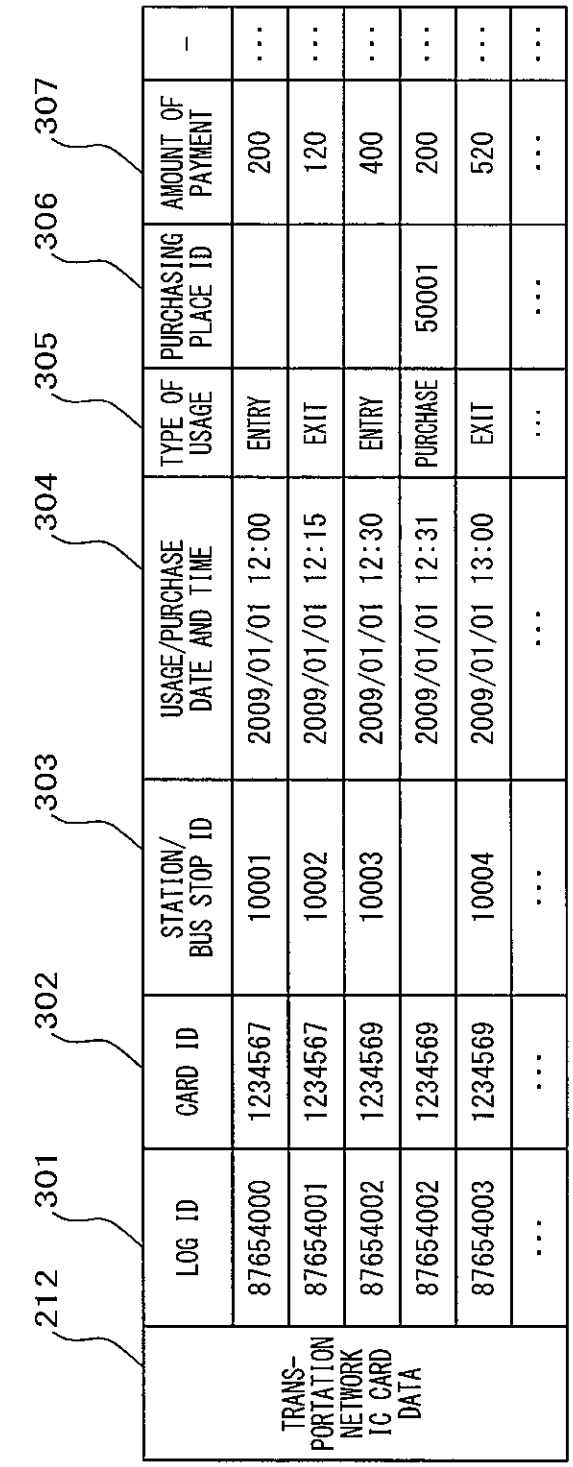
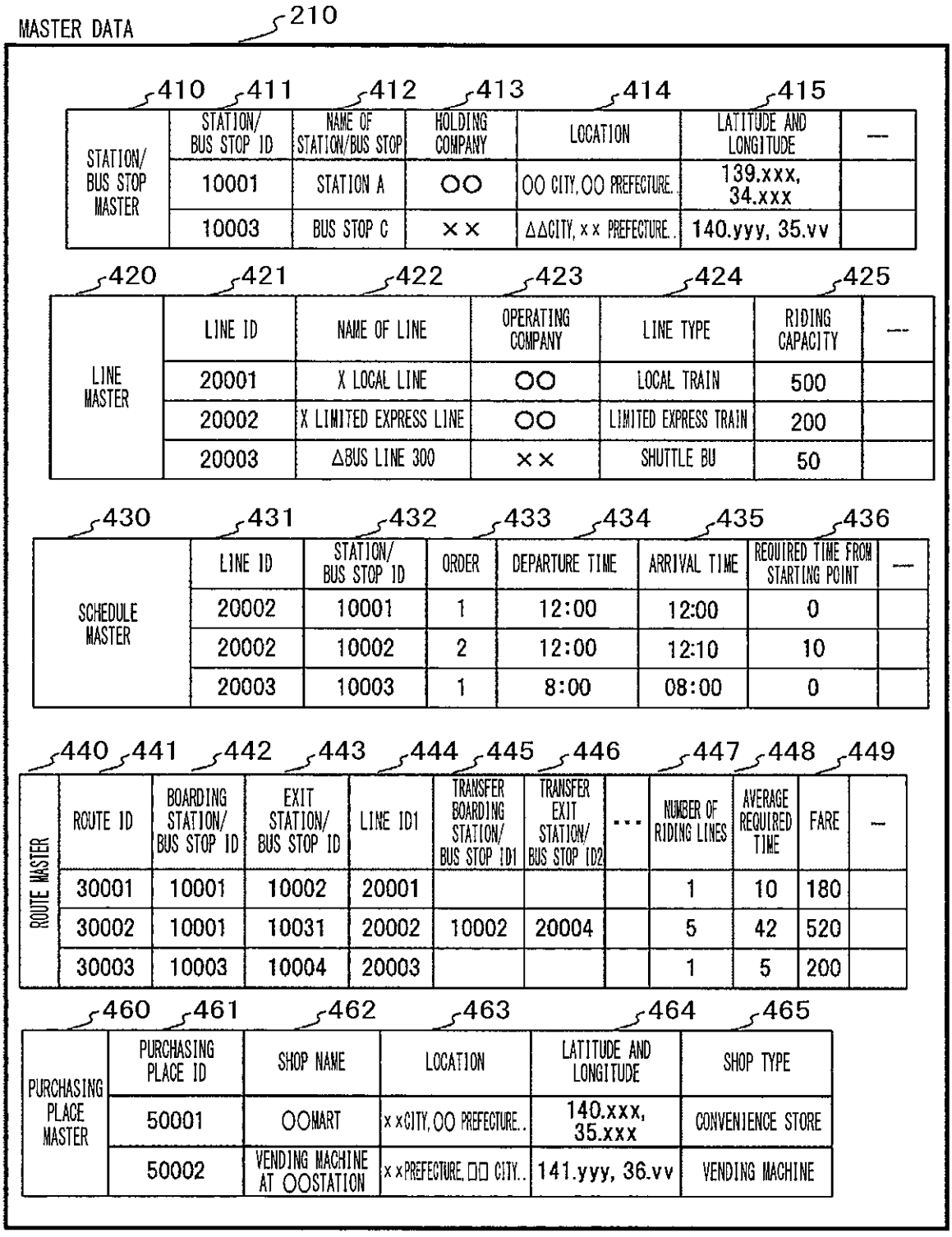

212
301
302
303
304
305
306
307
TRANS-PORTATION NETWORK IC CARD DATA
LOG ID
CARD ID
STATION/ BUS STOP ID
USAGE/PURCHASE DATE AND TIME
TYPE OF USAGE
PURCHASING PLACE ID
AMOUNT OF PAYMENT
87654000 1234567 10001 2009/01/01 12:00 ENTRY 200
87654001 1234567 10002 2009/01/01 12:15 EXIT 120
87654002 1234569 10003 2009/01/01 12:30 ENTRY 400
87654002 1234569 2009/01/01 12:31 PURCHASE 50001 200
87654003 1234569 10004 2009/01/01 13:00 EXIT 520

FIG. 4



410 411 412 413 414 415

	STATION/ BUS STOP ID	NAME OF STATION/BUS STOP	HOLDING COMPANY	LOCATION	LATITUDE AND LONGITUDE	—
STATION/ BUS STOP MASTER	10001	STATION A	○○	○○ CITY, ○○ PREFECTURE..	139.xxx, 34.xxx	
	10003	BUS STOP C	××	△△CITY, ×× PREFECTURE..	140.yyy, 35.vv	

420 421 422 423 424 425

	LINE ID	NAME OF LINE	OPERATING COMPANY	LINE TYPE	RIDING CAPACITY	—
LINE MASTER	20001	X LOCAL LINE	○○	LOCAL TRAIN	500	
	20002	X LIMITED EXPRESS LINE	○○	LIMITED EXPRESS TRAIN	200	
	20003	△BUS LINE 300	××	SHUTTLE BU	50	

430 431 432 433 434 435 436

	LINE ID	STATION/ BUS STOP ID	ORDER	DEPARTURE TIME	ARRIVAL TIME	REQUIRED TIME FROM STARTING POINT	—
SCHEDULE MASTER	20002	10001	1	12:00	12:00	0	
	20002	10002	2	12:00	12:10	10	
	20003	10003	1	8:00	08:00	0	

440 441 442 443 444 445 446 447 448 449

ROUTE MASTER	ROUTE ID	BOARDING STATION/ BUS STOP ID	EXIT STATION/ BUS STOP ID	LINE ID1	TRANSFER BOARDING STATION/ BUS STOP ID1	TRANSFER EXIT STATION/ BUS STOP ID2	...	NUMBER OF RIDING LINES	AVERAGE REQUIRED TIME	FARE	—
	30001	10001	10002	20001				1	10	180	
	30002	10001	10031	20002	10002	20004		5	42	520	
	30003	10003	10004	20003				1	5	200	

460 461 462 463 464 465

	PURCHASING PLACE ID	SHOP NAME	LOCATION	LATITUDE AND LONGITUDE	SHOP TYPE
PURCHASING PLACE MASTER	50001	○○MART	××CITY, ○○ PREFECTURE..	140.xxx, 35.xxx	CONVENIENCE STORE
	50002	VENDING MACHINE AT ○○STATION	××PREFECTURE, □□ CITY..	141.yyy, 36.vv	VENDING MACHINE

FIG.5

218 451 452 453

ACCIDENT-TIME BEHAVIOR PATTERN TABLE

ACCIDENT-TIME BEHAVIOR PATTERN ID	CONTENTS	DETERMINATION METHOD
1	USE ALTERNATIVE ROUTE ACCORDING TO DELIVERED INFORMATION	COMPARE DELIVERED INFORMATION AND MOVEMENT LOG
2	USE ALTERNATIVE ROUTE DIFFERENT FROM DELIVERED INFORMATION	COMPARE DELIVERED INFORMATION AND MOVEMENT LOG
3	USE ANOTHER TRANSPORTATION SYSTEM	DEPARTURE POINT AND ARRIVAL POINT OF MOVEMENT LOG ARE DISCONTINUOUS
4	ADOPT PURCHASING BEHAVIOR OUTSIDE STATION	PURCHASE LOG EXISTS
5	EAT/DRINK AT PLACE NEAR STATION	EAT/DRINK LOG EXISTS
6	WAIT AT PLACE NEAR STATION	FALL UNDER NONE OF THE ABOVE
...	...	...

FIG. 6

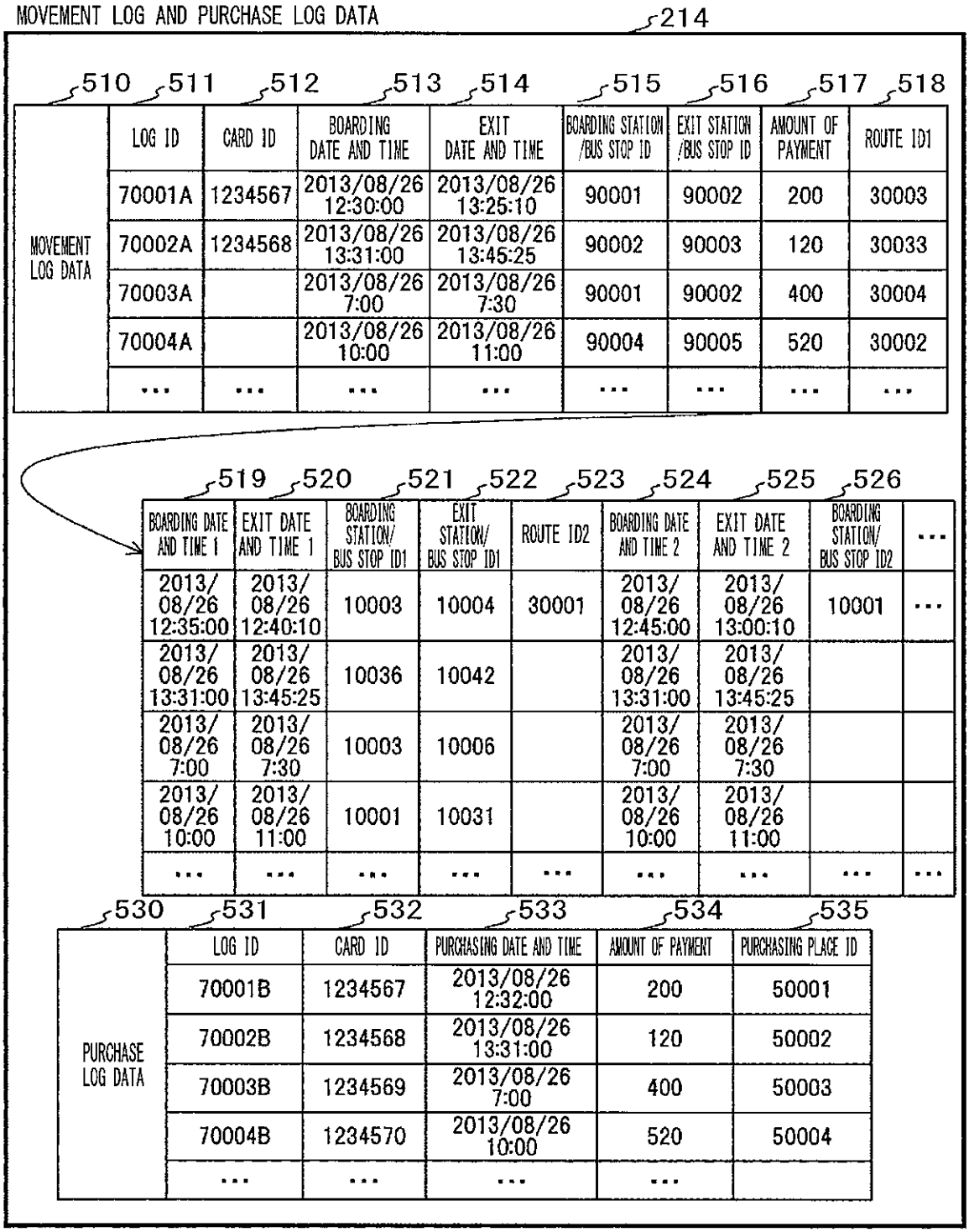

MOVEMENT LOG AND PURCHASE LOG DATA
214
510
511
512
513
514
515
516
517
518
MOVEMENT LOG DATA
LOG ID
CARD ID
BOARDING DATE AND TIME
EXIT DATE AND TIME
BOARDING STATION /BUS STOP ID
EXIT STATION /BUS STOP ID
AMOUNT OF PAYMENT
ROUTE ID1
70001A 1234567 2013/08/26 12:30:00 2013/08/26 13:25:10 90001 90002 200 30003
70002A 1234568 2013/08/26 13:31:00 2013/08/26 13:45:25 90002 90003 120 30033
70003A 2013/08/26 7:00 2013/08/26 7:30 90001 90002 400 30004
70004A 2013/08/26 10:00 2013/08/26 11:00 90004 90005 520 30002
519
520
521
522
523
524
525
526
BOARDING DATE AND TIME 1
EXIT DATE AND TIME 1
BOARDING STATION/ BUS STOP ID1
EXIT STATION/ BUS STOP ID1
ROUTE ID2
BOARDING DATE AND TIME 2
EXIT DATE AND TIME 2
BOARDING STATION/ BUS STOP ID2
2013/08/26 12:35:00 2013/08/26 12:40:10 10003 10004 30001 2013/08/26 12:45:00 2013/08/26 13:00:10 10001
2013/08/26 13:31:00 2013/08/26 13:45:25 10036 10042 2013/08/26 13:31:00 2013/08/26 13:45:25
2013/08/26 7:00 2013/08/26 7:30 10003 10006 2013/08/26 7:00 2013/08/26 7:30
2013/08/26 10:00 2013/08/26 11:00 10001 10031 2013/08/26 10:00 2013/08/26 11:00
530
531
532
533
534
535
PURCHASE LOG DATA
LOG ID
CARD ID
PURCHASING DATE AND TIME
AMOUNT OF PAYMENT
PURCHASING PLACE ID
70001B 1234567 2013/08/26 12:32:00 200 50001
70002B 1234568 2013/08/26 13:31:00 120 50002
70003B 1234569 2013/08/26 7:00 400 50003
70004B 1234570 2013/08/26 10:00 520 50004

FIG. 7

220 601 602 603

REGISTRANT DATA	REGISTRANT ID	TRANSPORTATION NETWORK IC CARD ID	MAIL ADDRESS	...
	100001	123451	aaa@abc.com	...
	100002	123452	bbb@abc.com	...
	100003	123453	ccc@abc.com	...
	100004	123454	ddd@abc.com	...
	100005	123455	eee@abc.com	...
	...	...	...	...

FIG. 8

216 701 702 703 704 705 706

ACCIDENT INFORMATION DATA	ACCIDENT ID	LINE ID	ACCIDENT SECTION A	ACCIDENT SECTION B	ACCIDENT TIME	OPERATION RESTART TIME
	20001	10001	A STATION	B STATION	2013/08/26 11:00:00	2013/08/26 12:30:00
	...	...	...	...	...	...

FIG. 9

218 801 802 803 804 805 806 807 808

AFFECTED PASSENGER DATA

ACCIDENT ID	CARD ID	ESTIMATED DATE AND TIME OF ENCOUNTER	LINE ID	BOARDING DATE AND TIME	EXIT DATE AND TIME	BOARDING STATION/ BUS STOP ID	EXIT STATION/ BUS STOP ID	...
20001	100001	2013/ 08/26 11:30	3003	2013/ 08/26 11:45	2013/ 08/26 12:00	10003	10010	...
20001	100002	2013/ 08/26 11:30	3033	2013/ 08/26 11:45	2013/ 08/26 11:50	10036	10046	...
20001	100003	2013/ 08/26 11:50	3004	2013/ 08/26 12:30	2013/ 08/26 12:50	10003	10053	...
20001	100004	2013/ 08/26 20	3002	2013/ 08/26 11:25	2013/ 08/26 12:20	10001	10110	...
...	...	...	...	...	...	...	...	...

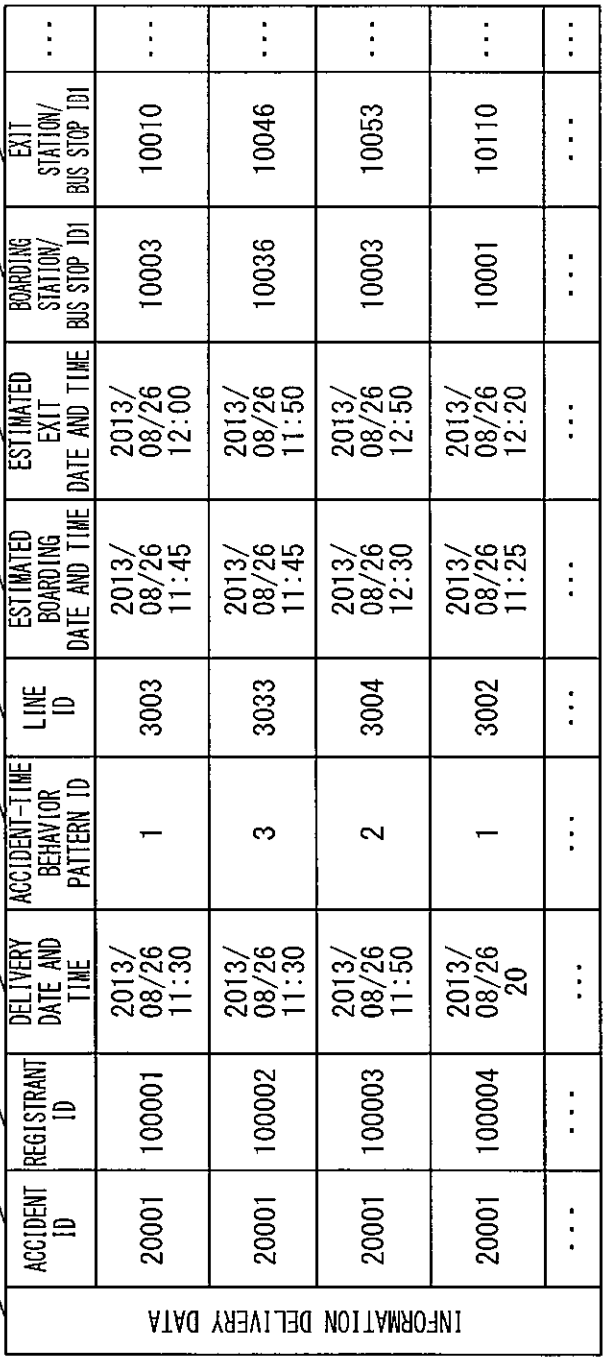
FIG. 10

217 901 902 903 904

ACCIDENT-TIME BEHAVIOR DATA

CARD ID	TRANSPORTATION ACCIDENT ID IC CARD ID	PREVIOUS ACCIDENT-TIME BEHAVIOR PATTERN ID	ACTUALLY USED ALTERNATIVE ROUTE
100001	20001	1	...
100002	20001	2	...
100003	20001	3	
100004	20002	5	...
100005	20002	4	...
...	...	...	...

FIG. 11



219	1001	1002	1003	1004	1005	1006	1007	1008	1009	
INFORMATION DELIVERY DATA	ACCIDENT ID	REGISTRANT ID	DELIVERY DATE AND TIME	ACCIDENT-TIME BEHAVIOR PATTERN ID	LINE ID	ESTIMATED BOARDING DATE AND TIME	ESTIMATED EXIT DATE AND TIME	BOARDING STATION/ BUS STOP ID1	EXIT STATION/ BUS STOP ID1	...
	20001	100001	2013/ 08/26 11:30	1	3003	2013/ 08/26 11:45	2013/ 08/26 12:00	10003	10010	...
	20001	100002	2013/ 08/26 11:30	3	3033	2013/ 08/26 11:45	2013/ 08/26 11:50	10036	10046	...
	20001	100003	2013/ 08/26 11:50	2	3004	2013/ 08/26 12:30	2013/ 08/26 12:50	10003	10053	...
	20001	100004	2013/ 08/26 20	1	3002	2013/ 08/26 11:25	2013/ 08/26 12:20	10001	10110	...
	...	...	...	...	...	...	...	...	...	...

FIG. 12

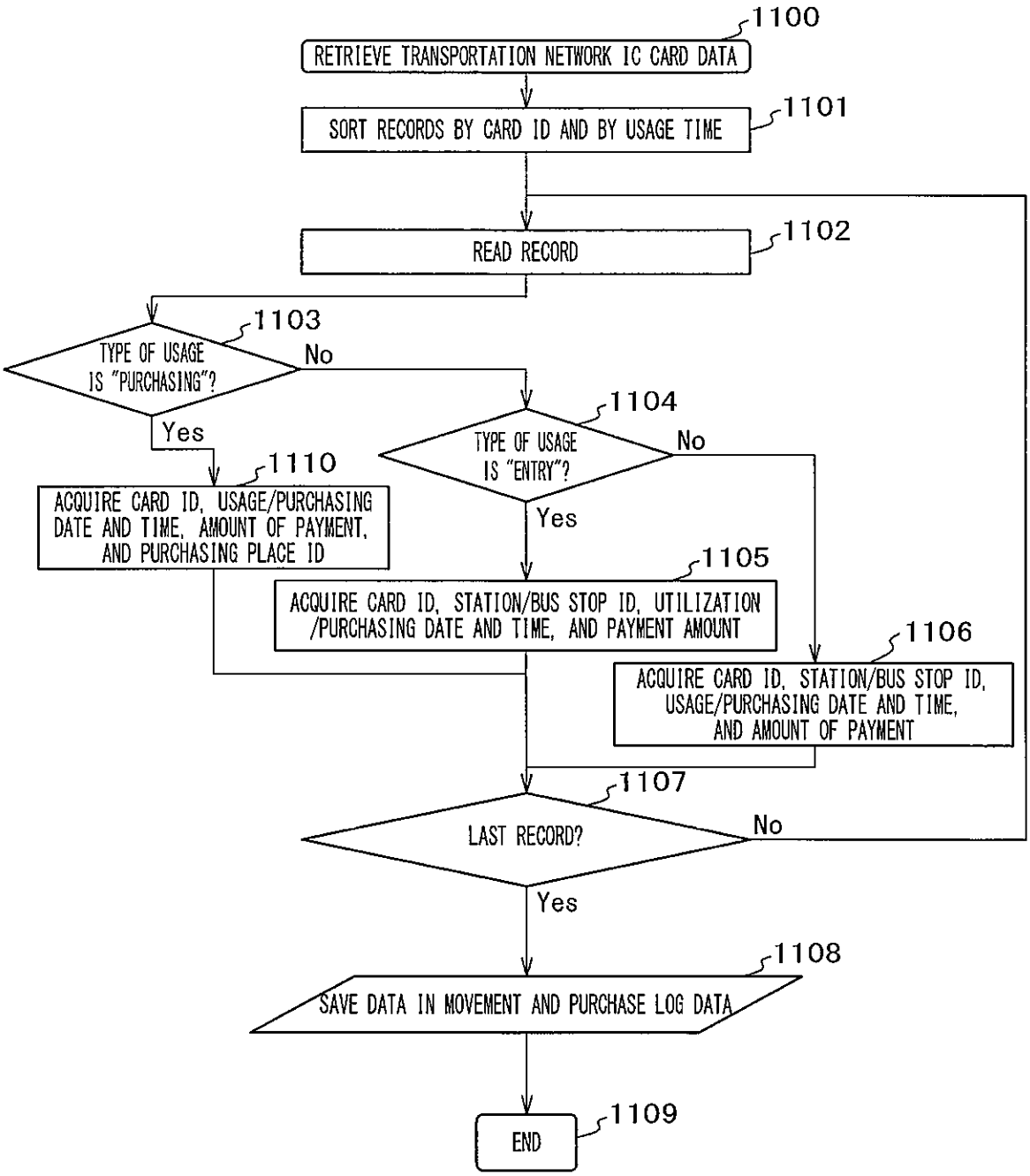

1100
RETRIEVE TRANSPORTATION NETWORK IC CARD DATA
1101
SORT RECORDS BY CARD ID AND BY USAGE TIME
1102
READ RECORD
1103
TYPE OF USAGE IS "PURCHASING"?
No
Yes
1104
TYPE OF USAGE IS "ENTRY"?
No
Yes
1110
ACQUIRE CARD ID, USAGE/PURCHASING DATE AND TIME, AMOUNT OF PAYMENT, AND PURCHASING PLACE ID
1105
ACQUIRE CARD ID, STATION/BUS STOP ID, UTILIZATION /PURCHASING DATE AND TIME, AND PAYMENT AMOUNT
1106
ACQUIRE CARD ID, STATION/BUS STOP ID, USAGE/PURCHASING DATE AND TIME, AND AMOUNT OF PAYMENT
1107
LAST RECORD?
No
Yes
1108
SAVE DATA IN MOVEMENT AND PURCHASE LOG DATA
1109
END

FIG. 13

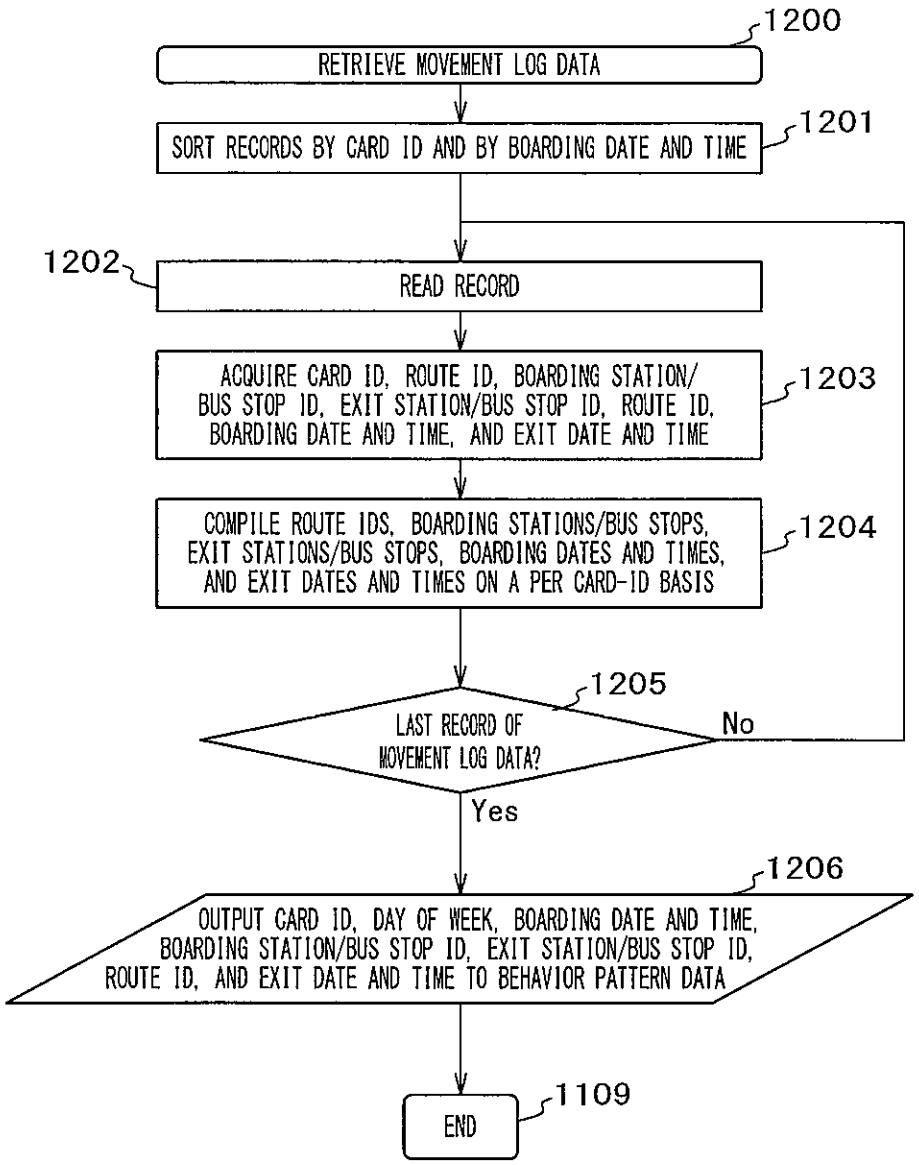

1200
RETRIEVE MOVEMENT LOG DATA
1201
SORT RECORDS BY CARD ID AND BY BOARDING DATE AND TIME
1202
READ RECORD
1203
ACQUIRE CARD ID, ROUTE ID, BOARDING STATION/ BUS STOP ID, EXIT STATION/BUS STOP ID, ROUTE ID, BOARDING DATE AND TIME, AND EXIT DATE AND TIME
1204
COMPILE ROUTE IDS, BOARDING STATIONS/BUS STOPS, EXIT STATIONS/BUS STOPS, BOARDING DATES AND TIMES, AND EXIT DATES AND TIMES ON A PER CARD-ID BASIS
1205
LAST RECORD OF MOVEMENT LOG DATA?
No
Yes
1206
OUTPUT CARD ID, DAY OF WEEK, BOARDING DATE AND TIME, BOARDING STATION/BUS STOP ID, EXIT STATION/BUS STOP ID, ROUTE ID, AND EXIT DATE AND TIME TO BEHAVIOR PATTERN DATA
1109
END

FIG. 14

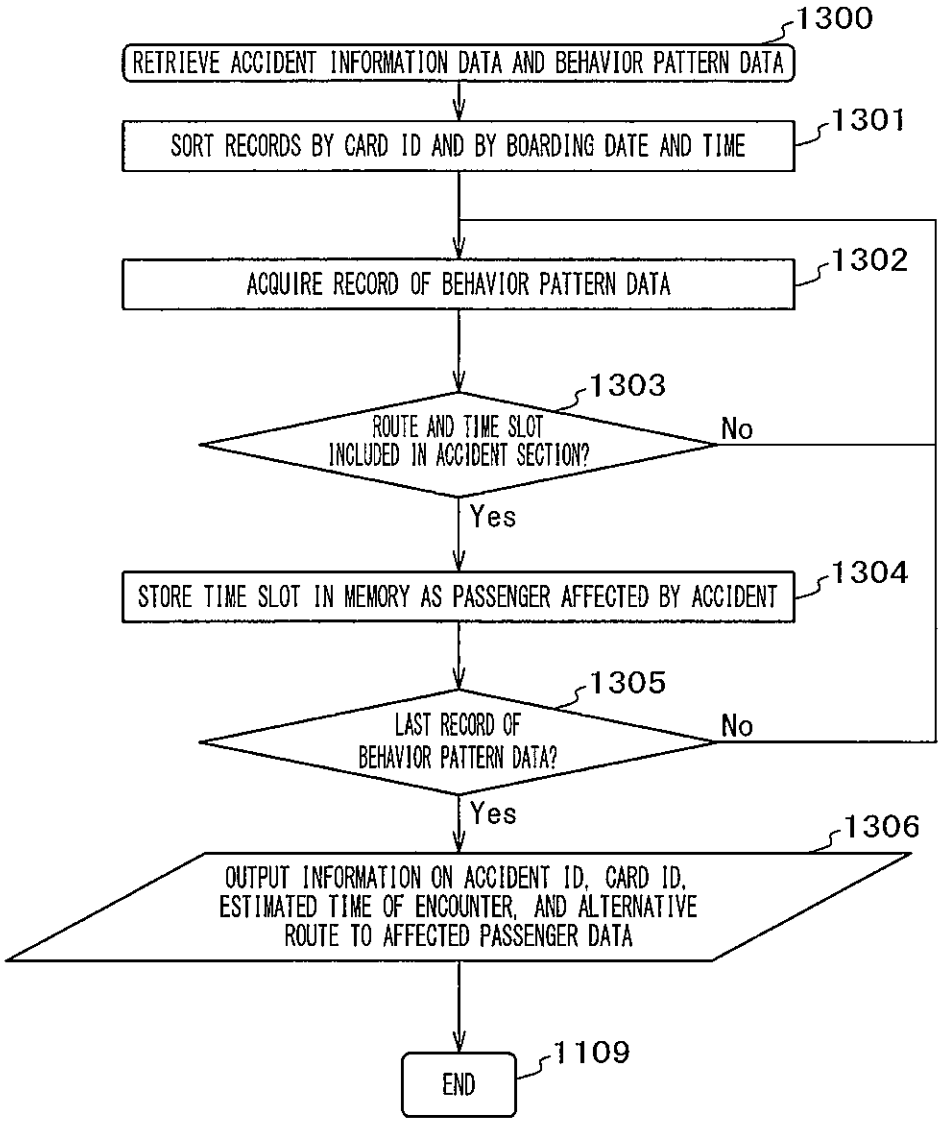

1300
RETRIEVE ACCIDENT INFORMATION DATA AND BEHAVIOR PATTERN DATA
1301
SORT RECORDS BY CARD ID AND BY BOARDING DATE AND TIME
1302
ACQUIRE RECORD OF BEHAVIOR PATTERN DATA
1303
ROUTE AND TIME SLOT INCLUDED IN ACCIDENT SECTION?
No
Yes
1304
STORE TIME SLOT IN MEMORY AS PASSENGER AFFECTED BY ACCIDENT
1305
LAST RECORD OF BEHAVIOR PATTERN DATA?
No
Yes
1306
OUTPUT INFORMATION ON ACCIDENT ID, CARD ID, ESTIMATED TIME OF ENCOUNTER, AND ALTERNATIVE ROUTE TO AFFECTED PASSENGER DATA
1109
END

FIG. 15

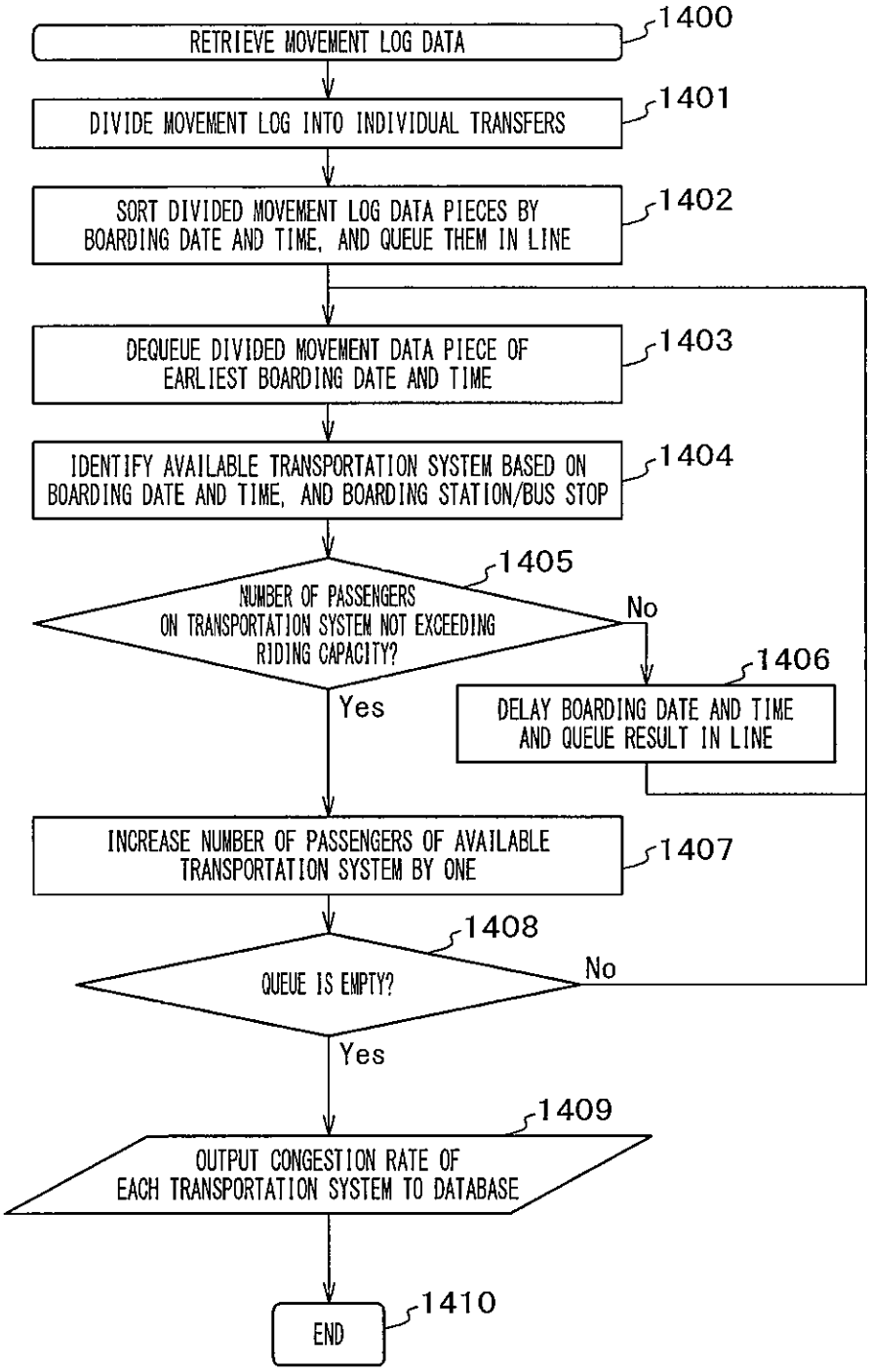

RETRIEVE MOVEMENT LOG DATA
1400
DIVIDE MOVEMENT LOG INTO INDIVIDUAL TRANSFERS
1401
SORT DIVIDED MOVEMENT LOG DATA PIECES BY BOARDING DATE AND TIME, AND QUEUE THEM IN LINE
1402
DEQUEUE DIVIDED MOVEMENT DATA PIECE OF EARLIEST BOARDING DATE AND TIME
1403
IDENTIFY AVAILABLE TRANSPORTATION SYSTEM BASED ON BOARDING DATE AND TIME, AND BOARDING STATION/BUS STOP
1404
NUMBER OF PASSENGERS ON TRANSPORTATION SYSTEM NOT EXCEEDING RIDING CAPACITY?
1405
No
Yes
DELAY BOARDING DATE AND TIME AND QUEUE RESULT IN LINE
1406
INCREASE NUMBER OF PASSENGERS OF AVAILABLE TRANSPORTATION SYSTEM BY ONE
1407
QUEUE IS EMPTY?
1408
No
Yes
OUTPUT CONGESTION RATE OF EACH TRANSPORTATION SYSTEM TO DATABASE
1409
END
1410

FIG. 16

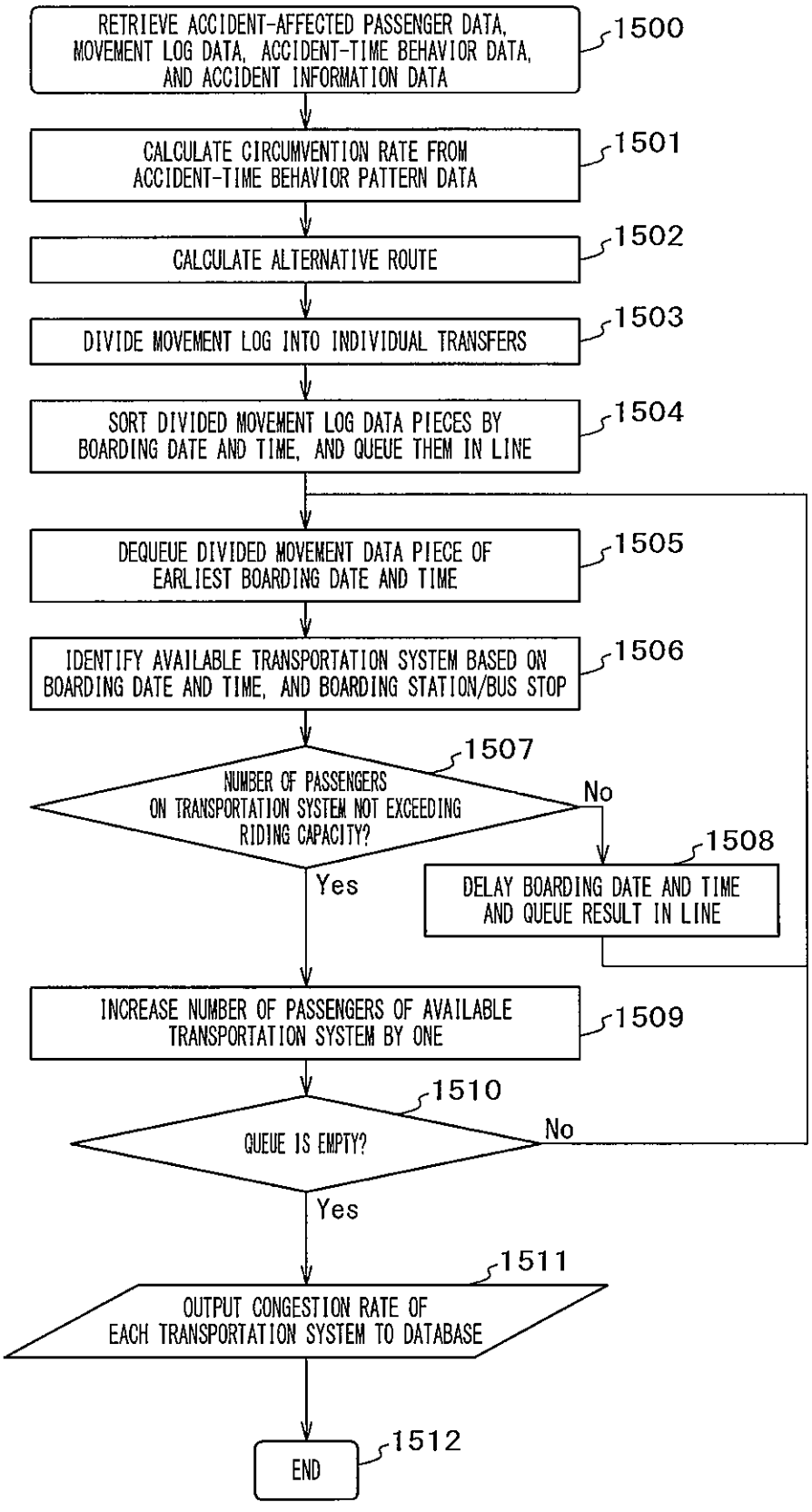

RETRIEVE ACCIDENT-AFFECTED PASSENGER DATA, MOVEMENT LOG DATA, ACCIDENT-TIME BEHAVIOR DATA, AND ACCIDENT INFORMATION DATA
1500
CALCULATE CIRCUMVENTION RATE FROM ACCIDENT-TIME BEHAVIOR PATTERN DATA
1501
CALCULATE ALTERNATIVE ROUTE
1502
DIVIDE MOVEMENT LOG INTO INDIVIDUAL TRANSFERS
1503
SORT DIVIDED MOVEMENT LOG DATA PIECES BY BOARDING DATE AND TIME, AND QUEUE THEM IN LINE
1504
DEQUEUE DIVIDED MOVEMENT DATA PIECE OF EARLIEST BOARDING DATE AND TIME
1505
IDENTIFY AVAILABLE TRANSPORTATION SYSTEM BASED ON BOARDING DATE AND TIME, AND BOARDING STATION/BUS STOP
1506
NUMBER OF PASSENGERS ON TRANSPORTATION SYSTEM NOT EXCEEDING RIDING CAPACITY?
1507
No
Yes
DELAY BOARDING DATE AND TIME AND QUEUE RESULT IN LINE
1508
INCREASE NUMBER OF PASSENGERS OF AVAILABLE TRANSPORTATION SYSTEM BY ONE
1509
QUEUE IS EMPTY?
1510
No
Yes
OUTPUT CONGESTION RATE OF EACH TRANSPORTATION SYSTEM TO DATABASE
1511
END
1512

FIG. 17

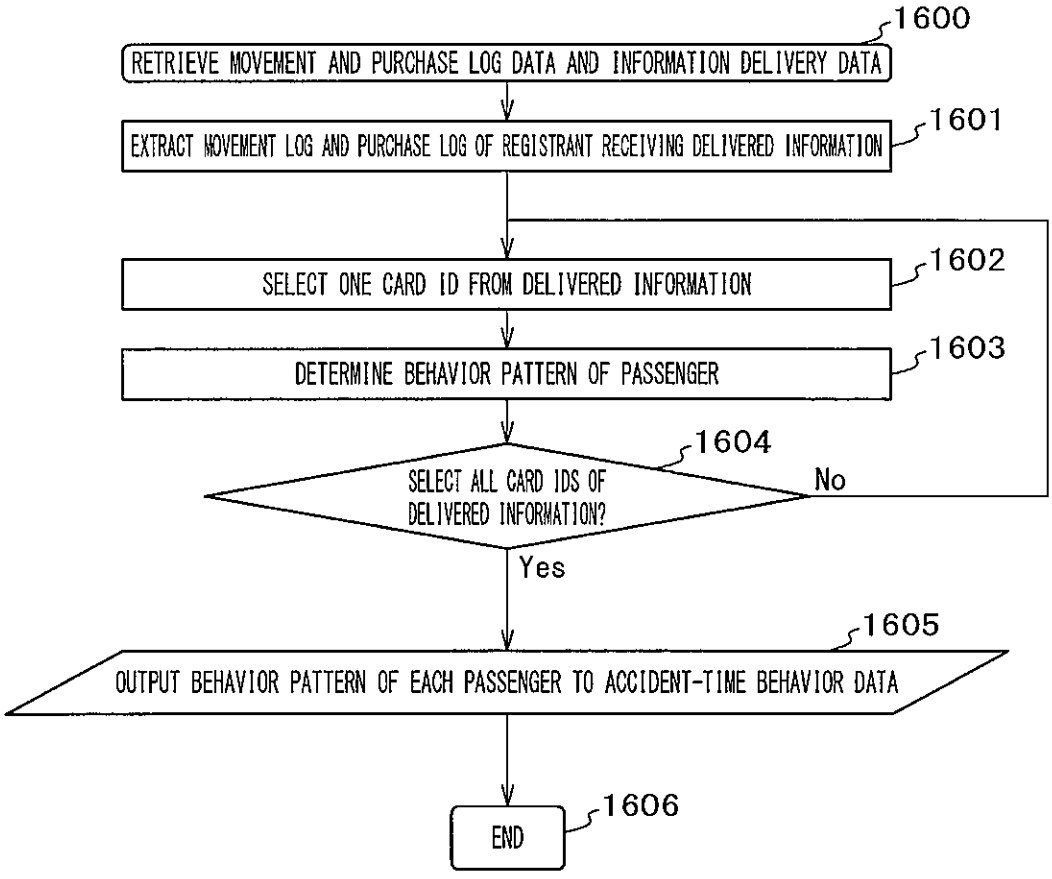

1600
RETRIEVE MOVEMENT AND PURCHASE LOG DATA AND INFORMATION DELIVERY DATA
1601
EXTRACT MOVEMENT LOG AND PURCHASE LOG OF REGISTRANT RECEIVING DELIVERED INFORMATION
1602
SELECT ONE CARD ID FROM DELIVERED INFORMATION
1603
DETERMINE BEHAVIOR PATTERN OF PASSENGER
1604
SELECT ALL CARD IDS OF DELIVERED INFORMATION?
No
Yes
1605
OUTPUT BEHAVIOR PATTERN OF EACH PASSENGER TO ACCIDENT-TIME BEHAVIOR DATA
1606
END

FIG. 18

1700

TITLE: TRANSPORTATION DISTURBANCE INFORMATION 1701 1711

【SUSPENDED OPERATION ON ○○ LINE】 1702

The ENTIRE OPERATION IS SUSPENDED FROM 10:00 TODAY BECAUSE OF ACCIDENT CAUSING PHYSICAL INJURY IN A SECTION BETWEEN A STATION AND B STATION ON ○○ LINE.

DETAILED INFORMATION ABOUT ACCIDENT : 1703

http://.....

◎ ALTERNATIVE ROUTE INFORMATION 1712

1704 STATION	1705 TIME	1706 FARE	1707 ESTIMATED CONGESTION RATE
FROM A STATION	10:15		
	↓	400 YEN	20%
TO C STATION	10:30		
TRANSFER	PLATFORM 1		
FROM C STATION	10:45		
	↓	120 YEN	4%
TO B STATION	11:35		

◎ RE-SEARCH OF ALTERNATIVE ROUTE 1708

http://.....

◎ YOUR BEHAVIOR TYPE 1709

"TAKE A TAXI RIGHT NOW" TYPE
RECOMMEND THIS TO YOU WHO WANTS TO TAKE A TAXI RIDE IMMEDIATELY:

WEBSITE ADDRESS OF ○○ TAXI COMPANY
http://.....

◎ FOR ONE WHO WANTS TO CHANGE BEHAVIOR TYPE OR TO CHECK OTHER INFORMATION 1710

http://.....

FIG. 19

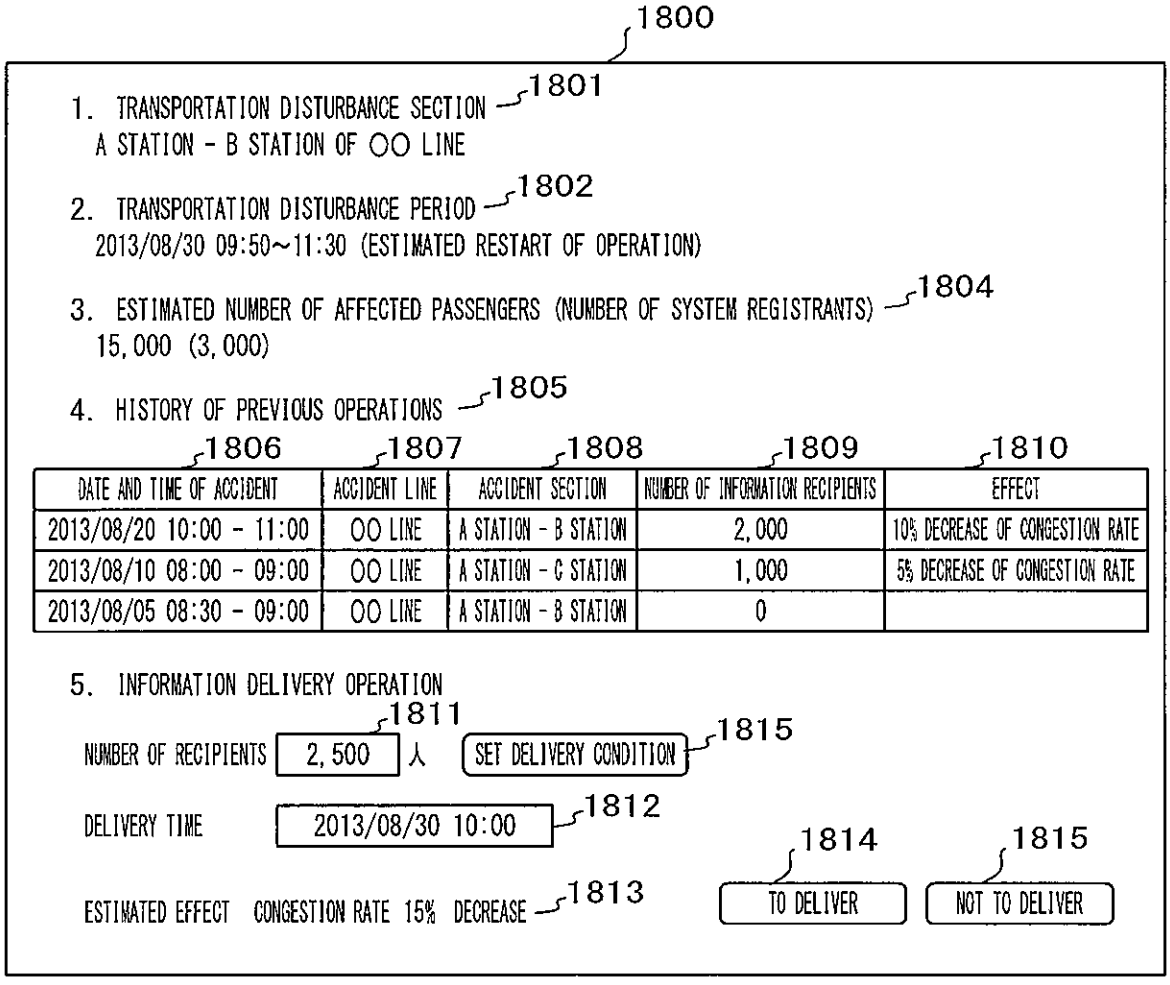

1800
1. TRANSPORTATION DISTURBANCE SECTION
1801
A STATION - B STATION OF ○○ LINE
2. TRANSPORTATION DISTURBANCE PERIOD
1802
2013/08/30 09:50~11:30 (ESTIMATED RESTART OF OPERATION)
3. ESTIMATED NUMBER OF AFFECTED PASSENGERS (NUMBER OF SYSTEM REGISTRANTS)
1804
15,000 (3,000)
4. HISTORY OF PREVIOUS OPERATIONS
1805
1806
1807
1808
1809
1810
DATE AND TIME OF ACCIDENT
ACCIDENT LINE
ACCIDENT SECTION
NUMBER OF INFORMATION RECIPIENTS
EFFECT
2013/08/20 10:00 - 11:00
○○ LINE
A STATION - B STATION
2,000
10% DECREASE OF CONGESTION RATE
2013/08/10 08:00 - 09:00
○○ LINE
A STATION - C STATION
1,000
5% DECREASE OF CONGESTION RATE
2013/08/05 08:30 - 09:00
○○ LINE
A STATION - B STATION
0
5. INFORMATION DELIVERY OPERATION
1811
NUMBER OF RECIPIENTS
2,500
人
SET DELIVERY CONDITION
1815
DELIVERY TIME
2013/08/30 10:00
1812
1814
1815
ESTIMATED EFFECT CONGESTION RATE 15% DECREASE
1813
TO DELIVER
NOT TO DELIVER

FIG.20

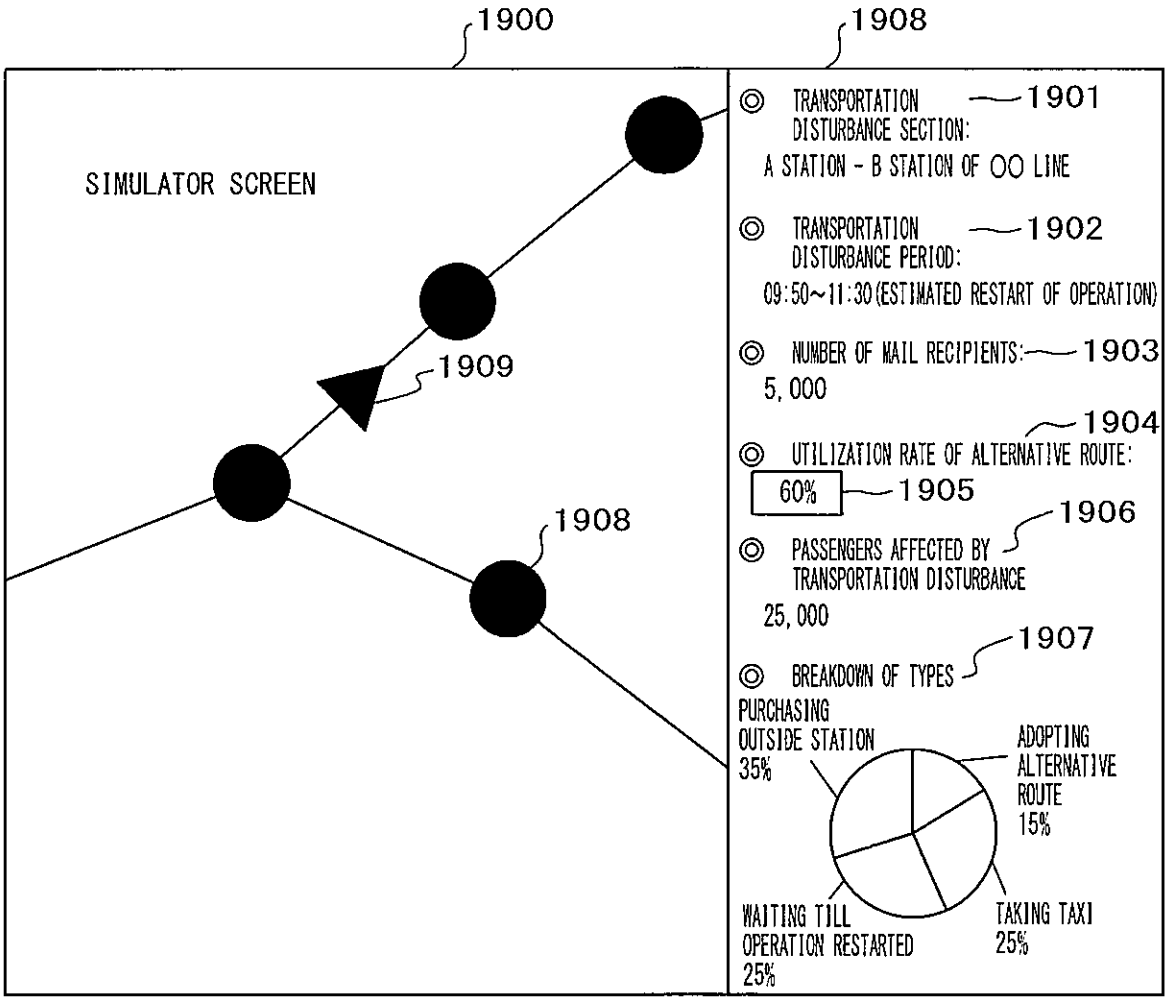

1900
1908
SIMULATOR SCREEN
1909
1908
◎ TRANSPORTATION DISTURBANCE SECTION: 1901
A STATION - B STATION OF OO LINE
◎ TRANSPORTATION DISTURBANCE PERIOD: 1902
09:50~11:30(ESTIMATED RESTART OF OPERATION)
◎ NUMBER OF MAIL RECIPIENTS: 1903
5,000
1904
◎ UTILIZATION RATE OF ALTERNATIVE ROUTE:
60% 1905
1906
◎ PASSENGERS AFFECTED BY TRANSPORTATION DISTURBANCE
25,000
1907
◎ BREAKDOWN OF TYPES
PURCHASING OUTSIDE STATION 35%
ADOPTING ALTERNATIVE ROUTE 15%
WAITING TILL OPERATION RESTARTED 25%
TAKING TAXI 25%

FIG. 21

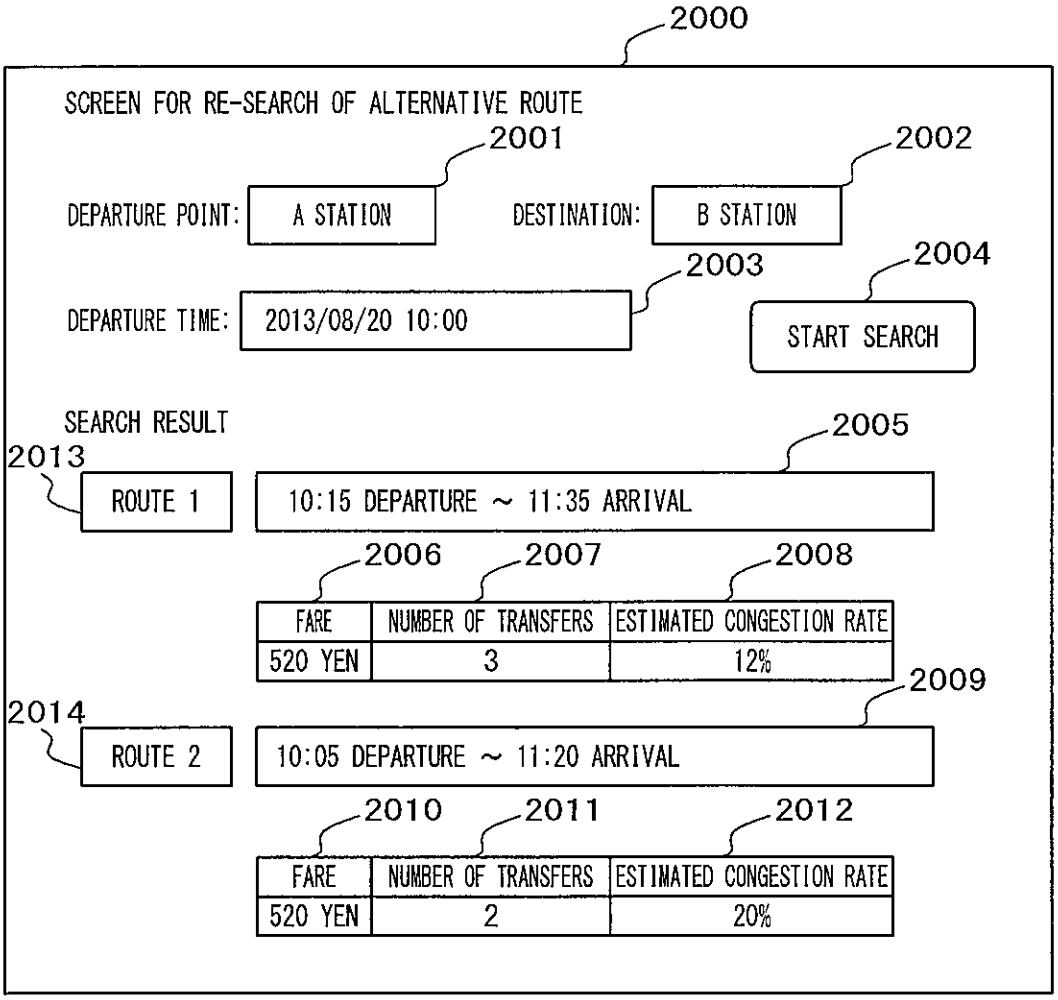


FIG. 22

	215	2101	2102	2103	2104	2105	2106	2107	
BEHAVIOR PATTERN DATA	CARD ID	DAY OF WEEK	BOARDING DATE AND TIME	BOARDING STATION/ BUS STOP	EXIT STATION/ BUS STOP	ROUTE ID	EXIT DATE AND TIME	...	
	100001	MON	07:00	90001	90011	30001	08:00	...	
	100002	MON	07:15	90002	90012	30001	09:30	...	
	100003	MON	07:30	90003	90013	30001	10:50	...	
	100004	MON	07:45	90004	90014	30002	08:00	...	
	100005	MON	08:00	90005	90015	30003	09:00	...	
	...	...	...	...	...	...	...	...	