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Description

INFORMATION DELIVERY SYSTEM, INFORMATION DELIVERY APPARATUS, INFORMATION DELIVERY METHOD AND INFORMATION DELIVERY PROGRAM

Technical Field

The present invention relates to an information delivery system for delivering information to respective users on the basis of attribute information of the users previously registered for the respective users, an information delivery apparatus, an information delivery method and an information delivery program.

Background Art

Conventionally, a so-called push type information delivery service has been performed in which information is delivered to a user based on registered contents. In this service, users previously register the type or the like of information whose delivery is requested from an information provider, and the information provider delivers the information to the respective users on the basis of the registered contents.

Specifically, the user previously registers the kind of information desired to be delivered, for example, fashion, music, sports or the like. The information provider extracts

information corresponding to the registered contents for the respective users from plural pieces of managed information, advertisements provided from advertisers, and the like, and transmits the information extracted here to the user. The transmission of the information is performed by various methods such as wireless communication, telephone, FAX, or electronic mail.

Besides, JP-A-8-18523 discloses that information is delivered to a user passing through an automatic ticket gate. First, the user has a portable storage medium usable as a commutation ticket. This portable storage medium previously stores an ID number and the kind of information desired to be delivered. Further, the user has a portable information terminal identified by the ID number.

When the user inserts the portable storage medium, the automatic ticket gate reads the ID number stored in the portable storage medium and the field of information, that is, the kind of information, the delivery of which is desired by the user, and transmits the read ID number and the field of the information to a system management apparatus.

The system management apparatus delivers information consistent with the received field of information to the portable information terminal identified by the received ID number, that is, the portable information terminal owned by the user.

However, since the delivery destination of the information or the kind of the information desired to be delivered is stored in the portable storage medium owned by the user, the system management apparatus has been unable to manage the user, for example, has been unable to change the delivery destination of the information.

Besides, the system management apparatus has been unable to known the attribute of the user, such as gender, age or occupation of the user as the destination of the information, and has merely delivered the information of the kind desired by the user. Thus, there has been a problem that an advertiser can not deliver information to users narrowed in age, occupation and the like.

Further, even for the same user, the subsequent object is different between a case of entrance into a facility after passing through an automatic ticket gate and a case of exit from the facility. For example, a user having entered a station moves to another station, and acts in the vicinity of the station moved. Accordingly, the information necessary for the user having entered a station is not information of the vicinity of the station entered, but information of the vicinity of the other station to which the user moves after this. On the other hand, when having exited from a station, the user acts in the vicinity of the station, and accordingly, it is the information of the vicinity of the station exited.

As stated above, although necessary information is different between the user having entered the facility and the user having exited from the facility, in the system disclosed in the above publication, it has been impossible to deliver information after distinguishing between the user entered and the user exited.

An object of the invention is to provide an information delivery system in which users can be managed by enabling delivery destinations of information to be changed, an information delivery apparatus, an information delivery method and an information delivery program.

Besides, another object of the invention is to provide an information delivery system in which delivery of information to users narrowed in age, occupation or the like can be performed, an information delivery apparatus, an information delivery method and an information delivery program.

Further, another object of the invention is to provide an information delivery apparatus applied to an information delivery system in which a service to users is improved by delivering information of content according to the actions of the users.

Disclosure of the Invention

An information delivery system of this invention has the following structure in order to solve the above problem.

(1) There are provided with:

plural identification code readers including:

read means installed in plural stations, for reading an identification code from a recording medium recording the identification code of a user having entered a station or exited from a station; and

identification code transmission means for transmitting the identification code read by the read means, entrance/exit information indicating entrance/exit of the user, and present position information indicating a present position of the user, and

an information delivery apparatus including:

identification code reception means for receiving the identification code, the entrance/exit information and the present position information transmitted from the identification code transmission means;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information;

delivery information extraction means for extracting from the delivery information storage means, for each of the

identification codes stored in the attribute information storage means, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

In this structure, the identification code of the user recorded in the recording medium is read by the identification code reader installed in the station, and the identification code of the user, the entrance/exit information indicating the entrance/exit of the user, and the present position information indicating the present position of the user are

transmitted to the information delivery apparatus.

As the identification code reader, an automatic ticket gate installed in a station can be used. Besides, as the recording medium recording the identification code of the user, a commutation ticket used by the user for attending office or attending school can be used.

The commutation ticket records information such as an identification code for identification of the commutation ticket, a valid section, and a valid period. The commutation ticket is formed of a magnetic card in which these pieces of information are recorded as magnetic data, a contact IC card in which they are recorded as electronic data, a non-contact IC card, or the like.

The automatic ticket gate includes an automatic ticket gate for restricting entrance of a user into a station (automatic ticket gate for entrance), and an automatic ticket gate for restricting exit of a user from a station (automatic ticket gate for exit). The automatic ticket gate for entrance reads information recorded in the commutation ticket owned by the user, judges whether or not the commutation ticket is valid, and when a judgment of availability is made, it opens a gate to allow the user to enter the station, and on the other hand, when a judgment of unavailability is made, it closes the gate to restrict the entrance of the user into the station. Besides, the automatic ticket gate for exit reads information

recorded in the commutation ticket owned by the user, judges whether or not the commutation ticket is valid, and when a judgment of availability is made, it opens a gate to allow the user to exit from the station, and on the other hand, when a judgment of unavailability is made, it closes the gate to restrict the exit of the user from the station. From this, when the automatic ticket gate having read the identification code of the user is the automatic ticket gate for entrance, the user identified by the identification code is the user having entered the station, and on the other hand, when the automatic ticket gate having read the identification code of the user is the automatic ticket gate for exit, the user identified by the identification code is the user having exited from the station. Further, the present position of the user is a place where the automatic ticket gate having read the identification code of the user is installed.

Accordingly, when information indicating entrance use or exit use, and information indicating the installation place are stored in the automatic ticket gate, the automatic ticket gate having read the identification code of the user recorded in the commutation ticket can be made to transmit the identification code of the user, the entrance/exit information indicating the entrance/exit of the user, and the present position information indicating the present position of the user to the information delivery apparatus.

In the information delivery apparatus, for each of the identification codes, various pieces of information, for example, not only the name, gender, age and occupation of the user, but also user's liking such as an interest or taste, and further, information indicating the delivery destination of the delivery information, that is, an apparatus by which the user can receive and confirm the transmitted delivery information, a use section and the like are stored as the attribute information in the attribute information storage means. A general user of a commutation ticket uses the commutation ticket for movement between two stations where he/she usually gets on and off, and a section (use section) between the two stations is set to be a valid section of the commutation ticket. For example, the user using the commutation ticket for attending office or attending school sets a section between a station near user's home and a station near a company or a school to be the valid section. However, there is also a user who sets a section including a section between two stations where he/she usually gets on and off to be the valid section. As stated above, the valid section of the commutation ticket is not necessarily the use section indicating two stations where the user usually gets on and off. By providing the use section in the attribute information, two stations where the user usually gets on and off can be accurately obtained.

In the information delivery apparatus, the delivery information extraction means previously extracts from the delivery information storage means in which the plural pieces of delivery information are stored, for each of the identification codes whose attribute information is stored in the attribute information storage means, that is, for each of the users, the delivery information suited to the attribute (interest, taste, etc.) of the user with respect to each of the two stations corresponding to the use section and at each of entrance and exit and, and the delivery information extracted here for each of the identification codes is classified by station and entrance/exit and is stored in the extracted information storage means. Plural pieces of delivery information provided from advertisers such as enterprises or stores are stored in the delivery information storage means. It is presumed that the user of the commutation ticket passes through the automatic ticket gate four times a day in total:

① entrance into a station near a home,

② exit from a station near a company or a school,

③ entrance into the station near the company or the school, and

④ exit from the station near the home.

The information delivery apparatus previously extracts the delivery information to be delivered to the user in the

case of ① to ④ and stores it in the extracted information storage means.

When the identification code reception means receives the identification code of the user, the entrance/exit information and the present position information, the information delivery apparatus reads out the delivery information corresponding to the received identification code of the user, the entrance/exit information and the present position information from the extracted information storage means, and transmits the delivery information read out here to the delivery destination included in the attribute information.

As stated above, since the information delivery apparatus previously extracts, for each of the users, the delivery information to be delivered, and causes the extracted information storage means to store it, when the identification code transmitted from the identification code reader is received, the delivery information can be immediately transmitted to the user. Accordingly, a time passing before the delivery information is transmitted to the user can be shortened, and for example, to the user having entered the station, the delivery information can be transmitted before the user gets on a train.

Besides, in the information delivery apparatus, since the delivery information indicating the attribute of the user

including the delivery destination is stored in the attribute information storage means, the user can be managed, for example, the delivery destination of the delivery information can be changed for each of the users. Besides, by using the attribute information, an advertiser can delivery the information to users narrowed in age, occupation and the like, and the information can be efficiently delivered.

Besides, the delivery destination of the delivery information is made a portable telephone owned by the user, and the delivery information transmission means may be made to transmit the delivery information by electronic mail.

In this case, since consideration may not be paid to the communication distance when the information delivery apparatus transmits the delivery information to the portable telephone of the user, one information delivery apparatus can transmit the delivery information to a large number of users. Accordingly, the cost for system construction can be greatly reduced.

Besides, the portable telephones already come into wide use, and many persons own them. Accordingly, since the user does not need to prepare a specific reception apparatus for receiving the delivery information transmitted from the information delivery apparatus, the burden of the user receiving the provision of this service can also be suppressed.

Incidentally, the delivery information includes not only advertisements from advertisers such as enterprises or stores, but also various kinds of information such as news, weather forecast, and traffic information. Besides, the delivery information may be charged for or free. As the paid delivery information, for example, image data of a singer A or music information is conceivable. Besides, the transmission destination of the delivery information is not limited to the portable telephone, but may be another communication equipment such as a telephone or a FAX machine.

Besides, for each automatic ticket gate functioning as the identification code reader, information in which an equipment code for identification of the automatic ticket gate, an entrance/exit type indicating entrance use or exit use, and an installation place are made to correspond to each other may be registered in the information delivery apparatus. In this case, by transmitting the identification code read by the identification code reader and its own equipment code to the information delivery apparatus, the information delivery apparatus can obtain the identification code, the entrance/exit information and the present position information, and the amount of data communicated between the identification code reader and the information delivery apparatus can be held down.

(2) There are provided with:

plural identification code readers including:

read means installed in plural stations, for reading an identification code from a recording medium recording the identification code of a user having entered a station or exited from a station; and

identification code transmission means for transmitting the identification code read by the read means, entrance/exit information indicating entrance/exit of the user, and present position information indicating a present position of the user, and

an information delivery apparatus including:

identification code reception means for receiving the identification code, the entrance/exit information and the present position information transmitted from the identification code transmission means;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information made to correspond to delivery conditions;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information made to correspond

to the delivery condition satisfying the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

In this structure, the delivery conditions are attached to the delivery information. In this point, it is different from the above (1).

As the delivery condition, there are, for example, a gender, an age and the like. By setting the delivery conditions as stated above, it is possible to prevent an advertisement (delivery information) for women from being

delivered to men, or an advertisement for men from being delivered to women.

Besides, for an advertiser, an advertisement can be delivered to users narrowed in age, for example, the thirties, or the like, and efficient advertising becomes possible.

Besides, an information delivery apparatus of this invention comprises the following structure to solve the above problem.

(3) There are included:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute

information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

The information delivery apparatus according to this structure is the apparatus applied to the information delivery system described in the above (1), and has the effect described in the above (1).

(4) The delivery information extraction means extracts, as the delivery information to be delivered at a time of entrance into one station, the delivery information relating to the other station, and extracts, as the delivery information to be delivered at a time of exit from the one station, the delivery information relating to the one

station.

In general, since the user having entered the one station of the use section gets on a train after this and moves to the other station of the use section, as the delivery information to be transmitted to the user, the information relating to the other station of the use section to which the user moves after this is more suitable than the information relating to the entrance station. Besides, as the delivery information to be transmitted to the user having exited from the one station of the use section, the information relating to the exit station is suitable.

In this structure, the delivery information relating to the other station of the use section is extracted as the delivery information to be delivered at the time of the entrance into the one station of the use section, and the delivery information relating to the one station of the use section is extracted as the delivery information to be delivered at the time of the exit from the one station of the use section.

Accordingly, the delivery information suited to the subsequent action of the user can be transmitted to the user.

(5) The delivery information extraction means prohibits the delivery information to be delivered at the time of the entrance into the one station from becoming the same delivery information as the delivery information to be delivered at

the time of the exit from the other station.

In this structure, it is possible to prevent the same delivery information from being delivered to the user in both the entrance into the one station of the use section and the exit from the other station of the use section.

(6) There are included:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information made to correspond to delivery conditions;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information made to correspond to the delivery condition satisfying the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

The information delivery apparatus according to this structure is the apparatus applied to the information delivery system described in the above (2) and has the effect described in the above (2).

(7) There are included:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing

identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code,

wherein the delivery information transmission means includes means for transmitting specific delivery information to a delivery destination corresponding to an identification code for which entrance into the station corresponding to the use section is not confirmed in a predetermined period, among all the identification codes stored in the attribute information storage means.

In this structure, since the specific delivery information is transmitted to the user whose entrance into the station is not confirmed in the predetermined period, for example, when information, such as a service stop of transportation by an accident or disaster, is delivered as the specific delivery information to the user who does not have entered the station, that is, the user who will enter the station hereafter, services to the user can be further improved.

(8) There are included:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code,

wherein the extracted information storage means erases the delivery information transmitted to the delivery

destination by the delivery information transmission means.

In this structure, the delivery information which has been transmitted to the user and becomes unnecessary is erased in the extracted information storage means, so that the storage area of the extracted information storage means can be effectively used, and it is possible to prevent the same delivery information from being delivered many times to the user.

(9) There are included:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information made to correspond to delivery conditions;

identification code extraction means for extracting from the attribute information storage means, for each piece of delivery information stored in the delivery information storage means, an identification code in which the attribute information satisfies the delivery condition;

extracted information storage means for classifying, with respect to each of two stations corresponding to a use section included in the attribute information and by entrance/exit, the delivery information at a time when each of the identification codes is extracted by the identification code extraction means and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

This structure is different from the apparatus of the above (6) in that the identification code extraction means extracts, for each piece of delivery information, the identification code in which the attribute information satisfies the delivery condition, and the extracted information storage means classifies, with respect to each of the two stations corresponding to the use section and by entrance/exit, the delivery information at the time when the identification code is extracted by the identification code

extraction means and stores it. This difference is such that the satisfactory delivery information is extracted with respect to the identification code, or the satisfactory identification code is extracted with respect to the delivery information, and the effect is the same as the above (6).

When the identification code reception means receives the identification code, the delivery information stored in the extracted information storage means is read out by the delivery information transmission means and is transmitted.

(10) There are included:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information made to correspond to information numbers;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information based on the

attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

delivery number storage means for classifying, by station and entrance/exit, the delivery number of the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery number corresponding to the received identification code, the entrance/exit information and the present position information from the delivery number storage means, for reading out the delivery information corresponding to the delivery number from the delivery information storage means, and for transmitting it to a delivery destination corresponding to the received identification code.

In this structure, the information number is made to correspond to the delivery information stored in the delivery information storage means. The delivery information extraction means extracts from the delivery information storage means, for each of the identification codes, the delivery information based on the attribute information with

respect to each of the two stations corresponding to the use section included in the attribute information and at each of entrance and exit. The delivery number storage means stores, for each of the identification codes, the information number of the delivery information extracted by the delivery information extraction means with respect to each of the two stations corresponding to the use section and at each of entrance and exit. When the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information transmission means reads out the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the delivery number storage means, and further reads out the delivery information corresponding to the read information number from the delivery information storage means, and transmits the delivery information read out here to the delivery destination corresponding to the received identification code.

As stated above, the delivery information main body is not stored after being made to correspond to the identification number, but the delivery number of the delivery information is stored, and accordingly, the storage capacity of the delivery number storage means can be made

smaller than the storage capacity of the extracted information storage means. Besides, in the case where there is an error in the delivery information, by only correcting the delivery information stored in the delivery information storage means, the erroneous delivery information is not delivered after this, and the correction of the delivery information can be easily performed.

(11) The delivery information extraction means extracts, as the delivery information to be delivered at a time of entrance into one station, the delivery information relating to the other station, and extracts, as the delivery information to be delivered at a time of exit of the one station, the delivery information relating to the one station.

In this structure, similarly to the above (4), transmission of the delivery information suited to the subsequent action of the user can be performed.

(12) The delivery information extraction means prohibits the delivery information to be delivered at the time of entrance into one station from becoming the same delivery information as the delivery information to be delivered at the time of exit from the other station.

In this structure, similarly to the above (5), it is possible to prevent the same delivery information from being delivered to the user in both the entrance into the one station

of the use section and the exit from the other station of the use section.

(13) There are included:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it;

delivery information transmission means for reading out,

when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code; and

transmission number count means for counting the number of times each piece of delivery information is transmitted by the delivery information transmission means.

Normally, a sum charged to an advertiser is determined in accordance with the number of transmission times. This is because if the same sum is charged for the delivery information hardly delivered to the users and the delivery information delivered to a very large number of users, an advertiser providing the delivery information hardly transmitted to the users is dissatisfied.

In this structure, the transmission number count means counts the number of transmission times each piece of delivery information is transmitted to the user, so that a suitable delivery fee can be charged to the advertiser.

(14) There are included:

identification code reception means for receiving an

identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information made to correspond to delivery conditions;

identification code extraction means for extracting from the attribute information storage means, for each piece of delivery information stored in the delivery information storage means, an identification code in which the attribute information satisfies the delivery condition;

extracted information storage means for classifying, with respect to each of two stations corresponding to a use section included in the attribute information and by entrance/exit, the delivery information at a time when each of the identification codes is extracted by the identification code extraction means and for storing it;

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information

corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code; and

delivery scheduled number count means for counting the identification code extracted by the identification code extraction means for each piece of delivery information, wherein

the delivery condition includes the restricted number of delivery times by which the number of delivery times of the delivery information is restricted, and

the identification code extraction means restricts extraction of the identification code with respect to the delivery information in which a count value of the delivery scheduled number count means reaches the restricted number of delivery times.

In this structure, the scheduled number of times each piece of delivery information is transmitted to the users is counted, and when this count value reaches the restricted number of delivery times, extraction of the identification code by the identification code extraction means is restricted. By this, the number of delivery times each piece of delivery information is transmitted to the users does not

exceed the restricted number of delivery times.

In general, the sum of advertising expenses charged to an advertiser is a sum in proportion to the number of times of information delivery, that is, the number of times of transmission to the users. On the other hand, the advertiser previously sets the sum for the advertising expenses. When the restricted number of delivery times is set in the delivery condition, the advertiser can prevent the advertising expenses over an expected sum from being charged. Accordingly, services to the advertiser can be improved.

(15) There are included:

a first step of receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

a second step of reading out identification codes from attribute information storage means storing the identification codes and attribute information indicating their attributes, and extracting from delivery information storage means storing plural pieces of delivery information, for each of the read identification codes, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance

and exit;

a third step of classifying, by station and entrance/exit, the delivery information extracted at the second step for each of the identification codes and storing it in extracted information storage means; and

a fourth step of reading out, when the identification code, the entrance/exit information and the present position information are received at the first step, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

This information delivery method is the invention of a method corresponding to the information delivery system of the above (1), and has the same effect as the above (1).

(16) A computer is made to execute:

a first step of receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

a second step of reading out identification codes from attribute information storage means storing the

identification codes and attribute information indicating their attributes, and extracting from delivery information storage means storing plural pieces of delivery information, for each of the read identification codes, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

a third step of classifying, by station and entrance/exit, the delivery information extracted at the second step for each of the identification codes and storing it in extracted information storage means; and

a fourth step of reading out, when the identification code, the entrance/exit information and the present position information are received at the first step, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

This information delivery program is the invention of a program corresponding to the information delivery system of the above (1) and has the same effect as the above (1). This information delivery program is executed in the

information delivery apparatus.

Brief description of the Drawings

Fig. 1 is a view showing a structure of an information delivery system of an embodiment of the invention.

Fig. 2 is a view showing a structure of an information delivery apparatus of the embodiment of the invention.

Fig. 3 is a view showing a commutation ticket and data recorded in the commutation ticket.

Fig. 4 is a view showing attribute information managed by a user management apparatus.

Fig. 5 is a view showing an example of delivery information stored in an information delivery apparatus.

Fig. 6 is a view showing a structure of an automatic ticket gate.

Fig. 7 is a view showing an outer appearance of the automatic ticket gate.

Fig. 8 is a view showing the flow of information in the information delivery system of the embodiment of the invention.

Fig. 9 is a flowchart showing an operation of the automatic ticket gate.

Fig. 10 is a view showing passage information transmitted from the automatic ticket gate.

Fig. 11 is a flowchart showing a delivery information extraction processing.

Fig. 12 is a view for explaining a structure of an

extracted information storage part.

Fig. 13 is a flowchart showing a delivery processing.

Fig. 14 is a flowchart showing the delivery processing.

Fig. 15 is a flowchart showing a delivery information extraction processing according to another embodiment.

Fig. 16 is a view for explaining a structure of an extracted information storage part.

Fig. 17 is a flowchart showing a delivery processing according to another embodiment.

Fig. 18 is a flowchart showing a delivery information extraction processing according to another embodiment.

Fig. 19 is a flowchart showing an operation of an information delivery apparatus according to another embodiment.

Fig. 20 is a flowchart showing a delivery information extraction processing according to another embodiment.

Fig. 21 is a flowchart showing a delivery processing according to another embodiment.

Fig. 22 is a flowchart showing a delivery person list registration processing according to another embodiment.

Fig. 23 is a view showing a delivery person list according to another embodiment.

Fig. 24 is a flowchart showing an operation of an information delivery apparatus according to another embodiment.

Fig. 25 is a view showing a delivery person list according to another embodiment.

Fig. 26 is a flowchart showing an operation of an information delivery apparatus according to another embodiment.

Fig. 27 is a flowchart showing a delivery information update processing.

Fig. 28 is a flowchart showing an attribute information update processing.

Fig. 27 is a flowchart showing a user identification code update processing.

Fig. 30 is a flowchart showing an operation of an information delivery apparatus according to another embodiment.

Best Mode for Carrying Out the Invention

Fig. 1 is a view showing an information delivery system of an embodiment of this invention. Here, a description will be given of a system, as an example, in which information (delivery information in this invention) is delivered to a user using a commutation ticket mainly for attending office or attending school.

In Fig. 1, reference numeral 1 denotes a railroad company as public transportation. A server apparatus 11 for performing issuance management of tickets such as commutation

tickets or reserved-seat tickets, service management of trains, management of personal information of users to whom commutation tickets or the like are issued is installed in the railroad company 1. Reference numeral 2 denotes a station. An automatic ticket gate 21, an automatic adjustment machine 22, a commutation ticket issuing machine 23 and the like are installed in the station 2. The automatic ticket gate 21 is equivalent to an identification code reader of the invention. Reference numeral 25 denotes a host apparatus for managing passengers in the station 2, and the automatic ticket gate 21 and the automatic adjustment machine 22 are connected thereto. The host apparatus 25 is connected to the server apparatus 11 of the railroad company 1 through a public line. Incidentally, although the commutation ticket issuing machine 23 is not connected to the host apparatus 25, it is connected to the server apparatus 11 of the railroad company 1 through the public line.

Reference numeral 3 denotes an information delivery center. An information delivery apparatus 31 is installed in the information delivery center 3. Fig. 2 is a block diagram showing a structure of the information delivery apparatus 31. The information delivery apparatus 31 includes a control part 311 for controlling the operation of a main body, a delivery information storage part 312 for accumulatively storing delivery information to be delivered to users, an attribute

information storage part 313 for storing, for each of the users, attribute information such as a name, age, gender, interest, and taste of the user and managing the users, an extracted information storage part 314 for storing, for each of the users, the delivery information extracted on the basis of the attribute information from the delivery information stored in the delivery information storage part 311, a transmission part 315 for transmitting (delivering) the delivery information to the user, and a reception part 316 for receiving information transmitted from another equipment.

The delivery information stored in the delivery information storage part 312 includes not only an advertisement requested to be delivered to the users from an advertiser such as an enterprise or a store, but also various kinds of information such as news, weather forecast, and traffic information.

Reference numeral 5 denotes the Internet. The information delivery apparatus 31 installed in the information delivery center 3 is connected to the Internet 5 or the public line (including dedicated line) through wire or wireless. The foregoing server apparatus 11 and the host apparatus 25 are also connected to the Internet 5.

Besides, a host apparatus (not shown) of an advertiser as a provider of the delivery information stored in the

delivery information storage part 312 of the information delivery apparatus 31 is also connected to the Internet 5. The host apparatus of the advertiser can perform a change, deletion or the like of the delivery information stored in the delivery information storage part 312 through the Internet 5.

Reference numeral 6 denotes a user using a commutation ticket 7 for attending office or attending school; and 8, a portable telephone owned by the user 6. This portable telephone 8 can receive an electronic mail. For example, it is the portable telephone 8 of i-mode (registered trademark of NTTDoCoMo). Besides, reference numeral 8 may denote a portable personal computer (so-called notebook computer) having a portable telephone function, or a PDA (Personal Digital Assistants), or may be another communication equipment such as a FAX machine.

The automatic ticket gate 21 is an apparatus for restricting the entrance of the user 6 into the station and the exit from the station, and is installed at a ticket barrier of the station 2. The automatic adjustment machine 22 is an apparatus for adjusting an excess fare when the user 6 having ridden past exists from the station yard. The commutation ticket issuing machine 23 is an apparatus for issuing the commutation ticket 7.

Not only information indicating a valid section, a valid

period and the like, but also a user identification code for identification of the user 6 as an owner of the commutation ticket 7 is recorded as magnetic data in the commutation ticket 7 issued by the commutation ticket issuing machine 23 (see Fig. 3). The commutation ticket 7 is equivalent to a recording medium of this invention.

Incidentally, although this user identification code is a code which is set to identify the commutation ticket at the time of issuance of the commutation ticket 7 in the commutation ticket issuing machine 23, since the user 6 using the issued commutation ticket 7 can be specified, it can be used as the user identification code.

Besides, the attribute information storage part 313 of the information delivery apparatus 31 installed in the information delivery center 3 causes, for each user 6, the user identification code recorded in the commutation ticket 7 owned by the user 6 to correspond to attribute information indicating the attribute of the user 6 and stores them. The attribute information includes information indicating whether or not the user is a person who desires delivery of delivery information, the name, age, gender, and occupation of the user, the type of delivery information desired to be delivered, delivery information desired not to be delivered, necessity/unnecessity of delivery of a train schedule, necessity/unnecessity of delivery of train delay information,

a transmission destination (mail address) of the delivery information, the presence of a request for delivery at the time of getting on a train, the presence of a request for delivery at the time of getting off a train, a boarding section (including a transit station), a home telephone number, a business telephone number, and the like (see Fig. 4).

Incidentally, with respect to the delivery information desired not to be delivered, for example, an advertiser's name is set in the case of the delivery information provided from a specific advertiser, and an area name is set in the case of the delivery information of a specific area. Further, with respect to the boarding section, a station mentioned at the left in Fig. 4 is a station near a home, and a station mentioned at the right is a station near a place of employment or a school. This boarding section is equivalent to a use section of this invention, and the general user 6 purchases the commutation ticket 7 in which this use section is the valid section. Besides, the two stations are spots relating to present position information of this invention. Besides, there is a high possibility that the two stations become present positions of the user 6 judged from the present position information.

The user 6 enters the attribute information in an application blank at the time of purchase of the commutation ticket 7, and a clerk in charge inputs the entered attribute

information into the commutation ticket issuing machine 23 and issues the commutation ticket 7. The commutation ticket issuing machine 23 transmits the inputted attribute information to the server apparatus 11 of the railroad company 1 and the information delivery apparatus 31.

The user identification code is set at the time of issuance of the commutation ticket 7 by the commutation ticket issuing machine 23 as described above, and together with the attribute information, it is transmitted to the server apparatus 11 and the information delivery apparatus 31. Besides, the commutation ticket issuing machine 23 issues the commutation ticket 7 recording the valid section, valid period, and user identification code.

Besides, the user 6 can make an update, such as a change, addition or deletion, at an arbitrary timing to the user's own attribute information stored in the attribute information storage part 313. Specifically, the user 6 operates a personal computer and can access the information delivery apparatus 31 through the Internet 5, and can update the user's own attribute information stored in the attribute information storage part 313. Besides, the update of the attribute information of the user 6 stored in the attribute information storage part 313 can also be performed in the information delivery apparatus 31.

In this embodiment, it is assumed that a mail address

of the user 6 stored as the attribute information is a mail address of the portable telephone 8 owned by the user 6, and a description will be given below. This mail address becomes a delivery destination (transmission destination) of the delivery information.

Plural pieces of delivery information provided from advertisers are stored in the delivery information storage part 312 of the information delivery apparatus 31. These pieces of delivery information may be given a delivery condition described below. The delivery condition is a condition under which the advertiser classifies users into the user 6 to whom the delivery information is to be delivered and the user 6 to whom the delivery information is not to be delivered, and the advertiser can freely set it. For example, in the case of the advertiser who provides delivery information for women, the user 6 to whom the delivery information is to be delivered can be restricted to only women. That is, setting can be performed such that the delivery information is not delivered to men. Besides, setting of an age group (twenties, thirties, etc.) can also be performed.

Fig. 5 is a view showing an example of the delivery information stored in the delivery information storage part. The delivery information storage part 312 causes a delivery condition (see Fig. 5A) to correspond to delivery information (see Fig. 5B) and stores them. Besides, the delivery

information is given a delivery information number for identification of the delivery information. The example shown in Fig. 5 indicates the delivery condition for narrowing down users to whom the delivery information is to be delivered to persons who are women, are 20 to 29 years old, and go through Shinjuku station. The delivery information number is K0001.

The valid period of the delivery information is limited to a period of from September 1, 2000 to October 31, 2000. When the valid period expires, this delivery information is not delivered to the user 6.

The information delivery apparatus 31 classifies the delivery information provided from the advertisers into types of sports, movie, music, fashion and the like, and further finely classifies it under the delivery condition to manage it. The delivery information is managed in this way, so that the processing of extracting the delivery information to be delivered to the respective user 6 from the delivery information stored in the delivery information storage part 312 can be efficiently carried out, and a time taken for the processing can be suppressed.

Next, the automatic ticket gate 21 will be described. The automatic ticket gate 21 is an apparatus for restricting the entrance of the user into the station yard or the exit of the user from the station yard. Fig. 6 is a block diagram showing a structure of the automatic ticket gate 21, and Fig.

7 is a view showing the outer appearance of the automatic ticket gate 21.

The automatic ticket gate 1 includes a control part 211 for controlling the operation of a main body, a storage part 212 for storing information used at the time of the operation and information generated at the time of the operation, a clocking part 213 for clocking the present time, a transmission part 214 for transmitting information to the host apparatus 25, an insertion detection part 215 for detecting that a ticket such as a commutation ticket or a pasteboard is inserted into the main body, a transfer part 216 for transferring the ticket inserted into the main body, a read part 217 for reading data recorded in the ticket under transfer, and a door driving part 218 for opening and closing a door 218a to restrict the passage of the user 6. The automatic ticket gate 21 closes the door 218a to forbid the user 6 from passing through a passage, and restricts the entrance into the station or the exit from the station.

The automatic ticket gate 21 includes an insertion port 216a for insertion of a ticket at the right of an entrance of the passage, and a release port 216b for releasing the ticket inserted into the main body at the right of an exit. A transfer passage 216c for transferring the ticket is provided between the insertion port 216a and the release port 216b. An insertion detection sensor 215a for detecting the

insertion of a ticket is provided at the insertion port 216a. When this insertion detection sensor 215a detects the insertion of the ticket, the transfer part 216 transfers the ticket inserted into the insertion port 216a to the release port 216b. Besides, a magnetic head 217a reads data recorded in the ticket transferred through the transfer passage 216c.

In Fig. 7, when the passing direction is a direction toward the station, the automatic ticket gate 21 is for entrance, and on the other hand, when it is a direction toward the outside from the station yard, the automatic ticket gate 21 is for exit.

Besides, the storage part 214 stores a gate code for identification of its own apparatus, and information indicating whether its own apparatus is for entrance or for exit. The above gate code is equivalent to present position information of this invention.

Incidentally, when the automatic ticket gate 21 for entrance and the automatic ticket gate 21 for exit are arranged to be opposite to each other at both sides of a passage, one passage can be used for two-way passing.

Hereinafter, the operation of the information delivery system of this embodiment will be described.

At first, the flow of information between the respective equipments in the information delivery system of this embodiment will be described in brief. Fig. 8 is a view showing

the flow of the information.

The automatic ticket gate 21 reads the information, such as the user identification code, valid period, and valid section, from the commutation ticket 7 of the user 6. The information delivery apparatus 31 receives the passage information from the automatic ticket gate 21. This passage information includes the user identification code, valid period, valid section, gate code, passage time, and entrance/exit information. The details of this passage information will be described later. The information delivery apparatus 31 delivers the delivery information to the portable telephone 8 of the user 6 via electronic mail on the basis of the passage information transmitted from the automatic ticket gate 21. The information delivery apparatus 31 extracts the suitable delivery information from the delivery information stored in the delivery information storage part 312 on the basis of the attribute information of the user 6, the delivery condition of the delivery information, and the passage information, and transmits the extracted delivery information to the user 6. The user 6 can confirm the delivery information transmitted from the information delivery apparatus 31 in the portable telephone 8.

Incidentally, in this embodiment, the automatic ticket gate 21 does not directly transmit the passage information

to the information delivery apparatus 31, but transmits the passage information to the information delivery apparatus 31 through the host apparatus 25 provided in the station 2.

Hereinafter, the operation of the information delivery system of this embodiment will be described in detail.

First, the user 6 inserts the commutation ticket 7 into the automatic ticket gate 21 in order to enter the station or to exit from the station.

Fig. 9 is a flowchart showing the operation of the automatic ticket gate.

Incidentally, the automatic ticket gate 21 for entrance is taken as an example and a description will be given.

When the automatic ticket gate 21 detects that the commutation ticket 7 is inserted into the insertion port 216a by the insertion detection sensor 215a (s1), the transfer part 216 starts the operation of the transfer passage 216c, and starts the transfer of the commutation ticket 7 inserted into the insertion port 216a (s2). The commutation ticket 7 is transferred to the release port 216b.

The read part 217 reads the user identification code, the valid period, and the valid section recorded as the magnetic data in the transferred commutation ticket 7 by the magnetic head 217a (s3). The control part 211 judges whether or not the present time is within the valid period read at s3 (s4), and whether or not the station is a station within

the valid section (s5).

When judging that it is within the valid period and within the valid section, the automatic ticket gate 21 transmits the passage information including the user identification code and the entrance information to the host apparatus 25 (s6), and opens the door 218a (s7). The details of the passage information will be described later. This passage information is transferred to the information delivery apparatus 31 from the host apparatus 25 in real time.

Incidentally, the automatic ticket gate 21 may directly transmit the passage information to the information delivery apparatus 31.

When transferring the commutation ticket 7 to the release port 216b (s8), the automatic ticket gate 21 stops the operation of the transfer passage 216c (s9). The automatic ticket gate 21 is on standby for sufficient time for the user 6 to pass through (s10), and closes the door 218a thereafter (s11). Accordingly, the user 6 can enter the station yard through the passage.

Incidentally, the user 6 holds the commutation ticket 7 transferred to the release port 216b and enters the station yard.

On the other hand, when judging at s4 that it is not within the valid period, or judging at s5 that it is not within the valid section, the automatic ticket gate 21 judges at s12

whether or not the door 218a is opened (s12), and when it is opened, the automatic ticket gate closes it at s11 and forbids the user 6 to pass through the passage. Accordingly, the user 6 can not enter the station yard through the passage.

Incidentally, also in this case, the commutation ticket 7 is transferred to the release port 216b, and is returned to the user 6.

As stated above, the automatic ticket gate 21 reads the magnetic data (valid section, valid period, user identification code, etc.) recorded in the inserted commutation ticket 7, and judges whether or not the entrance of the user 6 into the station yard is allowed.

Incidentally, here, although the commutation ticket 7 is the magnetic ticket in which the valid section, the valid period, the user identification code and the like are recorded as the magnetic data, it may be a well-known non-contact IC ticket or a contact IC ticket, and further, the portable terminal 8 may be used as the commutation ticket 7. In this case, in the automatic ticket gate 21, the insertion detection part 215 and the transfer part 216 can be made unnecessary. The read part 217 has only to be replaced by a structure in which the user identification code and the like can be read from the commutation ticket 7.

Here, the passage information transmitted by the automatic ticket gate 21 at s6 will be described. The passage

information includes the user identification code, the valid period and the valid section read from the commutation ticket 7, and further includes a gate code for identification of its own apparatus stored in the storage part 212, the time of passage of the user 6, and entrance/exit information indicating whether the user enters the station or exits therefrom (see Fig. 10). The gate code may be information directly indicating the place where the automatic ticket gate 21 is installed, or may be simply a number for identification of the automatic ticket gate 21. In this case, information from which the installation place of the automatic ticket gate 21 can be judged by using the gate code as a key, has only to be stored at the side of the information delivery apparatus 31.

Besides, the entrance/exit information of the passage information outputted from the automatic ticket gate 21 for entrance indicates the entrance, and the entrance/exit information of the passage information outputted from the automatic ticket gate 21 for exit indicates the exit.

Further, when a judgment as to whether the automatic ticket gate 21 is for entrance or for exit is enabled from the gate code, the entrance/exit information can be made unnecessary.

The host apparatus 25 accumulatively stores the passage information transmitted from the automatic ticket gate 21,

and transmits this passage information to the information delivery center 3, that is, the information delivery apparatus 31 through the Internet 5 or the public line in real time. Besides, the host apparatus 25 transmits the accumulatively stored passage information at a predetermined timing to the server apparatus 11 installed in the railroad company 1. The server apparatus 11 stores and manages the passage information transmitted from the host apparatus 25, and collects and manages the use state of the respective user 6.

Next, the operation of the information delivery apparatus 31 installed in the information delivery center 3 will be described.

The information delivery apparatus 31 delivers the delivery information to each of the users 6 whose attribute information is stored in the attribute information storage part 313. As the delivery information to be delivered to the respective users 6, the delivery information extracted on the basis of the attribute information of the user 6 from the delivery information stored in the delivery information storage part 312 is delivered.

The information delivery apparatus 31 of this embodiment performs a delivery information extraction processing in which the delivery information to be delivered is previously extracted for each of the users 6 from the

delivery information storage part 312, and the delivery information extracted here for each of the users 6 is stored in the extracted information storage part 314. This delivery information extraction processing is performed in the night when there is no user 6 using the automatic ticket gate 21.

A general user of a commutation ticket passes through an automatic ticket gate in a day four times in total:

① entrance into a station near a home,

② exit from a station near a company or a school,

③ entrance into the station near the company or the school, and

④ exit from the station near the home.

Accordingly, it is assumed that the passage information is transmitted four times for each of the users 6, the information delivery apparatus 31 extracts the delivery information to be delivered to the user 6 at each of the four times, and previously stores it in the extracted information storage part 314. This processing is the delivery information extraction processing. Hereinafter, the delivery information extraction processing will be described in detail.

Fig. 11 is a flowchart showing the delivery information extraction processing.

The information delivery apparatus 31 performs processings of s21 to s33 described below with respect to all the users 6 whose attribute information is stored in the

attribute information storage part 313, and when they are completed for all the users 6 (s34), this processing is ended. The processings of s21 to s33 are carried out in the order of registration in the attribute information storage part 313.

The information delivery apparatus 31 reads out the attribute information corresponding to the user identification code from the attribute information storage part 313 (s21). The information delivery apparatus 31 extracts the delivery information to be delivered at the time of entrance into the station near the home with respect to the user 6 whose attribute information is read at s21 (s22). At this time, the information delivery apparatus 31 sets a spot relating to the station near the home to be the station near the company, and extracts the delivery information relating to the station near the company.

At s22, the delivery information is extracted on the basis of the attribute information of the user 6 and in view of the interest, taste, and the like of the user 6. Besides, information of the vicinity of the place of employment as the destination is extracted. In the extracted information storage part 314, four delivery information storage regions (regions A to D) made to correspond to the user identification code are assigned to each of the users 6 (see Fig. 12). The region A is a region where the delivery information to be

delivered to the user 6 at the time of entrance into the station near the home is stored, the region B is a region where the delivery information to be delivered to the user 6 at the time of exit from the station near the place of employment is stored, the region C is a region where the delivery information to be delivered to the user 6 at the time of entrance into the station near the place of employment is stored, and the region D is a region where the delivery information to be delivered to the user 6 at the time of exit from the station near the home is stored. The delivery information body to be delivered to the user 6 is stored in the respective regions A to D.

Incidentally, in Fig. 12, the contents of the regions B and D of a certain user 6 are nothing, and this is because this user 6 does not desire delivery of the delivery information at the time of exit from the station.

The information delivery device 31 stores the delivery information extracted at s22 into the region A of the corresponding user 6 (s23). Next, the delivery information device 31 extracts the delivery information to be delivered to the user 6 at the time of exit from the station near the place of employment (s24). At this time, the information delivery apparatus 31 sets a spot relating to the station near the place of employment to be the station near the place of employment, and extracts the delivery information relating

to the station near the place of employment. Accordingly, there is a possibility that the delivery information extracted at s24 is identical to the delivery information extracted at s22. Thus, a judgment is made at s25 as to whether it is identical to the delivery information stored in the region A, and if it is identical, different delivery information is extracted (s26).

Incidentally, also when the delivery information is extracted at s24 or s26, the delivery information is extracted on the basis of the attribute information of the user 6 and the delivery condition attached to the delivery information.

The information delivery apparatus 31 stores the delivery information extracted at s24 or s26 in the region B of the corresponding user 6 (s27).

Further, the information delivery apparatus 31 extracts the delivery information to be delivered to the user 6 at the time of entrance into the station near the place of employment (s28). At this time, the information delivery apparatus 31 sets a spot relating to the station near the place of employment to be the station near the home, and extracts the delivery information relating to the station near the home. The information delivery apparatus 31 stores the delivery information extracted at s28 in the region C of the corresponding user 6 (s29).

The information delivery apparatus 31 extracts the

delivery information to be delivered to the user 6 at the time of exit from the station near the home (s30). At this time, the information delivery apparatus 31 sets a spot relating to the station near the home to be the station near the home, and extracts the delivery information relating to the station near the home or the information relating to tomorrow. Accordingly, there is a possibility that the delivery information extracted at s30 is identical to the delivery information extracted at s28. Thus, a judgment is made at s31 as to whether or not it is identical to the delivery information stored in the region C, and if identical, different delivery information is extracted (s32).

The information delivery apparatus 31 stores the delivery information extracted at s30 or s32 in the region D of the corresponding user 6 (s33).

Incidentally, also when the delivery information is extracted at s28, s30 or s32, the delivery information is extracted on the basis of the attribute information of the user 6 and the delivery condition attached to the delivery information.

As stated above, the information delivery apparatus 31 of this embodiment extracts the delivery information to be delivered while the spot relating to the entrance station (present position information) at the time of entrance is set to be the station of the destination, and extracts the

delivery information to be delivered while the spot relating to the exit station (present position information) at the time of exit is set to be the vicinity of the exit station.

By this, in an after-mentioned information delivery processing, the delivery of the delivery information corresponding to the entrance into and the exit from the station can be performed for the user 6. Besides, since the steps s25, s26, s31 and s32 are provided, the same delivery information is not delivered many times to the user 6.

Next, the delivery processing of the information delivery apparatus 31 will be described. Figs. 13 and 14 are flowcharts showing the delivery processing.

When receiving the passage information transmitted from the host apparatus 25 (s41), the information delivery apparatus 31 uses the received passage information and the attribute information corresponding to the user identification code of the passage information stored in the attribute information storage 313 and judges whether the user 6

① has entered the station near the home,

② has exited from the station near the place of employment,

③ has entered the station near the place of employment,

④ has exited from the station near the home,

⑤ has entered a station other than the station near the

home and the station near the place of employment, or

⑥ has exited from a station other than the station near the home and the station near the place of employment (s42 to s46).

In the case where it is judged that the user 6 has entered the station near the home, the information delivery apparatus 31 judges whether or not transmission has been completed in the region A corresponding to the user 6 (s47). If the transmission has not been completed at s47, the delivery information stored in the region A is transmitted to the portable telephone 8 of the user 6 by electronic mail (s48). The mail address of this portable telephone 8 is registered as the attribute information. When transmitting the delivery information stored in the region A to the user 6, the information delivery apparatus 31 deletes the delivery information stored in the region A and rewrites the region A such that the transmission has been completed (s49). Further, the information delivery apparatus 31 increments by one a counter which is provided to the delivery information transmitted to the user 6 and counts the number of times of transmission (s50).

In the case where it is judged at s47 that the transmission has been completed, the information delivery apparatus 31 completes this processing without performing processings of s48 to s50.

The counter is provided for each piece of delivery information stored in the delivery information storage part 312, and counts the number of delivery times each piece of delivery information is delivered to the user 6. Normally, a delivery fee charged to an advertiser is determined in accordance with the number of times of delivery. This is because if deliver fees are made identical to each other between the delivery information hardly delivered to the users 6 and the delivery information delivered to a very large number of users 6, dissatisfaction arises among advertisers. In the information delivery apparatus 31 of this embodiment, the number of times of delivery is counted by the counter for each piece of delivery information, so that a suitable delivery fee can be charged to the advertiser.

Besides, when the delivery information stored in the extracted information storage part 314 is delivered, this delivery information is deleted from the extracted information storage part 314, and rewriting is performed such that the transmission has been completed, and therefore, the same delivery information is not delivered to the user many times.

For example, in the case where the user 6 having entered the station near the home to go to the office returns to the home to fetch a thing left behind, and has again entered the station near the home while holding the thing left behind,

although the delivery information stored in the region A is delivered to the user 6 at the first entrance, when the user has again entered the station near the home while holding the thing left behind, the transmission has been completed in the region A, and the same delivery information is not delivered to the user 6.

Incidentally, in the case where the same delivery information is delivered to the same user 6 many times, the user 6 feels annoying, and further, the delivery fee is uselessly charged to the advertiser from the above reason, and this is not desirable.

Besides, in the processings of s42 to s46, when it is judged that the user 6 has exited from the station near the place of employment, it is judged whether or not the transmission has been completed in the region B (s51), and if the transmission has not been completed, the delivery information stored in the region B is delivered (s52), the region B is rewritten such that the transmission has been completed (s53), and a counter, which is provided to the transmitted delivery information and counts the number of times of transmission, is incremented by one (s50).

Besides, in the processings of s42 to s46, when it is judged that the user 6 has entered the station near the place of employment, it is judged whether transmission has been completed in the region C (s54), and if transmission has not

been completed, the delivery information stored in the region C is delivered (s55), the region C is rewritten such that the transmission has been completed (s56), and a counter, which is provided to the transmitted delivery information and counts the number of times of transmission, is incremented by one (s50).

Further, in the processings of s42 to s46, when it is judged that the user 6 has exited from the station near the home, it is judged whether or not transmission has been completed in the region D (s57), and if the transmission has not been completed, the delivery information stored in the region D is delivered (s58), the region D is rewritten such that the transmission has been completed (s59), and a counter, which is provided to the transmitted delivery information and counts the number of times of transmission, is incremented by one (s50).

When the information delivery apparatus 31 judges at the processings of s42 to s46 that the user 6 has entered a station other than the station near the home and the station near the place of employment, since it is impossible to judge where the user 6 intends to go after this, that is, the destination can not be judged, the information delivery apparatus 31 ends the processing without transmitting the delivery information. By this, the delivery information is not wastefully transmitted to the user 6.

Finally, when judging at s42 to s46 that the user 6 has exited from a station other than the station near the home and the station near the place of employment, the information delivery apparatus 31 extracts the delivery information, which relates to the vicinity of the station where the user 6 has exited and is based on the attribute information of the user 6 and the delivery condition, from the delivery information storage part 312 (s60). The information delivery apparatus 31 transmits the delivery information extracted at s60 to the portable telephone 8 of the user 6 by electronic mail (s61), and then, performs the above step s50.

As stated above, by providing s46, s60 and s61, even in the case where the user 6 gets off at an intermediate station within the valid section of the commutation ticket 7, the information delivery apparatus 31 of this embodiment can deliver the user 6 the information of the vicinity of the station where he/she gets off.

Besides, since the structure is adopted such that the information delivery apparatus 31 previously extracts the delivery information to be delivered to the user 6 and stores it in the extracted information storage part 314, when the passage information of the user 6 is transmitted from the host apparatus 25, the delivery information can be immediately transmitted to the user 6. Accordingly, when the user 6 has entered the station, the delivery information can be

transmitted to the user 6 before he/she gets on a train.

Next, another embodiment of this invention will be described. In the information delivery system of the above embodiment, the delivery information body extracted at the delivery information extraction processing shown in Fig. 11 is stored in the regions A to D of the relevant user 6 provided in the extracted information storage part 314, however, in this embodiment, a delivery information number attached to the delivery information is stored.

Hereinafter, a delivery information extraction processing in an information delivery apparatus 31 in this embodiment will be described.

Incidentally, an operation of an automatic ticket gate 21, data recorded in a commutation ticket 7 are the same as those of the above embodiment, and the explanation will be omitted here. Besides, attribute information of each of users 6 stored in an attribute information storage part 313 is also the same.

Fig. 15 is a flowchart showing the delivery information extraction processing of the information delivery apparatus of this embodiment.

Incidentally, the same processing as Fig. 11 is denoted by the same step number (s**).

The information delivery apparatus 31 performs the above processings of s21 and s22, and stores a delivery

information number attached to extracted delivery information into a region A of the relevant user 6 (s71). The information delivery apparatus 31 performs the above processings of s24, s25 and s26 and stores a delivery information number attached to extracted delivery information into a region B of the relevant user 6 (s72). Besides, the information delivery apparatus 31 performs the above processing of s28 and stores a delivery information number attached to extracted delivery information into a region C of the relevant user 6 (s73). Further, the information delivery apparatus 31 performs the above processings of s30, s31 and s32, and stores a delivery information number attached to extracted delivery information into a region D of the relevant user 6 (s72).

When the processings of s21 to s74 are performed for all the users 6 whose attribute information is stored in the attribute information storage part 313, this processing is ended.

Fig. 16 is a view showing the storage contents of the extracted information storage part. Similarly to the case shown in Fig. 12, the four regions A to D are assigned to each of the users 6. However, in each of the regions A to D, not delivery information body to be delivered to the user 6, but the delivery information number attached to the delivery information is stored. Accordingly, as compared with the

above embodiment, the storage capacity of the extracted information storage part 313 can be made small. The extracted information storage part 313 in this embodiment is equivalent to the delivery number storage means of this invention.

Next, a delivery processing of the information delivery apparatus 31 of this embodiment will be described. Although the delivery processing of the information delivery apparatus 31 of this embodiment is substantially identical to the processing shown in Figs. 13 and 14, processings of s48, s52, s55 and s58 are different. Specifically, these four processings are respectively replaced by processings of s81 to s83 shown in Fig. 17 and an operation is performed.

The information delivery apparatus 31 reads out the delivery information number stored in a region * (s81). Here, the region * denotes one of the regions A to D, and it is the region A when the processing is replaced by s48; the region B when the processing is replaced by s52; the region C when the processing is replaced by s55; and the region D when the processing is replaced by s58.

The information delivery apparatus 31 uses the delivery information number read out at s81 as a key to search the delivery information stored in the delivery information storage 312, and reads out the delivery information with the relevant delivery information number (s82). The information delivery device 31 transmits the delivery information read

out at s82 to a portable telephone 8 of the user 6 by electronic mail (s83).

Incidentally, also in the information delivery apparatus 31 of this embodiment, similarly to the apparatus of the above embodiment, with respect to the region where the delivery information having delivered to the user 6 has been stored, the delivery information number is deleted and rewriting is performed such that the transmission has been completed.

As stated above, when transmitting the delivery information to the portable telephone 8 of the user 6, the information delivery apparatus 31 of this embodiment reads out the delivery information from the delivery information storage part 312 and transmits it, and accordingly, a correction can be easily made in the case where there is an error in the delivery information stored in the delivery information storage part 312. Specifically, the delivery information stored in the delivery information storage part 312 has only to be corrected. Thus, time required for the correction of the delivery information can be reduced.

Incidentally, in the information delivery system of the above embodiment, with respect to the delivery information stored in the extracted information storage part 313, a correction has been necessary for each of the user identification codes. That is, with respect to many pieces

of identical delivery information, the correction has been necessary for each of them.

Next, another embodiment of this invention will be described. In delivery information of this embodiment, the restricted number of times to restrict the number of delivery times of delivery information is set as a delivery condition. An advertiser can restrict the number of delivery times of delivery information by the restricted number of times. For example, when the restricted number of times is made 300, deliveries are not made to a total of 301 or more users 6.

Hereinafter, a delivery information extraction processing in an information delivery apparatus 31 of this embodiment will be described.

Incidentally, the operation of an automatic ticket gate 21, data recorded in a commutation ticket 7 and the like are the same as the above embodiment, and the explanation will be omitted here. Besides, attribute information of each of users 6 stored in an attribute information storage part 313 is also the same.

Fig. 18 is a view showing the delivery information extraction processing in the information delivery apparatus of this embodiment.

The information delivery apparatus 31 performs processings of s91 to s96 shown in Fig. 18 for respective pieces of delivery information stored in the delivery

information storage part 312, and when the above processings are performed for all the pieces of delivery information, this processing is ended. The processings of s91 to s96 are performed in the order of storage in the delivery information storage part 312.

The information delivery apparatus 31 reads out delivery information and a delivery condition (s91). Next, for each of the users 6 whose attribute information is stored in the attribute information storage part 313, a user identification code of the user 6 whose attribute information satisfies the delivery condition is extracted (s92). The regions A to D shown in Fig. 12 are provided in an extracted information storage part 314.

The information delivery apparatus 31 stores the delivery information in the corresponding region of the user identification code read out at s92 (s93). The information delivery apparatus 31 increments a counter for counting the expected number of delivery times with respect to this delivery information by one (s94). The information delivery apparatus 31 judges whether or not a count value of the counter for counting the expected number of delivery times reaches the restricted number of times included in the delivery condition of this delivery information (s95).

When judging at s95 that the expected number of delivery times does not reach the restricted number of times, at s96,

for all the users 6 whose attribute information is stored in the attribute information storage part 313, the information delivery apparatus 31 judges whether or not a judgment has been made as to whether the attribute information satisfies the delivery condition (s96). When there remains a user 6 for whom the judgment has not been made at s96 as to whether the attribute information satisfies the delivery condition, the information delivery apparatus 31 returns to s92 and repeats the above processing. When it is judged that there does not remain a user 6 for whom the above judgment has not been made at s96, it proceeds to s97 described below.

On the other hand, when judging at s95 that the expected number of delivery times reaches the restricted number of times, the information delivery apparatus judges whether or not the processing subsequent to s91 is performed for all the pieces of delivery information stored in the delivery information storage part 312 (s97). When judging at s97 that there is delivery information for which the processing subsequent to s91 has not been performed, the information delivery apparatus 31 returns to s91 and repeats the above processing. When judging at s97 that there is no delivery information for which the processing subsequent to s91 has not been performed, the information delivery apparatus 31 ends this processing.

Accordingly, the total number for each piece of delivery

information stored in the extracted information storage part 314 does not exceed the restricted number of times of the delivery information.

A delivery processing of the information delivery apparatus 31 of this embodiment is the same as Figs. 13 and 14, and the explanation will be omitted here. The delivery information transmission processing is

As stated above, according to the information delivery apparatus 31 of this embodiment, in the delivery information extraction processing, the total number for each piece of delivery information stored in the extracted information storage part 314 does not exceed the restricted number of times of the delivery information. Thus, the number of delivery times of each piece of delivery information does not exceed the restricted number of times.

On the other hand, a sum corresponding to the number of deliver times of information, that is, the number of times of transmission to the user 6 is charged as advertising expenses to the advertiser. The advertiser previously sets the sum for the advertising expenses. Accordingly, when the advertiser sets the number of delivery times in the delivery condition, it is possible to prevent the sum charged from the information delivery center 3 from exceeding the expected advertising expenses. Accordingly, the service to the advertiser can be improved.

Incidentally, in this case. the extracted information storage part 314 may be constructed to store the delivery information number shown in Fig. 16.

Next, another embodiment of this invention will be described. Although a structure of an information delivery system of this embodiment is also substantially the same as the above embodiment, a difference is that an information delivery apparatus 31 does not include an extracted information storage part 314.

Incidentally, the operation of an automatic ticket gate 21, data recorded in a commutation ticket 7 and the like are the same as the above embodiment, and the explanation will be omitted here.

Fig. 19 is a flowchart showing the operation of an information delivery apparatus of this embodiment.

When passage information is transmitted from a host apparatus 25, the information delivery apparatus 31 judges whether the passage information indicates entrance of the user 6 into a station yard or exit from the station yard (s101, s102).

When judging at s102 that it indicates the entrance of the user 6 into the station yard, the information delivery apparatus 31 uses a user identification code included in the passage information as a key to acquire attribute information of the relevant user 6 from an attribute information storage

part 313 (s103). From the attribute information acquired here, it is judged whether or not the user 6 desires delivery of delivery information (whether or not the user is a person who desires delivery) (s104), and if not the person who desires the delivery, it returns to s101 and repeats the foregoing processing.

When it is judged at s104 that the user 6 is the person who desires the delivery, a delivery information extraction processing is performed in which delivery information based on the attribute information of the user 6 acquired at s103 is extracted from plural pieces of delivery information stored in the delivery information storage part 311 (s105). The details of the delivery information extraction processing will be described later.

Next, the information delivery apparatus 31 judges whether the user 6 desires the delivery of the delivery information at the time of entrance or at the time of exit (s106), and in case of the time of entrance, it performs a delivery processing for transmitting the delivery information extracted at s75 to the user 6 (s107), returns to s101 and repeats the foregoing processing. The details of this delivery processing will be also described later.

On the other hand, if the user 6 desires the delivery of the delivery information at the time of exit, it registers the user in an after-mentioned delivery person list (s108),

returns to s101 and repeats the foregoing processing. The details of the delivery person list will be described later.

Besides, in the case where the passage information from the host apparatus 25 at s102 indicates the exit of the user 6 from the station yard, it is judged whether or not this user 6 is a user registered in the delivery person list (s111). As is apparent from the above explanation, the user 6 registered in the delivery person list is a user who desires the delivery of the delivery information at the time of exit from the station yard. Accordingly, the attribute information of the user 6 is acquired at s111, and a judgment as to whether the user desires the delivery of the delivery information at the time of exit from the station yard has only to be made.

When judging that the user 6 is registered in the delivery person list, the information delivery apparatus 31 performs an information delivery processing to the user 6 at s102, and after deleting the registration of the user 6 from the delivery person list at s103, it returns to s101 and repeats the foregoing processing.

Incidentally, the information delivery processing at s107 and the information delivery processing at s112 are the same processing.

Next, the delivery information extraction processing at s105 will be described in detail. Fig. 20 is a flowchart indicating the delivery information extraction processing.

In the information delivery apparatus 31, the delivery information is classified by the type as described above, and is further finely classified by the delivery condition and is managed. The information delivery apparatus 31 extracts only the delivery information whose delivery is desired by the user 6 on the basis of the attribute information of the user 6 obtained at s103.

Specifically, all pieces of the delivery information, which have such type that the user 6 desires the delivery and in which the delivery condition given to the delivery information is consistent with the attribute information of the user 6, are extracted from the delivery information stored in the information delivery apparatus 31 (s121). Next, if the delivery information whose delivery is not desired by the user 6 is included in the delivery information extracted at s121, the delivery information is removed (s122). The delivery information whose delivery is not desired by the user 6 is set in the attribute information as described above. Then, the remaining delivery information is made the delivery information to be delivered to the user 6, and delivery data to be delivered to the user 6 is prepared (s123).

The delivery data is prepared in a data format previously specified by the user 6. The delivery data here may be electronic mail, or may be that of another format such as an image or a sound. In the case where the delivery data

is prepared by electronic mail, the delivery information body may be made an attached document, or may be incorporated in the mail body.

A transmission destination and a transmission method of the delivery data prepared at s123 are set in the attribute information of this user 6. For example, a mail address set in the attribute information is the transmission destination.

As stated above, in the information delivery apparatus 31, plural pieces of delivery information are classified by the type, and are further finely classified by the delivery condition and are managed, and accordingly, for example, with respect to a group of delivery information of the type which is not desired by the user, the whole can be neglected at s121 as the delivery information outside a search object. Accordingly, a time taken for the processing of s121 is suppressed, and the processing can be efficiently performed.

Besides, if delivery information which is set in the attribute information and the delivery of which is not desired by the user 6 is included in the delivery information extracted at s121, this delivery information is removed at s122, so that it is possible to substantially certainly prevent useless and wasteful delivery information from being delivered to the user, and efficient delivery of the delivery information can be performed.

Besides, information of an area irrelevant to the

vicinity of the station where the user 6 gets off is not extracted in the processing of s121. The station where the user 6 gets off can be obtained from the information of the valid section of the commutation ticket 7. Besides, the delivery condition made to correspond to the delivery information includes an item in which an area is limited (in the example shown in Fig. 5, a user going through Shinjuku station is an object). Accordingly, since information of an area not very relevant to the user 6 is not extracted, it is possible to prevent wasteful delivery information from being delivered to the user 6.

Besides, in the information delivery apparatus 31, the passage information transmitted from the host apparatus 25 is made to be accumulatively stored for each of the users 6, the subsequent action pattern of the user 6 is made to be predicted by using these pieces of information, and the action pattern predicted here may be used for the extraction of the delivery information at s121. If doing so, it is possible to further certainly prevent useless and wasteful delivery information from being extracted for the user 6. For example, by predicting whether the user makes a stopover or rides past, and by performing the processing of s21 on the basis of the predicted result, it is possible to further certainly prevent useless and wasteful delivery information from being extracted for the user 6.

Next, the information delivery processing of s107 and s112 will be described in detail. Fig. 21 is a flowchart showing the information delivery processing. This processing is a processing in which the delivery data prepared at s123 is read out (s131), and the delivery data is transmitted (s132). For example, when the delivery data prepared at s123 is an electronic mail, the delivery data is transmitted to the portable telephone 8 of the user 6 by the electronic mail.

As described above, the mail address included in the attribute information of the user 6 is the mail address of the portable telephone 8 of the user 6. Accordingly, the user 6 can confirm the electronic mail transmitted from the information delivery apparatus 31, that is, the delivery information in the portable telephone 8.

When the transmission destination to which the information delivery apparatus 31 transmits the delivery information is made the portable telephone 8 of the user 6, contrary to the prior art, it is not necessary for the user 6 to prepare a specific reception apparatus (including a portable telephone having a specific reception function) for receiving the transmitted delivery information. Accordingly, the burden of the user 6 can be suppressed, and the service can be received under a rational infrastructure.

Further, in the conventional system, in order to transmit the delivery information to the user 6, a wireless

base station must be provided for each station from the problem of communication distance or the like, however, in this system, it is not necessary to particularly consider the communication distance between the information delivery apparatus 31 and the portable telephone 8, and the installation place of the information delivery apparatus 31. The information delivery apparatus 31 has only to be provided in the information delivery center 3. By this, the cost necessary for the system construction can be greatly reduced.

Further, when transmission of the delivery information to the user 6 is crowded, even if the user 6 for whom the transmission is delayed goes away from the station, there does not arise a problem that the delivery information can not be transmitted to the user 6. Besides, a structure may be adopted such that a time zone when the delivery is crowded is predicted from a delivery list, and deliberate information delivery can be performed using this predicted result.

Next, the details of the delivery person list registration processing of s108 will be described. Fig. 22 is a flowchart showing the delivery person list registration processing. Besides, Fig. 23 is a view showing a delivery person registration list.

The information delivery apparatus 31 presumes the time when the user 6 reaches a detraining station (s141). The detraining station of the user 6 is one station (station

different from the station of entrance) of the valid section of the commutation ticket 7. The time (arrival estimated time) when the user 6 reaches the detraining station can be substantially accurately presumed. For example, in the presumption of s141, when a train service time table is used, a train on which the user 6 gets can be predicted, and the time when the user 6 reaches the detraining station can be accurately presumed.

Besides, when a past use state is used, since the type (local, rapid service, etc.) of a train on which the user 6 gets can also be obtained, the time when the user 6 reaches the detraining station can be more accurately presumed.

In the delivery person registration list, as shown in Fig. 23(A), records of registrants are arranged in the order of arrival estimated time. This record is, as shown in the drawing, a record in which the arrival estimated time, the user identification code, and the electronic mail prepared at s123 are made to correspond to one another.

The information delivery apparatus 31 prepares the record in which the arrival estimated time is made the time presumed at s141 (s142), and registers this in the delivery person list (s143).

At s143, a record is registered which is prepared such that the respective records are arranged in the order of arrival estimated time in the delivery person registration

list. For example, with respect to the delivery person list shown in Fig. 23(A), a new record prepared at s42 (a record expressed by hatching in Fig. 23(B)) is registered such that the respective records are arranged in the order of arrival estimated time as shown in Fig. 23(B).

Accordingly, the information delivery apparatus 31 judges whether or not the detraining station of the user 6 is a detraining station obtained from the valid section of the commutation ticket 7, and when it is the detraining station obtained from the valid section of the commutation ticket 7 (if the user 6 does not make a stopover), by searching the deliver person list 10 for the records in which the arrival estimated time is within the range of several tens minutes before and after the present time, the delivery data to be transmitted to the user 6 at s112 (delivery data prepared at s123) can be obtained.

Incidentally, when the detraining station of the user 6 is not the detraining station obtained from the valid section of the commutation ticket 7 (in the case where the user 6 makes a stopover, etc.), the arrival time in the case where the user moves to the detraining station obtained from the valid section of the commutation ticket 7 is estimated, and a search has only to be made for such a record that the arrival estimated time of the record is within the range of several tens minutes before and after the arrival time

estimated here. By this, the delivery data to be transmitted to the user 6 (delivery data prepared at s123) can be obtained.

As stated above, the information delivery apparatus 31 can obtain the delivery data to be transmitted to the user at s112 by a restricted search for part of the records registered in the delivery person list.

Incidentally, when the user 6 makes a stopover, the delivery data prepared at s123 is not directly transmitted, and after extraction of delivery information of the vicinity of the station where the user makes a stopover is again performed, the delivery information extracted here may be added to be transmitted to the user. By doing so, the delivery information of the vicinity of the station where the user makes a stopover can also be delivered to the user 6, and the delivery of the information corresponding to the stopover of the user 6 or the like can be performed.

Besides, an information map of a station yard may be transmitted to the user at the time of entrance of the user 6 into the station yard or at the arrival estimated time of the detraining station. Besides, at this time, a train schedule or a delay guide may be transmitted. The necessity/unnecessity of transmission of the information map of the station yard or the train schedule to the user may be judged on the basis of the foregoing attribute information.

Further, for the advertiser, since the delivery

condition is attached to the delivery information, the users 6 to whom the delivery information is delivered can be narrowed, and efficient advertisement can be performed. For example, the delivery information for women is not delivered to men.

Next, another embodiment of this invention will be described. In the above embodiment, although the timing when the delivery information is transmitted to the user 6 is made the time of entrance into the station yard or the time of exit from the station yard, in this embodiment, it is transmitted a predetermined time earlier than the time (estimated time) when the user 6 reaches the detraining station. Accordingly, the user 6 can confirm the transmitted delivery information in the train. The user 6 can previously determine an action after exit from the station yard of the detraining station.

Hereinafter, an information delivery system of this embodiment will be described in detail. The delivery information system of this embodiment has also the structure shown in Fig. 1.

Fig. 24 is a flowchart showing the operation of an information delivery apparatus of this embodiment.

The information delivery apparatus 33 jumps at s151 to an after-mentioned s158 when there is no passage information transmitted from a host apparatus 25.

When there is passage information from the host

apparatus 25, a judgment is made at s152 as to whether or not it is the passage information at the time of entrance, and if at the time of entrance, the attribute information of the user 6 is searched (s153). Incidentally, if at the time of exit, a jump to s158 is made.

At s154, it is judged whether or not the user 6 is a user who desires delivery of delivery information. If the user does not desire delivery of delivery information, a jump to after-mentioned s158 is made.

At s155, the delivery information extraction processing shown in Fig. 20 is performed. The processings of s151 to s155 are the same the processings of s101 to s105 explained in the above embodiment.

The information delivery apparatus 31 presumes the detraining station arrival time of the user 6 at s156. The processing of s156 is the same as the processing of s141 in the above embodiment.

The information delivery apparatus 31 sets the time a predetermined time, for example, 15 minutes earlier than the detraining station arrival time presumed at s156 to be transmission scheduled time, and registers it in a delivery person list shown in Fig. 25. The predetermined time is set to a time sufficient for the user 6 to confirm the content of the transmitted delivery information. Besides, this predetermined time may be set in the attribute information

of the user 6. This predetermined time may be set to, for example, 10 minutes after the entrance into the station yard, or 15 minutes before the arrival estimated time.

A different point between the delivery person list shown in Fig. 25 and the delivery person list shown in Fig. 23 in the above embodiment is a point that the arrival estimated time in Fig. 23 is made the transmission scheduled time.

When a record exceeding the transmission scheduled time exists in the delivery person list, the information delivery apparatus 31 transmits the delivery data prepared at s123 to the user 6 registered in this record (s158, 159). Then, the record in which the delivery data is transmitted at s159 is deleted from the delivery person list (s160), and a return to s151 is made and the above processing is repeated.

As stated above, in the information delivery system of this embodiment, since the delivery information is delivered the predetermined time earlier than the arrival of the user 6 at the detraining station, the user 6 can determine the action after the exit from the station yard of the detraining station during the movement.

Further, another embodiment of this invention will be described. In the foregoing information delivery system, with respect to the delivery information with regional limitation, only the delivery information of the vicinity of the detraining station of the user 6 is delivered, however, in

this embodiment, with respect to a previously set specific station, the delivery information of the vicinity of the station is also delivered to the user 6 passing through this station. As the specific station, for example, the nearest station of an entertainment district, for example, Shinjuku or Shibuya, or a stopover station is conceivable. The specific station may be set in the attribute information of the user 6 irrespective of the valid section or the like.

Fig. 26 is a flowchart showing the operation of the information delivery apparatus of this embodiment. The information delivery apparatus 33 of this embodiment performs the processings of s151 to s157 shown in Fig. 24 (omitted in Fig. 26), and it is judged whether or not the specific station exists in the use section of the user 6 (valid section of the commutation ticket 7) (s161). When the specific station exists in the use section of the user 6, the information delivery apparatus 31 extracts delivery information, which relates to the vicinity of the specific station and in which attribute information of the user 6 and a delivery condition are suitable, from delivery information stored in a delivery information storage part 312 (s162). The information delivery apparatus 33 prepares delivery data including the delivery information extracted at s162 (s163). Here, a transmission destination of the delivery data prepared at s163 is also a portable telephone 8 of the user 6.

Further, the information delivery apparatus 31 presumes the time when the user 6 reaches the specific station (s164), and registers time a predetermined time earlier than the time presumed here as transmission scheduled time in the delivery person list shown in Fig. 25 (s165).

When completing the processing of s165, the information delivery apparatus 33 performs the processing subsequent to s158 shown in Fig. 24.

As stated above, in this embodiment, with respect to the user 6 passing through the specific station, the delivery information of the vicinity of the station can also be delivered. Besides, with respect to the user having plural specific stations, the delivery information of the vicinities of all the stations is delivered.

Incidentally, as is apparent from the explanation, the delivery information of the vicinity of the specific station is delivered before the user 6 passes through the specific station. Accordingly, when there is noticeable delivery information, the user 6 can make a stopover to drop in, and the service to the user 6 is further improved.

Besides, in the information delivery apparatus 33, the passage information sent from the host apparatus 25 is accumulatively stored, and action patterns of the respective users 6 may be obtained from the passage information. When the delivery information to be delivered to the user 6 is

extracted using the past action pattern of the user, for example, a stopover or riding past, it is possible to further certainly prevent wasteful delivery information from being transmitted to the user 6.

Besides, the timing when the delivery data is transmitted to the user 6, and the transmission scheduled time may be determined using the action pattern. By doing so, the transmission of the delivery information can be performed at the suitable timing to the user 6.

Incidentally, in the above embodiment, although the delivery information is transmitted to the portable telephone 8 owned by the user 6, it may be transmitted to the home of the user 6 or a mail address set by a personal computer in a company. Besides, it may be transmitted to a telephone having a function capable of receiving electronic mail. Besides, it may be transmitted to a FAX machine. Further, it may be transmitted by voice mail.

Besides, in the above embodiment, although the example has been described in which the delivery information is delivered to, as the object, the user 6 using the commutation ticket 7, this service may be provided to the user 6 using another ticket, for example, a coupon ticket, a reserved-seat ticket, a special express ticket, or a long distance ticket. The attribute information of the user 6 may be registered or updated at the time of issuance of a ticket or the time of

acceptance of reservation. By doing so, to the user 6 who comes in a business trip or for sightseeing, information concerning the destination of the business trip or the destination of the sightseeing, for example, vacant room information of a hotel can be provided.

Besides, the information delivery system can be used as a system in which the automatic ticket gate 21 is installed at an entrance of a store, and delivery information of bargain goods in the store is delivered to the user 6 having entered the store. Besides, in this system, since a use time zone or a pattern of coming to the store can also be collected for the respective users 6, efficient sales promotion activities to the users 6 can be performed.

Besides, when delivery history of the delivery information is managed in the information delivery apparatus 31, information, for example, the number of times of transmission for each of age groups can be notified to the advertiser.

Further, the update of the delivery information stored in the delivery information storage part 312 of the information delivery apparatus 31 may be performed through the Internet 5.

For example, a structure can be adopted such that the advertiser accesses the information delivery apparatus 31 through the Internet 5, and transmits delivery information

to be updated and a delivery information update request including authentication data to the delivery information storage part 312, so that the update of the delivery information can be performed.

Fig. 27 is a flowchart showing an update processing of delivery information stored in the delivery information storage part 312. When there is an update request of delivery information (s171), the information delivery apparatus 31 judges whether or not the authentication data included in the delivery information update request is proper (s172), and if the authentication data is proper, with respect to the relevant advertiser, the update such as registration, addition, or deletion of the delivery information is performed (s173). If the authentication data is not proper, the update of the delivery information is not performed.

Accordingly, the advertiser can obtain an effect that the update of the delivery information stored in the delivery information storage part 312 can be easily performed. Besides, since the authentication data is required, the delivery information is not updated by a person other than the advertiser without permission, and the security can be sufficiently ensured.

The authentication data may be a personal identification number, or may be fingerprint data (pattern data of a fingerprint) or iris data (pattern data of a retina).

Besides, a structure may be adopted such that the attribute information of the user 6 can also be updated through the Internet 5.

Specifically, the user 6 accesses the information delivery apparatus 31 through the Internet 5, and transmits attribute information to be updated and an attribute information update request including authentication data to the attribute information storage part 314, so that the update of the attribute information may be performed.

Fig. 28 is a flowchart showing an update processing of attribute information. When there is an attribute information update request (s181), the information delivery apparatus 31 judges whether or not transmitted authentication data is proper (s182), and if the authentication data is proper, the relevant attribute information is updated on the basis of the transmitted attribute information (s183). If the authentication data is not proper, the update of the attribute information is not performed.

Accordingly, the user 6 can easily update the attribute information stored in the attribute information storage part 313. Besides, since the authentication data is required for the update of the attribute information, the attribute information is not updated by another person without permission, and the security can be sufficiently ensured.

Also in this case, the authentication data may be a

personal identification number, or may be fingerprint data (pattern data of a fingerprint) or iris data (pattern data of a retina).

Besides, the information delivery apparatus 31 manages the attribute information of the user 6 by the user identification code recorded in the commutation ticket 7. On the other hand, the commutation ticket 7 can not be used for entrance into the station or exit from the station when the valid period expires. Accordingly, when the valid period of the commutation ticket 7 expires, a commutation ticket 7 is newly purchased, so that the user identification number is changed. Thus, the user 6 is required to again register the attribute information.

On the other hand, the general user 6 of the commutation ticket 7 purchases a continuous commutation ticket when the valid period of the commutation ticket 7 comes near. The continuous commutation ticket is a commutation ticket issued in exchange for the commutation ticket 7 in which the valid period comes near, and can be purchased several days before the valid period.

Then, a structure may be adopted such that automatic update of the user identification code can be performed as shown in Fig. 29. At the time of issuance of the continuous commutation ticket, the commutation ticket issuing machine 23 is made to transmit a user identification code (hereinafter

referred to as an old user identification code) recorded in the commutation ticket 7 in which the valid period comes near and a user identification code (hereinafter referred to as a new user identification code) recorded in the newly issued continuous commutation ticket to the information delivery apparatus 31.

When receiving the continuous commutation ticket issuance notification from the commutation ticket issuing machine 23 (s191), the information delivery apparatus 31 reads out the old user identification code and the new user identification code included in the continuous commutation ticket issuance notification (s192).

The information delivery apparatus 31 searches the attribute information storage part 313 by using the old user identification code as a key, and judges whether or not the attribute information of the relevant user 6 is stored (s193). When the attribute information of the relevant user 6 is stored, the information delivery apparatus 31 rewrites the user identification code of the relevant user into the new user identification code (s194).

By this, since the user 6 having purchased the continuous commutation ticket 7 is not required to again register the attribute information, there does not arise such a problem that the service is not received due to the expiration of the valid period of the commutation ticket 7.

Besides, in the embodiment, although the description has been made of the system in which the delivery information provided from the advertiser is delivered to the user 6, for example, a railroad company can provide services described below.

For example, in the case where a train service is stopped by the occurrence of an accident or disaster, for the user 6 using the section where the train service is stopped, notification of the occurrence of the accident or disaster, an alternative route, substitute transport means, and the like can be notified to the portable telephone 8 of the user 6.

Specifically, the information delivery apparatus 31 extracts the users 6 affected by the stop of the train service from the attribute information managed by the user management apparatus 32 (s201), and for the users 6 extracted here, the occurrence of the accident or disaster, the alternative route, and the substitute transport means are transmitted to the portable telephones 8 of the users (s202) (see Fig. 30).

The transmission at s202 can be performed by multi-address sending to the users 6 extracted at s201.

Besides, the information delivery apparatus 31 can distinguish between the user 6 already having entered the station yard and the user 6 not having entered the station yard from the passage information transmitted from the host

apparatus 25. Besides, it is also possible to guess whether the user 6 not having entered the station yard is near user's place of employment or school, or is near user's home. By using these, only the user 6 affected at s201 and not having entered the station yard may be extracted. Since the user 6 already having entered the station yard recognizes the occurrence of the accident or disaster, the alternative route, and the substitute transport means by an information broadcast in the station yard, there is no problem even if this information is not transmitted.

By doing so, the transmission amount of information to the user 6 can be suppressed, and the working cost can be suppressed.

Besides, in the embodiment, although the occurrence of the accident or disaster, the alternative route, and the substitute transport means are transmitted to the user 6, an information map of a transfer station yard, a movement route to a platform and the like may be transmitted to the user 6 approaching the transfer station. Besides, the user 6 may be guided to the platform for changing trains by voice mail.

Besides, when the time of arrival to the transfer station is lunchtime, information relating to eating facilities in the station yard may be transmitted. This also produces the improvement in delivery information effects and in sales of restaurants, stores and the like installed in the

station yard.

A transmission destination of delivery information may be made a telephone or a FAX machine as described below.

For example, it is possible to provide such a service that when the user 6 has entered the station yard or has exited therefrom, the information delivery apparatus 33 makes a telephone call to the home telephone of the user 6, and sends a message such as "I have passed through the ticket barrier of AAA station at 19:13. After this, I will come back home." to the family at home. Besides, the message may be transmitted by facsimile.

Besides, it is also possible to realize such a service that when the user 6 has entered the station yard, or when a predetermined time has passed since the entrance, or the user has exited therefrom, the information delivery apparatus 31 makes a telephone call to the home telephone of the user 6, and causes the operation of the home air conditioner to start by using well-known home automation.

Besides, when the user 6 approaches the transfer station or the detraining station, in order to prevent the user 6 from riding past, an alarm mail can also be transmitted.

As stated above, in this information delivery system, not only delivery of delivery information, but also various services can be provided to the user 6.

Besides, delivery information can also be transmitted

to a user using a toll road and moving by car. Here, by using a passage ticket of the toll road, for example, a magnetic ticket type toll road card, an on-board equipment of ETC (Electronic Toll Collection System), or the like, a user identification code is acquired at the entrance or the exit of the toll road.

Specifically, when the user purchases the passage ticket, the attribute information of the user 6 is registered in substantially the same method as that at the time of issuance of the commutation ticket 7 in the above embodiment. Besides, by causing the attribute information of the user 6 to include a telephone number, a vehicle identification number and the like, when the registration is once made, the input of the attribute information of the user 6 can be made unnecessary at the time of subsequent purchase of a passage ticket.

When the passage ticket is used, the user 6 is specified from the information stored in the passage ticket, and the attribute information of the registered user 6 can be obtained. Besides, also in the case where the ETC is used, since the user identification code can be obtained at the entrance or the exit of the roll road, when the attribute information of the user 6 is registered, the attribute information of the user 6 can be obtained.

As delivery information to be transmitted to the user

6, similarly to the above embodiment, information of an area in the vicinity of an exit of the toll road is conceivable. Besides, during the traveling on the toll road, road facilities (parking area, service area, etc.) on the toll road, the presence of occurrence of congestion, roadside information, weather forecast and the like can also be transmitted. If these pieces of information are made not to be transmitted unless the user 6 uses the toll road, wasteful information delivery can be suppressed.

Incidentally, in this case, since the information is transmitted to a driver, it is desirable that the transmission mode of the information is made a voice message (hands-free), a voice mail or the like.

When the destination of the user 6 can be predicted, for example, when the user 6 uses a toll road which is a mountain road or the like and is closed at the other end, the destination of the user and the time when the user reaches the destination can be estimated. In such a case, transmission of road information according to the traveling position can be performed. For example, information such as "Please pay attention to freezing at point aaa" or "Lane control is performed at point bbb" can be timely provided to the user.

Besides, transmission of delivery information can also be performed to the user 6 moving by airplane. A boarding card of an airplane is the same as the commutation ticket 7, special

express ticket or the like in the above embodiment in that the airplane on which the user boards, the destination and the like can be obtained. At the time of reservation of the boarding ticket or the time of issuance thereof, the attribute information of the user may be registered.

The time when the user 6 checks in at a counter of an airport can be used as the passing timing of the automatic ticket gate 21 in the above embodiment. It is judged by this timing that the user 6 arrives at the airport, and the airplane on which the user boards is decided by check-in, so that extraction of the delivery information to be transmitted to the user 6 can be performed.

Besides, guide information for guiding to a boarding gate may be transmitted or a message to urge a passenger, whose boarding time is pressing, to board on may also be transmitted. Besides, when the same function is provided at a security check gate as well, it is also possible to judge an area in the airport where the user 6 is, and to transmit information corresponding to user's whereabouts.

Incidentally, since the destination of the user 6 can also be specified, transmission of information corresponding to the destination can also be performed.

Further, since the use of an electronic equipment is forbidden in the airplane, transmission of information to the user 6 having passed through the boarding gate and entered

the airplane is not performed, and wasteful transmission of information can be suppressed. Incidentally, the airplane on which the user 6 boarded arrives at the destination, and at the timing when the user 6 goes out from the airplane, transmission of information to the user 6 may be resumed.

Besides, recently, since a lot of information of the user 6 can be obtained by blending with member card services, it is also conceivable that member information is used as attribute information. By doing so, labor required for registration of the attribute information of the user 6 can also be suppressed.

Besides, it is also possible to realize a service in which transmission of information to all members is performed all at once.

Further, it is also possible to transmit information to the user 6 moving by ship, for example, a car ferry.

As described above, according to this invention, since the attribute information of the user is stored in the information delivery apparatus, the user can be managed by, for example, change of the delivery destination of the delivery information.

Besides, since the advertiser can set a user group to whom information is to be delivered, the information delivery to the user can be efficiently performed.

Further, since it is possible to deliver the information

of content corresponding to the action of the user, wasteful information delivery to the user can be suppressed. Accordingly, the cost for the wasteful information delivery can be suppressed, and the user can be relived from the troublesomeness caused when the wasteful information is transmitted.

Industrial Applicability

The present invention can be applied to delivery of various pieces of information, such as an advertisement, weather forecast, and traffic information to a communication equipment such as a portable telephone held by a user.

Claims

1. (Deleted)

2. An information delivery system comprising:

plural identification code readers including:

read means installed in plural stations, for reading an identification code from a recording medium recording the identification code of a user having entered a station or exited from a station; and

identification code transmission means for transmitting the identification code read by the read means, entrance/exit information indicating entrance/exit of the user, and present position information indicating a present position of the user, and

an information delivery apparatus including:

identification code reception means for receiving the identification code, the entrance/exit information and the present position information transmitted from the identification code transmission means;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information;

delivery information extraction means for extracting

from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

3. (Deleted)

4. An information delivery system comprising:

plural identification code readers including:

read means installed in plural stations, for reading an

identification code from a recording medium recording the identification code of a user having entered a station or exited from a station; and

identification code transmission means for transmitting the identification code read by the read means, entrance/exit information indicating entrance/exit of the user, and present position information indicating a present position of the user, and

an information delivery apparatus including:

identification code reception means for receiving the identification code, the entrance/exit information and the present position information transmitted from the identification code transmission means;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information made to correspond to delivery conditions;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information made to correspond to the delivery condition satisfying the attribute information with respect to each of two stations

corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

5. (Deleted)

6. An information delivery apparatus comprising:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing

identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

7. (Deleted)

8. An information delivery apparatus comprising:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information made to correspond to delivery conditions;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information made to correspond to the delivery condition satisfying the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for

each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

9. (Deleted)

10. (Deleted)

11. (Deleted)

12. An information delivery apparatus comprising:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural

pieces of delivery information;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code,

wherein the delivery information transmission means includes means for transmitting specific delivery information to a delivery destination corresponding to an

identification code for which entrance into the station corresponding to the use section is not confirmed in a predetermined period, among all the identification codes stored in the attribute information storage means.

13. (Deleted)

14. (Deleted)

15. An information delivery apparatus comprising:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code,

wherein the extracted information storage means erases the delivery information transmitted to the delivery destination by the delivery information transmission means.

16. An information delivery apparatus comprising:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing

identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information made to correspond to delivery conditions;

identification code extraction means for extracting from the attribute information storage means, for each piece of delivery information stored in the delivery information storage means, an identification code in which the attribute information satisfies the delivery condition;

extracted information storage means for classifying, with respect to each of two stations corresponding to a use section included in the attribute information and by entrance/exit, the delivery information at a time when each of the identification codes is extracted by the identification code extraction means and for storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the

received identification code.

17. An information delivery apparatus comprising:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information made to correspond to information numbers;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

information number storage means for classifying, by station and entrance/exit, the information number of the delivery information extracted by the delivery information extraction means for each of the identification codes and for

storing it; and

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the information number corresponding to the received identification code, the entrance/exit information and the present position information from the information number storage means, for reading out the delivery information corresponding to the information number from the delivery information storage means, and for transmitting it to a delivery destination corresponding to the received identification code.

18. An information delivery method comprising:

a first step of receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

a second step of reading out identification codes from attribute information storage means storing the identification codes and attribute information indicating their attributes, and extracting from delivery information storage means storing plural pieces of delivery information, for each of the read identification codes, the delivery

information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

a third step of classifying, by station and entrance/exit, the delivery information extracted at the second step for each of the identification codes and storing it in extracted information storage means; and

a fourth step of reading out, when the identification code, the entrance/exit information and the present position information are received at the first step, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

19. An information delivery program for causing a computer to execute:

a first step of receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

a second step of reading out identification codes from

attribute information storage means storing the identification codes and attribute information indicating their attributes, and extracting from delivery information storage means storing plural pieces of delivery information, for each of the read identification codes, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

a third step of classifying, by station and entrance/exit, the delivery information extracted at the second step for each of the identification codes and storing it in extracted information storage means; and

a fourth step of reading out, when the identification code, the entrance/exit information and the present position information are received at the first step, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code.

20. An information delivery apparatus as set forth in claim 6, wherein the delivery information extraction means extracts, as the delivery information to be delivered

at a time of entrance into one station, the delivery information relating to the other station, and extracts, as the delivery information to be delivered at a time of exit from the one station, the delivery information relating to the one station.

21. An information delivery apparatus as set forth in claim 20, wherein the delivery information extraction means prohibits the delivery information to be delivered at the time of the entrance into the one station from becoming the same delivery information as the delivery information to be delivered at the time of the exit from the other station.

22. An information delivery apparatus as set forth in claim 17, wherein the delivery information extraction means extracts, as the delivery information to be delivered at a time of entrance into one station, the delivery information relating to the other station, and extracts, as the delivery information to be delivered at a time of exit from the one station, the delivery information relating to the one station.

23. An information delivery apparatus as set forth in claim 22, wherein the delivery information extraction means prohibits the delivery information to be delivered at the time of the entrance into the one station from becoming the same delivery information as the delivery

information to be delivered at the time of the exit from the other station.

24. An information delivery apparatus comprising:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information;

delivery information extraction means for extracting from the delivery information storage means, for each of the identification codes stored in the attribute information storage means, the delivery information based on the attribute information with respect to each of two stations corresponding to a use section included in the attribute information and at each of entrance and exit;

extracted information storage means for classifying, by station and entrance/exit, the delivery information extracted by the delivery information extraction means for each of the identification codes and for storing it;

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code; and.

transmission number count means for counting the number of times each piece of delivery information is transmitted by the delivery information transmission means.

25. An information delivery apparatus comprising:

identification code reception means for receiving an identification code of a user having entered a station or exited from a station, entrance/exit information indicating entrance/exit of the user, and present position information indicating the station where the user has entered/exited;

attribute information storage means for storing identification codes and attribute information indicating their attributes;

delivery information storage means for storing plural pieces of delivery information made to correspond to delivery

conditions;

identification code extraction means for extracting from the attribute information storage means, for each piece of delivery information stored in the delivery information storage means, an identification code in which the attribute information satisfies the delivery condition;

extracted information storage means for classifying, with respect to each of two stations corresponding to a use section included in the attribute information and by entrance/exit, the delivery information at a time when each of the identification codes is extracted by the identification code extraction means and for storing it;

delivery information transmission means for reading out, when the identification code reception means receives the identification code, the entrance/exit information and the present position information, the delivery information corresponding to the received identification code, the entrance/exit information and the present position information from the extracted information storage means and for transmitting the read delivery information to a delivery destination included in the attribute information of the received identification code; and

delivery scheduled number count means for counting the identification code extracted by the identification code extraction means for each piece of delivery information,

wherein

the delivery condition includes the restricted number of delivery times by which the number of delivery times of the delivery information is restricted, and

the identification code extraction means restricts extraction of the identification code with respect to the delivery information in which a count value of the delivery scheduled number count means reaches the restricted number of delivery times.