

reception of baggage.

[0004] However, the configuration in the related art is merely a configuration in which it is possible to receive the baggage by a receiver designating, as a delivery destination, a vehicle which has been registered in advance by the receiver. Therefore, the invention provides a carsharing system in consideration with movement of a vehicle in a case where the interior of the vehicle is used by more persons or the interior of the vehicle is shared by a plurality of persons.

[0005] A carsharing system according to a first aspect of the invention includes: a reception unit configured to receive, from a user, a usage request for requesting a reservation for use of a vehicle which is supplied for a vehicle rental service, wherein the usage request includes information for specifying geographical conditions in which the vehicle rental service is provided; and a management unit configured to permit the reservation for use of the vehicle when the reception unit receives the usage request and no reservation for use of the vehicle has been made at time of receiving the usage request and give, when the reservation for use of the vehicle is determined, a permission for locking or unlocking by using electronic information to the user at a date and a time on which the vehicle is used. The management unit is further configured to provide information on vehicles in a recommended order, and wherein the order is determined based on a sum of weights comprising whether the owner of the vehicle agrees to provision of the movement schedule and an incentive point of the owner. According to this aspect, a reservation for use of the vehicle rental service is permitted at a scheduled date and time at which a usage request for a vehicle has not been issued, and a scheduled rental user can use the vehicle.

[0006] In the aspect, the carsharing system may further includes: a storage unit configured to store reservation schedule information indicating a status of the reservation for use of the vehicle; and a schedule information acquiring unit configured to acquire movement schedule information indicating a movement schedule of the vehicle. The usage request may include a desired rental schedule which is a schedule in which the user desires rental of the vehicle, and the management unit may be configured to provide information on vehicle of which both the reservation schedule information and the movement schedule information satisfy the desired rental schedule.

[0007] According to this aspect, since the management unit provides information on an available vehicle in consideration of both the reservation schedule information and the movement schedule information of vehicles, it is possible to provide a carsharing

[0022] In the above aspect, the management unit may be configured to provide information on vehicles in a recommended order in which a first vehicle or a second vehicle has priority when a plurality of vehicles satisfies the desired rental schedule, the first vehicle being a vehicle of an owner who has permitted provision of the movement schedule information, and the second vehicle being a vehicle of an owner who has high incentive points.

[0023] In a vehicle of which provision of movement schedule information has been permitted, there is a high likelihood that a reservation for rental of the interior of the vehicle will be performed as scheduled. In a vehicle of an owner with a high incentive point, there is a high likelihood that the owner will observe the movement schedule information and a reservation for rental of the interior of the vehicle (also referred to as a reservation for use of a service) will be performed as scheduled. Accordingly, according to this aspect, it is possible to enable a user to stably use the interior of the vehicle.

[0024] In the above aspect, the usage request may include information for specifying geographical conditions in which the vehicle rental service is provided, and the management unit may be configured to provide information on vehicles which satisfy the geographical conditions with reference to position information of the vehicles which are supplied for the vehicle rental service. Accordingly, the carsharing system can provide a service by performing a process with a limitation to vehicles satisfying the geographical conditions in the vehicle rental service.

[0025] The carsharing system according to a second aspect of the invention includes a group storage unit configured to store groups of a plurality of vehicles which are formed based on geographical position relationships correlated with the vehicles, the being supplied for a vehicle rental service; a reception unit configured to receive a usage request including a desired rental region of a vehicle which is supplied for the vehicle rental service; and a management unit configured to specify a group of vehicles associated with the desired rental region in response to the usage request and provide information on the group of vehicles associated with the desired rental region. The information is provided in a recommended order, and wherein the order is determined based on a sum of weights comprising whether the owner of the vehicle agrees to provision of the movement schedule and an incentive point of the owner.

[0026] According to this aspect, since information of groups of vehicles which

are formed based on addresses is provided in response to the service usage request for the interior of a vehicle including a desired rental region, a user can reserve a group of vehicles without clearly reserving individual vehicles, and can be provided with a service using a vehicle belonging to the group after an actual schedule of the service or the like has been clarified.

[0027] In the above aspect, the usage request may be a service usage request for using a vehicle as a transportation destination of baggage. The management unit may be configured to select, as a selected vehicle, one vehicle of the vehicles belonging to the group in response to a request for an access to the group which is issued from a terminal of a service user in charge of transportation of the baggage within a predetermined period from a scheduled transportation date and time at which transportation of the baggage is performed after the scheduled transportation date and time has been determined, and to control transmitting information for identifying the selected vehicle and access permission information for permitting an access to the interior of the selected vehicle to the terminal of the service user.

[0028] According to this aspect, a group of vehicles can be specified as a transportation destination of baggage, and a vehicle rental service using one vehicle of the vehicles belonging to the group can be provided after a scheduled transportation date and time at which transportation of baggage is performed has been determined. Accordingly, a user can be provided with a flexible service using a group of vehicles which is formed based on addresses correlated with the vehicles. According to another aspect of the invention, there is provided a method causing a computer to perform processes corresponding to the above-mentioned aspects of the carsharing system.

[0028a] According to another aspect of the invention, a carsharing method includes causing circuitry to receive, from a user, a usage request requesting a reservation for use of a vehicle which is supplied for a vehicle rental service, wherein the usage request includes information for specifying geographical conditions in which the vehicle rental service is provided; causing the circuitry to permit the reservation for use of the vehicle when the circuitry receives the usage request and no reservation for use of the vehicle has been made at time of receiving the usage request; and causing the circuitry to give, when the reservation for use of the vehicle is determined, a permission for locking or unlocking by using electronic information to the user at a date and time on which the vehicle is used,

the method characterized by comprising causing the circuitry to provide information on vehicles in a recommended order, wherein the order is determined based on a sum of weights comprising whether the owner of the vehicle agrees to provision of the movement schedule and an incentive point of the owner.

[0028b] According to another aspect of the invention, a carsharing method includes causing circuitry to acquire groups of a plurality of vehicles which are formed based on geographical position relationships correlated with the vehicles, the vehicles being supplied for a vehicle rental service; causing the circuitry to receive a service usage request including a desired rental region of a vehicle which is supplied for the vehicle rental service; causing the circuitry to specify a group of vehicles associated with the desired rental region in response to the service usage request; and causing the circuitry to provide information on the group of vehicles associated with the desired rental region, the method characterized by comprising causing the circuitry to provide the information in a recommended order, wherein the order is determined based on a sum of weights comprising whether the owner of the vehicle agrees to provision of the movement schedule and an incentive point of the owner.

[0029] With the above-mentioned carsharing system, it is possible to reduce occurrence of problems with movement of a vehicle when the interior of the vehicle is used by more persons or the interior of the vehicle is shared by a plurality of persons.

BRIEF DESCRIPTION OF THE DRAWINGS

[0030] Features, advantages, and technical and industrial significance of

CLAIMS:**1. A carsharing system characterized by comprising:**

a reception unit configured to receive, from a user, a usage request for requesting a reservation for use of a vehicle which is supplied for a vehicle rental service, wherein the usage request includes information for specifying geographical conditions in which the vehicle rental service is provided; and

a management unit configured to

permit the reservation for use of the vehicle when the reception unit receives the usage request and no reservation for use of the vehicle has been made at time of receiving the usage request and

give, when the reservation for use of the vehicle is determined, a permission for locking or unlocking by using electronic information to the user at a date and a time on which the vehicle is used;

wherein the management unit is further configured to provide information on vehicles in a recommended order, and wherein the order is determined based on a sum of weights comprising whether the owner of the vehicle agrees to provision of the movement schedule and an incentive point of the owner.

2. The carsharing system according to claim 1, further comprising:

a storage unit configured to store reservation schedule information indicating a status of the reservation for use of the vehicle; and

a schedule information acquiring unit configured to acquire movement schedule information indicating a movement schedule of the vehicle, wherein

the usage request includes a desired rental schedule which is a schedule in which the user desires rental of the vehicle, and

the management unit is configured to provide information on vehicle of which both the reservation schedule information and the movement schedule information satisfy the desired rental schedule.

3. The carsharing system according to claim 2, wherein

the desired rental schedule includes a scheduled transportation date and time, transportation of baggage being planned to be performed at the scheduled transportation date and time, and

the management unit is configured to

select a selected vehicle which is available at the scheduled transportation date and time and

set a reservation for use of the selected vehicle at the scheduled transportation date and time in the reservation schedule information.

4. The carsharing system according to claim 3, wherein the management unit is configured to control transmitting, to a terminal of a service user associated with the transportation of the baggage, information for identifying the selected vehicle and access permission information for permitting an access to interior of the selected vehicle.

5. The carsharing system according to claim 4, wherein

the usage request includes receiver terminal information for specifying an address of a terminal of a receiver who receives the baggage, and

the management unit is configured to control transmitting, to the terminal of the receiver, the information for identifying the selected vehicle and the access permission information for permitting an access to the interior of the selected vehicle.

6. The carsharing system according to claim 4 or 5, wherein

the vehicles which are supplied for the vehicle rental service are grouped based on geographical position relationships correlated with the vehicles respectively, and

the management unit is configured to

determine one vehicle of the vehicles as an alternative vehicle, the one vehicle belonging to same group as a vehicle which is a transportation destination when a

notification is received from the terminal of the service user, the notification indicating that an over-capacity has occurred, the over-capacity being a situation in which baggage to be transported is not able to be accommodated in the interior of the vehicle which is the transportation destination and

control transmitting, to the terminal of the service user, the information for identifying the alternative vehicle and the access permission information for permitting an access to the interior of the alternative vehicle.

7. The carsharing system according to claim 4 or 5, wherein

the vehicles which are supplied for the vehicle rental service are grouped based on geographical position relationships correlated with the vehicles,

the reception unit is configured to receive, from a terminal of an owner of the vehicle, a change request for changing a movement schedule of the vehicle related to a period overlapping with a rental schedule, from a first plan to a second plan, the rental schedule being a schedule in which rental of the vehicle is reserved, the first plan being a plan that the vehicle is not to move, and the second plan being a plan that the vehicle is to move, and

the management unit is configured to

determine one vehicle of the vehicles as an alternative vehicle, the one vehicle belonging to same group as a vehicle which is a transportation destination and

control transmitting, to the terminal of the service user, the information for identifying the alternative vehicle and the access permission information for permitting an access to interior of the alternative vehicle.

8. The carsharing system according to any one of claims 2 to 6, wherein the movement schedule information is generated based on activity schedule information in which an activity schedule of an owner of the vehicle is set.

9. The carsharing system according to any one of claims 2 to 6, further comprising an incentive offering unit configured to offer a predetermined incentive to an owner of the

vehicle who has permitted provision of the movement schedule information or an owner who has agreed to acceptance of movement limitation of a vehicle.

10. The carsharing system according to claim 9, wherein the incentive offering unit is configured to determine incentive points offered to an owner of a reserved vehicle based on a first ratio or a second ratio, the reserved vehicle being a vehicle of which rental is reserved based on the reservation schedule information, the first ratio being a ratio of the number that rental of the vehicle in accordance with the reservation schedule information is performed to a reserved number, the second ratio being a ratio of the number that the rental of the vehicle in accordance with the reservation schedule information is not performed to the reserved number, and the reserved number being the number that rental of the vehicle is reserved based on the reservation schedule information.

11. The carsharing system according to any one of claims 2 to 10, wherein in the recommended order a first vehicle or a second vehicle has priority when a plurality of vehicles satisfies the desired rental schedule, the first vehicle being a vehicle of an owner who has permitted provision of the movement schedule information, and the second vehicle being a vehicle of an owner who has high incentive points.

12. The carsharing system according to any one of claims 1 to 9, wherein
the management unit is configured to provide information on the vehicles which satisfy the geographical conditions with reference to position information of the vehicles which are supplied for the vehicle rental service.

13. The carsharing system according to claim 1, further comprising a group storage unit configured to store groups of a plurality of vehicles which are formed based on geographical position relationships correlated with the vehicles, the vehicles being supplied for the vehicle rental service, wherein

the usage request includes a desired rental region in which the user desires rental of

the vehicle, and

the management unit is configured to

specify a group of vehicles associated with the desired rental region based on the usage request and

provide information on the group of vehicles associated with the desired rental region.

14. The carsharing system according to claim 13, wherein

the usage request requests a reservation for use of the vehicle as a transportation destination of baggage, and

the management unit is configured

to select, as a selected vehicle, one vehicle of the vehicles belonging to the group in response to a request for an access to the group which is issued from a terminal of a service user in charge of transportation of the baggage within a predetermined period from a scheduled transportation date and time at which transportation of the baggage is performed after the scheduled transportation date and time has been determined, and

to control transmitting information for identifying the selected vehicle and access permission information for permitting an access to interior of the selected vehicle to the terminal of the service user.

15. A carsharing system characterized by comprising:

a group storage unit configured to store groups of a plurality of vehicles which are formed based on geographical position relationships correlated with the vehicles, the vehicles being supplied for a vehicle rental service;

a reception unit configured to receive a usage request including a desired rental region of a vehicle which is supplied for the vehicle rental service; and

a management unit configured to

specify a group of vehicles associated with the desired rental region in response to the usage request and

provide information on the group of vehicles associated with the desired rental region;

wherein the information is provided in a recommended order, and wherein the order is determined based on a sum of weights comprising whether the owner of the vehicle agrees to provision of the movement schedule and an incentive point of the owner.

16. The carsharing system according to claim 15, wherein the usage request is a service usage request for using a vehicle as a transportation destination of baggage, and wherein the management unit is configured

to select, as a selected vehicle, one vehicle of the vehicles belonging to the group in response to a request for an access to the group which is issued from a terminal of a service user in charge of transportation of the baggage within a predetermined period from a scheduled transportation date and time at which transportation of the baggage is performed after the scheduled transportation date and time has been determined, and

to control transmitting information for identifying the selected vehicle and access permission information for permitting an access to interior of the selected vehicle to the terminal of the service user.

17. A carsharing method comprising:

causing circuitry to receive, from a user, a usage request requesting a reservation for use of a vehicle which is supplied for a vehicle rental service, wherein the usage request includes information for specifying geographical conditions in which the vehicle rental service is provided;

causing the circuitry to permit the reservation for use of the vehicle when the circuitry receives the usage request and no reservation for use of the vehicle has been made at time of receiving the usage request; and

causing the circuitry to give, when the reservation for use of the vehicle is determined, a permission for locking or unlocking by using electronic information to the user at a date and time on which the vehicle is used,

the method characterized by comprising causing the circuitry to provide information on vehicles in a recommended order, wherein the order is determined based on a sum of weights comprising whether the owner of the vehicle agrees to provision of the movement schedule and an incentive point of the owner.

18. The carsharing method according to claim 17, further comprising:

causing the circuitry to acquire reservation schedule information indicating a status of the reservation for use of the vehicle;

causing the circuitry to acquire movement schedule information indicating movement schedule of the vehicle; and

causing the circuitry to provide information on vehicle of which both the reservation schedule information and the movement schedule information satisfy a desired rental schedule, the usage request including the desired rental schedule which is a schedule in which the user desires rental of the vehicle.

19. The carsharing method according to claim 18, further comprising:

causing the circuitry to select a selected vehicle which is available at a scheduled transportation date and time, the scheduled transportation date and time being included in the desired rental schedule, and transportation of baggage being planned to be performed at the scheduled transportation date and time;

causing the circuitry to set a reservation for use of the selected vehicle at the scheduled transportation date and time in the reservation schedule information; and

causing the circuitry to control transmitting, to a terminal of a service user associated with the transportation of the baggage, information for identifying the selected vehicle and access permission information for permitting an access to interior of the selected vehicle.

20. A carsharing method comprising:

causing circuitry to acquire groups of a plurality of vehicles which are formed based on geographical position relationships correlated with the vehicles, the vehicles being

supplied for a vehicle rental service;

causing the circuitry to receive a service usage request including a desired rental region of a vehicle which is supplied for the vehicle rental service;

causing the circuitry to specify a group of vehicles associated with the desired rental region in response to the service usage request; and

causing the circuitry to provide information on the group of vehicles associated with the desired rental region,

the method characterized by comprising causing the circuitry to provide the information in a recommended order, wherein the order is determined based on a sum of weights comprising whether the owner of the vehicle agrees to provision of the movement schedule and an incentive point of the owner.

21. The carsharing method according to claim 20, further comprising:

causing the circuitry to select, as a selected vehicle, one vehicle of the vehicles belonging to the group in response to a request for an access to the group which is issued from a terminal of a service user in charge of transportation of baggage within a predetermined period from a scheduled transportation date and time at which transportation of the baggage is performed after the scheduled transportation date and time has been determined, and

causing the circuitry to control transmitting information for identifying the selected vehicle and access permission information for permitting an access to interior of the selected vehicle to the terminal of the service user.