Device-specific ID: a device-specific ID refers to a unique identifier that can be used to identify a device, in particularly, a mobile device. Examples of device-specific IDs include: mobile phone number by the cellular network, MAC (Media Access Control) address, IMEI (International Mobile Equipment Identity) number, Apple's UDID (Unique Device Identifier), or a unique ID generated by the vehicle dispatch server for each user.

Server: "server" refers to an apparatus connected to the data communication network, receiving and sending data to other apparatuses connected to the data communication network, as well as processing and storing data.

Vehicle dispatch system: throughout the specification, unless the context requires otherwise, the term "vehicle dispatch system" refers to the overall system of the present invention that functions to arrange on-demand and scheduled transport service. The "vehicle dispatch system" comprises a "vehicle dispatch server" that is configured to receive and send data from other apparatuses, devices, equipment, modules and components of the vehicle dispatch system, as well as to process and store the data.

Pickup location: the term "pickup location" refers to a pickup point (such as building lobby, taxi stand, bus stop, transportation station and any other designated point for the vehicles to pick up the requesters), or a plurality of pickup points in a defined neighbourhood or on a defined route.

Arriving: throughout the specification, unless the context requires otherwise, the term "arriving" refers to a status of a user (e.g., either a requester or a vehicle) that been accepted into the vehicle dispatch system (e.g., a requester whose request for ride has been received and accepted by the vehicle dispatch system; a vehicle that has accepted a notification of request for ride from a particular pickup location) but has not yet arrived at the designated pickup location.

Claims:

1. A computer-implemented method for arranging on-demand transport service between a plurality of requesters and a plurality of vehicles, comprising:

(a) receiving from the plurality of requesters a plurality of requests for ride from a pickup location;

(b) grouping the plurality of requests from the pickup location;

(c) storing the plurality of requests into a requester pool of the pickup location;

(d) receiving from the plurality of vehicles a plurality of acceptances to pick up the plurality of requesters from the pickup location;

(e) storing the plurality of acceptances into a vehicle pool of the pickup location;

(f) detecting a~~n~~ user device of at least one vehicle that has arrived at (or is close to) thea~~a~~ pickup location, wherein an acceptance made by the at least one vehicle is found in the vehicle pool of the pickup location; and

(g) matching the at least one vehicle with a requester, wherein a request made by the requester is found in the requester pool of the pickup location.

2. A method according to claim 1, wherein the pickup location is a pickup point, or a plurality of pickup points of a defined transportation station, or a plurality of pickup points in a defined neighbourhood or a plurality of pickup points on a defined route.

3. A method according to claim 1, wherein the plurality of requests in the requester pool of the pickup location is queued according to a request order at which the plurality of requests are made by the plurality of requesters, and the plurality of acceptances in the vehicle pool of the pickup location is queued according to a vehicle order at which the plurality of vehicles arrive at (are close to) the pickup location.

4. A method according to claim 1, wherein the step of detecting the user device of the at least one vehicle is facilitated by at least one satellite positioning system, or by at least one wireless network device at the pickup location, or by the at least one vehicle positively responding to a prompt asking the at least one vehicle whether the at least one vehicle has arrived at the pickup location, or by any combination thereof.

5. A method according to claim 4, wherein the at least one wireless network device is configured to receive at least one identification information of the user device of the at least one vehicle via a wireless technology.

6. A method according to claim 4, wherein the user device of the at least one vehicle is configured to receive at least one identification information of the at least one wireless network device via a wireless technology.

7. A method according to any one of claim 4 to claim 6, wherein the at least one wireless network device is:

a Wi-Fi router installed at the pickup location;

a kiosk installed at the pickup location;

the user device of the at least one vehicle, wherein the at least one vehicle has arrived (or is close to) the pickup location; or any combination thereof.

~~8~~4. A method according to claim 1, wherein a user device of at least one requester that has arrived at (or is close to) the pickup location is detected, wherein the request made by the at least one requester is found in the requester pool of the pickup location.

~~9~~5. A method according to claim 8~~claim 1 and claim 4~~, wherein the step of detecting the user device of the at least one requester ~~or the user device of at least one vehicle or both~~ is facilitated by at least one satellite positioning system, or by at least one wireless network device at the pickup location, or by the at least one requester positively responding to a prompt asking the at least one requester whether the at least one requester has arrived at the pickup location, or by any combination thereof~~.~~

~~6. A method according to claim 1 and claim 4, wherein the step of detecting the user device of at least one requester or the user device of at least one vehicle or both is facilitated by at least one wireless network device at the pickup location.~~

10~~7~~. A method according to claim 9~~ 6~~, wherein the at least one wireless network device is configured to receive at least one identification information of the user device of the at least one requester~~ or the user device of at least one vehicle or both~~ via a wireless technology.

11~~8~~. A method according to claim ~~9~~6, wherein the user device of at least one requester is~~ or the user device of at least one vehicle or both are~~ configured to receive at least one identification information of the at least one wireless network device via a wireless technology.

12~~9~~. A method according to any one of claim 9 to claim 11~~6~~, wherein the at least one wireless network device is:

a Wi-Fi router installed at the pickup location;

a kiosk installed at the pickup location;

~~the user device of at least one vehicle, wherein the at least one vehicle has arrived (or is close to) the pickup location; or~~

the user device of the at least one requester, wherein the at least one requester has arrived (or is close to) the pickup location; or any combination thereof.~~.~~

1310. A method according to claim 1, wherein a predetermined number of acceptances from the first plurality of vehicles are received and stored in a supply surplus vehicle pool of the pickup location.

1411. A method according to claim 1310, wherein the predetermined number of acceptances in the supply surplus vehicle of the pickup location is predetermined based on a number of forecasted requests for ride from the pickup location for a pre-programmed time interval.

1512. A method according to claim 1411, wherein a scheduled ride request from the pickup location becomes part of the forecasted requests for ride from the pickup location, if a scheduled departure time of the scheduled ride request falls within the pre-programmed time interval.

1613. A method according to claim 1, wherein a plurality of notifications to invite a first plurality of vehicles to go to the pickup location is sent to the first plurality of vehicles in order to balance the vehicle pool and the requester pool of the pickup location, if the plurality of acceptances in the vehicle pool of the pickup location is fewer than the plurality of requests in the requester pool of the pickup location.

1714. A method according to claim 1613, wherein the first plurality of vehicles receive the plurality of notifications to go to the pickup location;

a second plurality of vehicles bids for the plurality of notifications by submitting their acceptances, wherein the second plurality of vehicles is a subset of the first plurality of vehicles;

one or more acceptances from the second plurality of vehicles are determined to be successful; and

the one or more successful acceptances are added into the vehicle pool or the supply surplus vehicle pool of the pickup location.

1815. A method according to claim 1, wherein a vehicle, which has arrived at (or is close to) a pickup location and whose acceptance is the first unmatched acceptance according to the arrival order in the vehicle pool of the pickup location, is matched with a requester, whose ride request is the first unmatched request according to the request order among the present requesters in the requester pool of the pickup location

1916. A method according to claim 1815, wherein there is a cancellation of acceptance made by a previously matched vehicle in the vehicle pool of the pickup location, the previously matched vehicle remains in the vehicle pool of the pickup location.

2017. A method according to claim 1916, wherein the previously matched vehicle's presence at the pickup location is operable to be detected again and queued according to a new arrival time.

2118. A method according to any of the preceding claims, wherein a cancellation of an unmatched acceptance in the vehicle pool requires no action from any requester in the requester pool, and a cancellation of an unmatched request in the requester pool of a pickup location requires no action from any vehicle in the vehicle pool.

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Pickup location: the term "pickup location" refers to a pickup point (such as building lobby, taxi stand, bus stop, transportation station and any other designated point for the vehicles to pick up the requesters), or a plurality of pickup points in a defined neighbourhood or on a defined route.

Arriving: throughout the specification, unless the context requires otherwise, the term "arriving" refers to a status of a user (e.g., either a requester or a vehicle) that been accepted into the vehicle dispatch system (e.g., a requester whose request for ride has been received and accepted by the vehicle dispatch system; a vehicle that has accepted a notification of request for ride from a particular pickup location) but has not yet arrived at the designated pickup location.

Claims:

1. A computer-implemented method for arranging on-demand transport service between a plurality of requesters and a plurality of vehicles, comprising:

(a) receiving from the plurality of requesters a plurality of requests for ride from a pickup location;

(b) grouping the plurality of requests from the pickup location;

(c) storing the plurality of requests into a requester pool of the pickup location;

(d) receiving from the plurality of vehicles a plurality of acceptances to pick up the plurality of requesters from the pickup location;

(e) storing the plurality of acceptances into a vehicle pool of the pickup location;

(f) detecting a user device of at least one vehicle that has arrived at (or is close to) the pickup location, wherein an acceptance made by the at least one vehicle is found in the vehicle pool of the pickup location; and

(g) matching the at least one vehicle with a requester, wherein a request made by the requester is found in the requester pool of the pickup location.

2. A method according to claim 1, wherein the pickup location is a pickup point, or a plurality of pickup points of a defined transportation station, or a plurality of pickup points in a defined neighbourhood or a plurality of pickup points on a defined route.

3. A method according to claim 1, wherein the plurality of requests in the requester pool of the pickup location is queued according to a request order at which the plurality of requests are made by the plurality of requesters, and the plurality of acceptances in the vehicle pool of the pickup location is queued according to a vehicle order at which the plurality of vehicles arrive at (are close to) the pickup location.

4. A method according to claim 1, wherein the step of detecting the user device of the at least one vehicle is facilitated by at least one satellite positioning system, or by at least one wireless network device at the pickup location, or by the at least one vehicle positively responding to a prompt asking the at least one vehicle whether the at least one vehicle has arrived at the pickup location, or by any combination thereof.

5. A method according to claim 4, wherein the at least one wireless network device is configured to receive at least one identification information of the user device of the at least one vehicle via a wireless technology.

6. A method according to claim 4, wherein the user device of the at least one vehicle is configured to receive at least one identification information of the at least one wireless network device via a wireless technology.

7. A method according to any one of claim 4 to claim 6, wherein the at least one wireless network device is:

a Wi-Fi router installed at the pickup location;

a kiosk installed at the pickup location;

the user device of the at least one vehicle, wherein the at least one vehicle has arrived (or is close to) the pickup location; or any combination thereof.

8. A method according to claim 1, wherein a user device of at least one requester that has arrived at (or is close to) the pickup location is detected, wherein the request made by the at least one requester is found in the requester pool of the pickup location.

9. A method according to claim 8, wherein the step of detecting the user device of the at least one requester is facilitated by at least one satellite positioning system, or by at least one wireless network device at the pickup location, or by the at least one requester positively responding to a prompt asking the at least one requester whether the at least one requester has arrived at the pickup location, or by any combination thereof

10. A method according to claim 9, wherein the at least one wireless network device is configured to receive at least one identification information of the user device of the at least one requester via a wireless technology.

11. A method according to claim 9, wherein the user device of at least one requester is configured to receive at least one identification information of the at least one wireless network device via a wireless technology.

12. A method according to any one of claim 9 to claim 11, wherein the at least one wireless network device is:

a Wi-Fi router installed at the pickup location;

a kiosk installed at the pickup location;

the user device of the at least one requester, wherein the at least one requester has arrived (or is close to) the pickup location; or any combination thereof.

13. A method according to claim 1, wherein a predetermined number of acceptances from the first plurality of vehicles are received and stored in a supply surplus vehicle pool of the pickup location.

14. A method according to claim 13, wherein the predetermined number of acceptances in the supply surplus vehicle of the pickup location is predetermined based on a number of forecasted requests for ride from the pickup location for a pre-programmed time interval.

15. A method according to claim 14, wherein a scheduled ride request from the pickup location becomes part of the forecasted requests for ride from the pickup location, if a scheduled departure time of the scheduled ride request falls within the pre-programmed time interval.

16. A method according to claim 1, wherein a plurality of notifications to invite a first plurality of vehicles to go to the pickup location is sent to the first plurality of vehicles in order to balance the vehicle pool and the requester pool of the pickup location, if the plurality of acceptances in the vehicle pool of the pickup location is fewer than the plurality of requests in the requester pool of the pickup location.

17. A method according to claim 16, wherein the first plurality of vehicles receive the plurality of notifications to go to the pickup location;

a second plurality of vehicles bids for the plurality of notifications by submitting their acceptances, wherein the second plurality of vehicles is a subset of the first plurality of vehicles;

one or more acceptances from the second plurality of vehicles are determined to be successful; and

the one or more successful acceptances are added into the vehicle pool or the supply surplus vehicle pool of the pickup location.

18. A method according to claim 1, wherein a vehicle, which has arrived at (or is close to) a pickup location and whose acceptance is the first unmatched acceptance according to the arrival order in the vehicle pool of the pickup location, is matched with a requester, whose ride request is the first unmatched request according to the request order among the present requesters in the requester pool of the pickup location

19. A method according to claim 18, wherein there is a cancellation of acceptance made by a previously matched vehicle in the vehicle pool of the pickup location, the previously matched vehicle remains in the vehicle pool of the pickup location.

20. A method according to claim 19, wherein the previously matched vehicle's presence at the pickup location is operable to be detected again and queued according to a new arrival time.

21. A method according to any of the preceding claims, wherein a cancellation of an unmatched acceptance in the vehicle pool requires no action from any requester in the requester pool, and a cancellation of an unmatched request in the requester pool of a pickup location requires no action from any vehicle in the vehicle pool.