SYSTEMS AND METHODS FOR MANAGING SHUTTLE SERVICES AND DERIVING OF SHUTTLE SERVICE ROUTES AND SERVICES

Technical Field

[0001] The present disclosure relates generally to managing transportation-related services, and more specifically, to methods, systems, and devices for managing shuttle-related services, including the derivation of shuttle service routes.

Background

[0002] Technological developments in computing technology and communications continue to empower providers to create and offer new and improved offerings for products and services. Online services made available by such developments include, but are not limited to, information searching, purchasing, reserving, booking, adding-to-cart, leaving a deposit for, make partial payment, saving, and/or sharing of products and/or services. Today, users are increasingly able to more easily, efficiently, and effectively conduct online transactions for those products and/or services that have been traditionally conducted in other ways.

Brief Summary

[0003] Despite recent developments in computing technology, including systems, devices, software, methods, and communications, it is recognized in the present disclosure that difficulties or problems are oftentimes encountered when managing transport-related services, including shuttle services.

[0004] Present example embodiments relate generally to and/or comprise systems, subsystems, processors, devices, logic, and methods for addressing conventional problems, including those described above and in the present disclosure, and more specifically, example embodiments relate to systems, subsystems, processors, devices, logic, and methods of managing shuttle-related services and deriving of shuttle service routes.

[0005] In an exemplary embodiment, a method of managing a shuttle service is described. The method may include searching a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests. Each historic non-shuttle service request may include a start time and a route. The route may be defined by at least an origin location and a destination location. The method may also include selecting a plurality of historic non-shuttle service requests. One or more of the selected historic non-shuttle service requests may include at least a portion of its route in common with one or more other selected historic non-shuttle service requests. The method may also include deriving a candidate shuttle service route for use in providing a shuttle service. The

candidate shuttle service route may be derived based on one or more of the selected historic non-shuttle service requests.

[0006] In another exemplary embodiment, a method of managing a shuttle service is described. The method may include searching a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests. Each historic non-shuttle service request may include a start time and a route defined by at least an origin location and a destination location. The method may also include selecting one or more of the historic non-shuttle service requests. The method may also include selecting one or more candidate service providers available to service one or more of the selected historic non-shuttle service requests. The method may also include deriving one or more candidate shuttle service routes, the one or more candidate shuttle service routes derived based on one or more of the selected historic non-shuttle service requests. The method may also include selecting one or more of the candidate shuttle service routes for use in providing a shuttle service. The selected one or more candidate shuttle service routes may be selected based on one or more of the selected candidate service providers.

[0007] In another exemplary embodiment, a method of managing a shuttle service is described. The method may include searching a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests. Each historic non-shuttle service request may include a start time and a route defined by at least an origin location and a destination location. The method may also include selecting one or more potential users for a shuttle service. One or more of the selected potential users may be identified as a price-sensitive user. The method may also include selecting one or more of the historic non-shuttle service requests. One or more of the selected historic non-shuttle service requests may be a request previously sent by one of the selected potential users. Alternatively or in addition, one or more of the selected historic non-shuttle service requests may be a request that was not allocated, not matched, and/or cancelled. The method may also include deriving a candidate shuttle service route for use in providing the shuttle service, the candidate shuttle service route derived based on one or more of the selected historic non-shuttle service requests.

[0008] In another exemplary embodiment, a method of managing a shuttle service is described. The method may include searching a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests received from a plurality of users. Each historic non-shuttle service request may include a start time and a route defined by at least an origin location and a destination location. The method may also include performing an analysis to identify one or more price-sensitive users. The method may also include selecting one or more potential users for a

shuttle service. At least one of the selected potential users may be identified as a price-sensitive user. The method may also include selecting one or more of the historic non-shuttle service requests when the historic non-shuttle service request is a request previously sent by one or more of the selected potential users. Alternatively or in addition, the method may include selecting one or more of the historic non-shuttle service requests when the historic non-shuttle service request is a request that was not allocated, not matched, and/or cancelled. Alternatively or in addition, the method may include selecting one or more of the historic non-shuttle service requests when the historic non-shuttle service request has at least a portion of its route in common with one or more other selected historic non-shuttle service requests. The method may also include selecting one or more candidate service providers available to service one or more of the selected historic non-shuttle service requests. The method may also include deriving one or more candidate shuttle service routes. The one or more candidate shuttle service routes may be derived based on one or more of the selected historic non-shuttle service requests. The method may also include selecting one of the candidate shuttle service routes for use in providing the shuttle service. The selected candidate shuttle service route may be selected based on one or more of the selected candidate service providers.

Brief Description of the Drawings

[0009] For a more complete understanding of the present disclosure, example embodiments, and their advantages, reference is now made to the following description taken in conjunction with the accompanying drawings, in which like reference numbers indicate like features, and:

[0010] **Figure 1** is an illustration of an example embodiment of a system for managing a shuttle service;

[0011] **Figure 2** is an illustration of an example embodiment of a processor for managing a shuttle service;

[0012] **Figure 3** is an illustration of an example embodiment of a method for managing a shuttle service;

[0013] **Figure 4** is an illustration of another example embodiment of a method for managing a shuttle service; and

[0014] **Figure 5** is an illustration of another example embodiment of a method for managing a shuttle service.

[0015] Although similar reference numbers may be used to refer to similar elements in the figures for convenience, it can be appreciated that each of the various example embodiments may be considered to be distinct variations.

[0016] Example embodiments will now be described with reference to the accompanying drawings, which form a part of the present disclosure and which illustrate example embodiments which may be practiced. As used in the present disclosure and the appended claims, the terms "embodiment," "example embodiment," "exemplary embodiment," and "present embodiment" do not necessarily refer to a single embodiment, although they may, and various example embodiments may be readily combined and/or interchanged without departing from the scope or spirit of example embodiments. Furthermore, the terminology as used in the present disclosure and the appended claims is for the purpose of describing example embodiments only and is not intended to be limitations. In this respect, as used in the present disclosure and the appended claims, the term "in" may include "in" and "on," and the terms "a," "an," and "the" may include singular and plural references. Furthermore, as used in the present disclosure and the appended claims, the term "by" may also mean "from," depending on the context. Furthermore, as used in the present disclosure and the appended claims, the term "if" may also mean "when" or "upon," depending on the context. Furthermore, as used in the present disclosure and the appended claims, the words "and/or" may refer to and encompass any and all possible combinations of one or more of the associated listed items.

Detailed Description

[0017] Recent developments in computing technology continue to improve the abilities for service providers and users alike to interact. Examples of service providers may include, but are not limited to, traditional and/or online merchants (e.g., retailers, department stores, e-commerce websites, etc.), providers of specialty products and/or services (e.g., transport-related services such as public transportation, private car hires, limousine services, shuttles, taxis, motorcycle taxis, ride-sharing, delivery, etc.), intermediaries, resellers, brokers, those who provide platforms/services for comparative shopping and/or reviews, etc. (hereinafter a "service provider"). Technological products and solutions offered by such service providers continue to empower users to interact and/or transact, including purchase, reserve, book, add-to-cart, leave a deposit or partial payment, save, cancel, and/or share, such products and/or services with more ease, effectiveness, and/or efficiency.

[0018] As an example, technological advances have enabled transport-related services, such as public transportation (trains, buses, etc.), taxis (cars, vans, motorcycles, and other types of vehicles), private car hires, limousine services, shuttles, ride-sharing, delivery, etc., and other types of services, to be searched for, priced, compared, reserved, and/or booked (and/or cancelled) directly and with ease from a computing device (e.g., a desktop computer, laptop computer/ultrabook,

mobile device, and/or wearable device) via a website or application (e.g., mobile application, widget, etc.).

[0019] Despite recent advances in such technologies, it is recognized in the present disclosure that difficulties or problems are oftentimes encountered when interacting online, and specifically, when managing shuttle-related services.

[0020] As an example, traditional approaches to providing shuttle services are generally driven by specified or known demands or needs for transport services between two or more locations. As a more specific example, a shuttle service may be provided to meet demands or needs of those who need to travel from their hotel to a convention center for a particular conference or show, and such shuttle services will generally be provided and/or arranged by the hotel, the convention center, the organizer of the conference or show, and/or a shuttle service provider engaged, hired, or requested by one of these. As another more specific example, a shuttle service may be provided or arranged by a company to meet demands or needs of their employees who need to travel from one office location of the company to another office location of the company. For such purposively provided and/or arranged shuttle services, shuttle service routes will generally include a fixed starting location for the shuttle service (which may be an already established bus stop, entrance to a building, or landmark location), a fixed ending location for the shuttle service (which may be another already established bus stop, entrance to a building, or landmark location), and a starting time for the shuttle service. While such traditional approaches may meet demands or needs for such related passengers when an organizer of such shuttle service knows or is made aware of a demand or need for such shuttle service between two specified locations, it is recognized in the present disclosure that there is a need for on-demand shuttle services, such as for situations where one or more of the following are true: there are no organizers, the origin and destination locations are not known and/or specified, the demand or need is not known and/or specified, the target users are not known and/or specified, etc.

[0021] Present example embodiments relate generally to and/or comprise systems, subsystems, processors, devices, logic, and methods for addressing conventional problems, including those described above and in the present disclosure, and more specifically, example embodiments relate to systems, subsystems, processors, devices, logic, and methods of managing shuttle and/or shuttle-related services. Although example embodiments may be described in the present disclosure as pertaining to and/or for use with passenger-based shuttle and/or shuttle-related services on buses, min buses, and/or other larger multi-passenger vehicles, it is to be understood that example embodiments may also be applicable to and/or for use in delivery and/or transporting parcels, items,

documents, etc. and in other environments, surroundings, situations, circumstances, and/or applications without departing from the teachings of the present disclosure. These example embodiments will now be described below with reference to the accompanying figures, which form a part of the present disclosure.

[0022] **Example embodiments of a system for managing shuttle services (e.g., system 100).**

[0023] As an overview, an example embodiment of a system (e.g., system 100) for managing shuttle or shuttle-related services is illustrated in **FIGURE 1**. The system (e.g., system 100) may include one or more processors (e.g., processor 150). As used in the present disclosure, when applicable, a reference to a processor may also refer to, apply to, and/or include a computing device, server, cloud-based computing, or the like, and/or functionality of a processor, computing device, server, cloud-based computing, or the like. The system 100 may also include one or more databases (e.g., database 140, 140a, 140b, 140c, 140d). The system 100 may also include one or more user computing devices (e.g., user computing device 110). The system 100 may also include one or more shuttle or service provider computing devices (e.g., shuttle or service provider computing device 120). The one or more processors 150, databases 140, 140a-d, user computing devices 110, and/or shuttle computing devices 120 may be in communication with one another via one or more networks (e.g., network, 130), such as the Internet, World Wide Web, one or more private networks, or the like.

[0024] As used in the present disclosure, an example embodiment of a shuttle service and/or shuttle-related service (hereinafter "shuttle service") manageable or managed by the processor 150 may include, among other things, multi-passenger, multi-user, and/or multi-parcel transport-related services. The shuttle service may be provided by a multi-passenger, multi-user, and/or multi-parcel vehicle (hereinafter "shuttle", "service provider", or "shuttle service provider") capable of being simultaneously booked by and/or providing services to more than one user at a time (e.g., providing services to more than one paid user for each driven route). The shuttle or service provider may include a car, sport utility vehicle (SUV), minivan, van, mini bus, bus, coach, non-land vehicle (e.g., boats, vehicles capable of traveling in or on water, vehicles capable of traveling in the air, airplanes, etc.), autonomous and semi-autonomous versions of one or more of the aforementioned example vehicles, and/or other multi-passenger vehicle. The shuttle service may include, among other things, a route, one or more stops along the route, a timing component, a cost component, and/or a fare or fee component.

[0025] In terms of routes, the shuttle service may be provided on a fixed, semi-fixed, and/or variable route. Each route may be predetermined and/or dynamically derived (e.g., derived on-

demand) based on one or more considerations and/or criterion. Each route may also be adjusted or changed during the servicing of the route, such as in situations where heavy traffic, construction, and/or an accident are encountered, when a new user has just booked on the shuttle during the servicing of the route, when a booked user did not make it on time to board the shuttle (e.g., exceeded the wait time, cancelled, etc.), etc. As will be further described in the present disclosure, each route may include an origin location and destination location.

[0026] In terms of stops along the route, the shuttle service may include one or more stops along the overall route, and such stops may also be predetermined and/or dynamically derived based on one or more considerations and/or criterion. For example, the shuttle service may include an origin location (or initial location, starting location, first location, etc., hereinafter "origin location"). Each origin location may be a single point (e.g., point on a map, latitude/longitude coordinates, GPS coordinates, etc.), landmark, address, location name, intersection, area/region, etc. The shuttle service may also include a destination location (or final location, ending location, last location, etc., hereinafter "destination location"). Each destination location may be a single point (e.g., point on a map, latitude/longitude coordinates, GPS coordinates, etc.), landmark, address, and/or area/region. The shuttle service may also include one or more pickup location or stops for picking up or allowing passengers or parcels to be picked up or boarded (hereinafter "pickup location" or "pick-up location"). Each pick-up location may be a single point (e.g., point on a map, latitude/longitude coordinates, GPS coordinates, etc.), landmark, address, and/or area/region. The shuttle service may also include one or more drop-off locations or stops for dropping off or allowing passengers or parcels to be dropped off or disembarked (hereinafter "drop off location" or "drop-off location"). Each drop-off location may be a single point (e.g., point on a map, latitude/longitude coordinates, GPS coordinates, etc.), landmark, address, and/or area/region. Each stop may also be adjusted or changed during the servicing of the route, such as in situations where heavy traffic, construction, and/or an accident are encountered, when a new user has just booked on the shuttle during the servicing of the route, when a booked user did not make it on time to board the shuttle (e.g., exceeded the wait time, cancelled, etc.), etc. As will be further described in the present disclosure, each route may include an origin location and destination location. It is to be understood in the present disclosure that a pick-up location may be the same location as a drop-off location (e.g., the location may pick up one user and drop off another user). Furthermore, a pick-up location may also be the same location as the origin location, and a drop-off location may also be the same location as the destination location.

[0027] In terms of timing, the shuttle service may include a start time or time period (or initial time, origin time, etc., hereinafter "start time" or "starting time"), which may be a date, day, time, time period, and/or estimated time or time period when the shuttle or shuttle service will or is expected to commence at, arrives at, and/or depart from the origin location and/or when the shuttle services commences its overall route. The shuttle service may also include an end time or time period (or final time, destination time, etc., hereinafter "end time" or "ending time"), which may be a date, day, time, time period, and/or estimated time or time period when the shuttle or shuttle service arrives at or is expected to arrive at the destination location and/or when the shuttle service completes its overall route. The shuttle service may also include one or more pick-up times, which may be a date, day, time, time period, and/or estimated time or time period when the shuttle or shuttle service arrives at or is expected to arrive at a pick-up location. The shuttle service may also include one or more drop-off times, which may be a day, date, time, time period, and/or estimated time or time period when the shuttle or shuttle service arrives at or is expected to arrive at a drop-off location.

[0028] In terms of costs, the shuttle service may determine a cost associated with providing the shuttle service for each route. For example, the cost may be set as a fixed cost amount and/or variable amount (e.g., based on distance, number of stops, day of the week, time of the day, discounted amount, promotional amount, etc.). The cost may include the cost that may be incurred by each shuttle service provider to service each route. Such costs may take into consideration, among other things, costs associated with fuel, vehicle depreciation, opportunity cost, tolls and/or other additional costs to operate and/or maintain the vehicle, idle and/or wait times, costs to travel to the origin location of the route, commissions and/or fees to pay to others (e.g., owner, employer, higher-level service provider, platform provider, etc.), traffic considerations, overtime, holidays, etc.

[0029] In terms of fares and/or fees, the shuttle service may (or may not) require payment and/or require its passengers or users to pay a fixed or flat amount and/or variable amount (e.g., based on distance, number of stops, day of the week, time of the day, discounted amount, promotional amount, etc.). The fares and/or fees may be determined based on one or more factors or considerations, such as the number of potential users to be serviced by each shuttle for each route, availability and/or location of each shuttle, capacity of each shuttle, costs for each service provider (as described above and in the present disclosure), fees for other types of services, current market rates, competitor's fees, etc.

[0030] As a more specific example, a shuttle service may be a multiple passenger or user shuttle service provided by a shuttle (e.g., bus or mini bus) capable of serving 7 users or passengers that

travels along a predetermined or dynamically determined overall route in Singapore between an origin location set as 6 Shenton Way and a destination location set as Marina Bay Financial Centre having a start time at the origin location of 2 pm today and having two pickup locations and/or one drop off location along the route.

[0031] As used in the present disclosure, an example embodiment of a non-shuttle service and/or non-shuttle-related service (hereinafter "non-shuttle service") may include those transport-related services that are not or may not be considered as a shuttle service. The non-shuttle service may be provided by a vehicle (hereinafter "non-shuttle service provider") capable of being singly booked by and/or providing services to one user at a time (e.g., providing services to one paid user for each route, but such service may include accompanying passengers). The non-shuttle service provider may include a car, sport utility vehicle (SUV), minivan, van, non-land vehicle (e.g., boats, vehicles capable of traveling in or on water, vehicles capable of traveling in the air, airplanes, etc.), autonomous and semi-autonomous versions of one or more of the aforementioned example vehicles, and/or other vehicle. As a more specific example, each non-shuttle service may include those provided by a standard or traditional taxi service, a private car service (e.g., GrabCar service provided by Grab), a limousine service, etc.

[0032] Example embodiments of the system (e.g., system 100) may include or not include one or more of the elements described above and in the present disclosure, may include additional elements, may include equivalent elements, may be formed and/or used in different sequences, actions, combinations, and/or configurations, and/or one or more of the elements (and/or elements of elements) may be combinable into a single element or divided into two or more elements. Communication using technologies other than the Internet are also contemplated in example embodiments without departing from the teachings of the present disclosure. These systems 100, and elements and functionalities thereof, will now be further explained with reference to the accompanying figures.

[0033] **User computing device (e.g., user computing device 110).**

[0034] As illustrated in at least Figure 1, the system 100 may include one or more computing devices 110 for use by users (e.g., those who send shuttle service requests and/or non-shuttle service requests). User computing devices 110 may be any device, computing device, mobile computing device, processor, controller, or the like, configurable or configured to perform a processing of information, wired and/or wireless communications, and/or any of the other actions and/or processes described above and in the present disclosure. For example, the user computing device 110 may be configurable to perform wireless communications through 3G networks, 4G networks, 4G LTE

networks, or the like, such as via a SIM card installed in the user computing device 110, or the like. Alternatively or in addition, the user computing device 110 may be configurable to perform wireless communications via WLANs, such as Wi-Fi networks and Li-Fi networks, and/or via other forms, such as Bluetooth, NFC, and other forms of wireless signals. One or more of the aforementioned communications may be between example embodiments of the user computing device 110, one or more processors 150, one or more shuttle computing devices 120, one or more databases 140, 140a-d, and/or one or more networks 130. The user computing device 110 may be configured (e.g., via an application or mobile application installed on the user computing device, via a web browser, etc.) to communicate, wirelessly or via wires, with the processor 150 and such communications may include sending shuttle service requests and/or non-shuttle service requests, viewing available shuttle service routes, receiving notifications of new and/or existing shuttle service routes, booking a shuttle service and/or non-shuttle service, etc.

[0035] In an example embodiment, the user computing device 110 described above and in the present disclosure may be directed to and/or include mobile computing devices, smart phones, mobile phones, PDAs phablets, tablets, portable computers, laptops, notebooks, ultrabooks, readers, electrical devices, media players, specialized devices (e.g., a dedicated or specialized device to communicate with and/or operate in the system 100, or parts thereof), a plurality of computing devices interacting together in part or in whole, and other specialized computing devices and industry-specific computing devices. The user computing device 110 described herein may also be directed to and/or include wearable computing devices, including watches (such as the Apple Watch), glasses, etc. The user computing device 110 may also be directed to and/or include a virtual machine, computer, node, instance, host, or machine in a networked computing environment. Such networked environment, and/or cloud, may be a collection of machines connected by communication channels that facilitate communications between machines and allow for machines to share resources. Such resources may encompass any types of resources for running instances including hardware (such as servers, clients, mainframe computers, networks, network storage, data sources, memory, central processing unit time, scientific instruments, and other computing devices), as well as software, software licenses, available network services, and other non-hardware resources, or a combination thereof.

[0036] **Shuttle computing device (e.g., shuttle computing device 120).**

[0037] As illustrated in at least Figure 1, the system 100 may include one or more computing devices 120 for use by shuttles (i.e., those who provide shuttle services). Shuttle computing devices 120 may be any device, computing device, mobile computing device, processor, controller, or the

like, configurable or configured to perform a processing of information, wired and/or wireless communications, and/or any of the other actions and/or processes described above and in the present disclosure. For example, the shuttle computing device 120 may be configurable to perform wireless communications through 3G networks, 4G networks, 4G LTE networks, or the like, such as via a SIM card installed in the service provider computing device 120, or the like, and may also be configurable or capable of performing vehicle-to-vehicle communications. In addition to or in replacement, the shuttle computing device 120 may be configurable to perform wireless communications via WLANs, such as Wi-Fi networks and Li-Fi networks, and/or via other forms, such as Bluetooth, NFC, and other forms of wireless signals. One or more of the aforementioned communications may be between example embodiments of the shuttle computing device 120, one or more processors 150, one or more user computing devices 110, one or more databases 140, 140a-d, and/or one or more networks 130. The shuttle computing device 120 may be configured (e.g., via an application or mobile application installed on the shuttle computing device, via a web browser, etc.) to communicate, wirelessly or via wires, with the processor 150 and such communications may include receiving shuttle services and shuttle service routes that are available or need to be serviced, viewing available shuttle service routes, receiving notifications of new and/or existing shuttle service routes, accepting to service a shuttle service or shuttle service route, etc.

[0038] In an example embodiment, the shuttle computing device 120 described above and in the present disclosure may be directed to and/or include mobile computing devices, smart phones, mobile phones, PDAs phablets, tablets, portable computers, laptops, notebooks, ultrabooks, readers, electrical devices, media players, specialized devices (e.g., a dedicated or specialized device to communicate with and/or operate in the system 100, or parts thereof), a plurality of computing devices interacting together in part or in whole, and other specialized computing devices and industry-specific computing devices. The shuttle computing device 120 may also be a part of or be integrated with shuttles, including those shuttles that are autonomous vehicles, semi-autonomous vehicles, and non-autonomous vehicles. The shuttle computing device 120 described herein may also be directed to and/or include wearable computing devices, including watches (such as the Apple Watch), glasses, etc. The shuttle computing device 120 may also be directed to and/or include a virtual machine, computer, node, instance, host, or machine in a networked computing environment. Such networked environment, and/or cloud, may be a collection of machines connected by communication channels that facilitate communications between machines and allow for machines to share resources. Such resources may encompass any types of resources for running instances including hardware (such as servers, clients, mainframe computers, networks, network

storage, data sources, memory, central processing unit time, scientific instruments, and other computing devices), as well as software, software licenses, available network services, and other non-hardware resources, or a combination thereof. It is to be understood in the present disclosure that the shuttle computing device 120 and the user computing device 110 may be any computing device operable to perform information processing and wireless communications, and the shuttle computing device 120 and the user computing device 110 may be a similar or the same type of computing device.

[0039] **Processor (e.g., processor 150).**

[0040] As illustrated in at least Figure 1 and **FIGURE 2**, the system 100 may include one or more processors (e.g., processor 150). An example embodiment of the processor 150 may include one or more functionalities of one or more non-shuttle service request identifiers (e.g., non-shuttle service request identifier 151), one or more non-shuttle service request selectors (e.g., non-shuttle service request selector 152), one or more candidate service route generators (e.g., candidate service route generator 153), one or more candidate shuttle service route selectors (e.g., candidate shuttle service route selector 156), one or more potential user selectors (e.g., potential user selector 154), one or more candidate service provider selectors (e.g., candidate service provider selector 155), one or more shuttle service route managers (e.g., shuttle service route manager 157), one or more shuttle-side notification and dispatch controllers (e.g., shuttle-side notification and dispatch controller 158), and/or one or more user-side notification and booking controllers (e.g., user-side notification and booking controller 159). The processor 150 may also be configurable or configured to perform one or more operations, functions/functionalities, and/or processes of the non-shuttle service request identifier 151, non-shuttle service request selector 152, candidate service route generator 153, potential user selector 154, candidate service provider selector 155, candidate shuttle service route selector 156, shuttle service route manager 157, shuttle-side notification and dispatch controller 158, and/or user-side notification and booking controller 159.

[0041] The processor 150 (and/or its elements, as described above and in the present disclosure) may be any processor, server, device, computing device, server, controller, microprocessor, microcontroller, microchip, semiconductor device, virtual machine, or the like, configurable or configured to perform, among other things, a processing of information, voice and/or data communications, and/or other actions described above and in the present disclosure. Alternatively or in addition, the processor 150 (and/or its elements, as described in the present disclosure) may include and/or be a part of a virtual machine, cloud-based computing, processor, computer, node, instance, host, or machine, including those in a networked computing environment. As used in the

present disclosure, such a network and/or cloud may be a collection of devices connected by communication channels that facilitate communications between devices and allow for devices to share resources. Such resources may encompass any types of resources for running instances including hardware (such as servers, clients, mainframe computers, networks, network storage, data sources, memory, central processing unit time, scientific instruments, and other computing devices), as well as software, software licenses, available network services, and other non-hardware resources, or a combination thereof. A network or cloud may include, but is not limited to, computing grid systems, peer to peer systems, mesh-type systems, distributed computing environments, cloud computing environment, etc. Such network or cloud may include hardware and/or software infrastructures configured to form a virtual organization comprised of multiple resources which may be in geographically disperse locations. Network may also refer to a communication medium between processes on the same device. Also as referred to herein, a network element, node, or server may be a device deployed to execute a program operating as a socket listener and may include software instances.

[0042] Example embodiments of the processor 150 may include or not include one or more of the elements and/or functionalities described above and in the present disclosure, may include additional elements and/or functionalities, may be formed and/or used in different sequences, actions, combinations, and/or configurations, and/or one or more of the elements and/or functionalities (and/or elements of elements and/or functionalities of elements) may be combinable into a single element, single functionality and/or process, divided into two or more elements, and/or divided into two or more functionalities and/or processes. The processor 150, and elements and functionalities thereof, will now be further explained with reference to the accompanying figures.

[0043] Non-shuttle service request identifier (e.g., non-shuttle service request identifier 151).

[0044] The processor 150 may include (and/or be configurable or configured to perform one or more functionalities of) one or more non-shuttle service request identifiers (e.g., non-shuttle service request identifier 151). The non-shuttle service request identifier 151 may be configurable or configured to search a database (e.g., a database of historic transport-related requests 140a, database of historic non-shuttle service requests 140b, database of historic shuttle service requests 140c, and/or database of users 140d) to identify one or more historic non-shuttle service requests. Alternatively or in addition, the non-shuttle service request identifier 151 may be configurable or configured to receive historic shuttle service requests and/or non-shuttle service requests (e.g., from the processor 150, an element of the processor 150, one or more databases 140a-d, etc.) and identify one or more historic non-shuttle service requests. Such searching, receiving, and/or identifying may

be performed continuously (e.g., whenever a non-shuttle service request has been received by the system 100), intermittently (e.g., whenever a predetermined number of non-shuttle service requests have been received by the system 100), periodically (e.g., once per hour, once per day, once per week, once per month, etc.), and/or scheduled based on other considerations (e.g., whenever a predetermined number of price-sensitive users have been identified, whenever a predetermined number of unallocated, unmatched, and/or cancelled service requests for non-shuttle services reaches a predetermined number, whenever a demand for shuttle services reaches a predetermined number, whenever a supply for shuttle services reaches a predetermined number, etc.). It is to be understood that the identified historic non-shuttle service requests may include a service request that was successfully matched to a service provider, a service request that was successfully booked and completed, a service request that was unsuccessfully matched to a service provider, a service request that was unallocated, a service request that was abandoned, a service request that was cancelled by the user, and/or a service request that was cancelled by the service provider.

[0045] Each identified historic non-shuttle service request may include a start time (e.g., time the request was initiated on the user computing device 110, time the request was sent by the user computing device 110, time the request was received by the processor 150, time the request was processed by the processor 150 (e.g., request matched to a service provider, request booked, request not matched to a service provider, request not allocated, request cancelled, request abandoned, etc.), time the non-shuttle service commenced, etc.). Each identified historic non-shuttle service request may also include an origin location (e.g., initial location, starting location, desired location, pick-up location, etc.). Each identified historic non-shuttle service request may also include a destination location (e.g., final location, ending location, drop-off location, etc.). Each identified historic non-shuttle service request may also include one or more routes, which may be defined by at least the origin and destination locations. For example, each identified historic non-shuttle service request may include the best or most optimal route based on the above-mentioned start time, and may also include other optional, alternative, or less optimal routes.

[0046] In an example embodiment, the non-shuttle service request identifier 151 may be configurable or configured to search for, receive, and/or identify historic non-shuttle service requests based on one or more considerations and/or criterion, such as by geographical region, time or period of time (e.g., years, months, weeks, days, hours, minutes, seconds, etc.), type of service requested (e.g., taxi, private car, public transportation, limousine, ride share, delivery, etc.), location (e.g., initial location, origin location, starting location, desired location, pick-up location, destination location, etc.), route, user-specific criterion (which may be performed by the potential user selector

154), availability and/or location of shuttles (which may be performed by the candidate service provider selector 155), etc. In respect to geographical region, the non-shuttle service request identifier 151 may be configurable to identify historic non-shuttle service requests based on country, region, province, state, city, county, district, specific area (e.g., within certain city blocks, on certain roads, within a geometric shape drawn on a map, etc.), etc. In respect to time periods, the non-shuttle service request identifier 151 may be configurable to identify historic non-shuttle service requests based on year, month, week, day, specific hour(s) and/or minutes, peak hours, rush hours, etc. In respect to user-specific criterion, the non-shuttle service request identifier 151 may be configurable to identify historic non-shuttle service requests based on whether the user of the request is a price-sensitive user, history of unallocated requests, history of unmatched requests, history of cancelled requests, history of abandoned requests, whether the user of the request is a frequent user of lower cost services such as shuttle, ride share, etc. In respect to route, the non-shuttle service request identifier 151 may be configurable to identify historic non-shuttle service requests that have similar, the same, and/or overlapping routes (and such routes may include the best or most optimal route, secondary routes, etc.). In respect to availability and/or location of shuttles, the non-shuttle service request identifier 151 may be configurable to identify historic non-shuttle service requests based on whether a location associated with the request (e.g., the origin location and/or destination location) is or will be near to a location of an available or to-be-available shuttle.

[0047] As a more specific example, the non-shuttle service request identifier 151 may be configurable to identify non-shuttle requests from price-sensitive users (and/or users having a history of unallocated, unmatched, cancelled, and/or abandoned requests) having an origin location in one or more predetermined or dynamically generated areas of the central business district (CBD) of a city, a destination location in one or more predetermined or dynamically generated areas of the CBD of the city, and a starting time during morning rush hour (e.g., between 8-815am). In such an example, the non-shuttle service request identifier 151 may also be configurable to identify historic non-shuttle service requests from price-sensitive users (and/or users having a history of unallocated, unmatched, cancelled, and/or abandoned requests) having origin locations in other (e.g., adjacent) predetermined or dynamically generated areas of the CBD of that city, destination locations in other (e.g., adjacent) predetermined or dynamically generated areas of the CBD of that city, and/or for the same and/or different starting times.

[0048] It is recognized in the present disclosure that the one or more criterion and/or parameters, including geographical region, starting time, time or period of time, origin location, destination

location, user-specific criterion, availability and/or location of shuttles, etc., used by the non-shuttle service request identifier 151 may be any criterion and/or parameter thereof (e.g., any amount, duration, type, etc.) without departing from the teachings of the present disclosure.

[0049] Non-shuttle service request selector (e.g., non-shuttle service request selector 152).

[0050] The processor 150 may include (and/or be configurable or configured to perform one or more functionalities of) one or more non-shuttle service request selectors (e.g., non-shuttle service request identifier 152). The non-shuttle service request selector 152 may be configurable or configured to select one or more historic non-shuttle service requests. The selection may be performed from among the historic non-shuttle service requests identified by the non-shuttle service request identifier 151. Alternatively or in addition, the non-shuttle service request selector 152 may be configurable or configured to receive previously selected (or not previously selected) historic shuttle and/or non-shuttle service requests (e.g., from the processor 150, an element of the processor 150, one or more databases 140a-d, etc.).

[0051] In an example embodiment, the selecting and/or receiving by the non-shuttle service request selector 152 may be performed continuously (e.g., whenever a non-shuttle service request has been identified), intermittently (e.g., whenever a predetermined number of non-shuttle service requests have been identified), periodically (e.g., once per hour, once per day, once per week, once per month, etc.), and/or scheduled based on other considerations (e.g., whenever a predetermined number of price-sensitive users have been selected, whenever a predetermined number of unallocated, unmatched, and/or cancelled service requests for non-shuttle services reaches a predetermined number, whenever a demand for shuttle services reaches a predetermined number, whenever a supply for shuttle services reaches a predetermined number, etc.).

[0052] It is to be understood that the selected historic non-shuttle service requests may include a service request that was successfully matched to a service provider, a service request that was successfully booked and completed, a service request that was unsuccessfully matched to a service provider, a service request that was unallocated, a service request that was abandoned, a service request that was cancelled by the user, and/or a service request that was cancelled by the service provider.

[0053] Each selected historic non-shuttle service request may include a start time (e.g., time the request was initiated on the user computing device 110, time the request was sent by the user computing device 110, time the request was received by the processor 150, time the request was processed by the processor 150 (e.g., request matched to a service provider, request booked, request not matched to a service provider, request not allocated, request cancelled, request abandoned, etc.),

time the non-shuttle service commenced, etc.). Each selected historic non-shuttle service request may also include an origin location (e.g., initial location, starting location, desired location, pick-up location, etc.). Each selected historic non-shuttle service request may also include a destination location (e.g., final location, ending location, drop-off location, etc.). Each selected historic non-shuttle service request may also include one or more routes, which may be defined by at least the origin location and the destination location. For example, each selected historic non-shuttle service request may include the best or most optimal route based on the above-mentioned start time, as well as other optional, alternative, or less optimal routes.

[0054] In an example embodiment, the non-shuttle service request selector 152 may be configurable or configured to select and/or receive historic non-shuttle service requests based on one or more criterion and/or conditions, such as by geographical region, time or period of time (e.g., years, months, weeks, days, hours, minutes, seconds, etc.), type of service requested (e.g., taxi, private car, public transportation, limousine, ride share, delivery, etc.), location (e.g., initial location, origin location, starting location, desired location, pick-up location, destination location, etc.), user-specific criterion (which may be performed by the potential user selector 154), availability and/or location of shuttles (which may be performed by the candidate service provider selector 155), etc. The non-shuttle service request selector 152 may also perform the selecting through a cooperation with one or more other elements of the system 100, such as with the potential user selector 154, the candidate service provider selector 155, databases 140, 140a-d, etc. In respect to geographical region, the non-shuttle service request selector 152 may be configurable to select historic non-shuttle service requests based on country, region, province, state, city, county, district, specific area (e.g., within certain city blocks, on certain roads, within a geometric shape drawn on a map, etc.), etc. In respect to time periods, the non-shuttle service request selector 152 may be configurable to select historic non-shuttle service requests based on year, month, week, day, specific hour(s) and/or minutes, peak hours, rush hours, etc. In respect to user-specific criterion, the non-shuttle service request selector 152 may be configurable to select historic non-shuttle service requests through a cooperation with the potential user selector 154, which may assist in identifying and/or selecting historic non-shuttle service requests based on whether the user of the request is a price-sensitive user, history of unallocated requests, history of unmatched requests, history of cancelled requests, history of abandoned requests, whether the user of the request is a frequent user of lower cost services such as shuttle, ride share, etc. In respect to route, the non-shuttle service request selector 152 may be configurable to select historic non-shuttle service requests based on whether the one or more routes associated with the requests have similar, the same, and/or overlapping routes or

portions of routes. Such one or more routes may include, among other routes, the best or most optimal route, secondary routes, etc. In respect to availability and/or location of shuttles, the non-shuttle service request selector 152 may be configurable to select historic non-shuttle service requests based on whether a location associated with the request (e.g., origin location and/or destination location) is or will be near to a location of an available or to-be-available shuttle. It is recognized in the present disclosure that the one or more criterion and/or parameters, including geographical region, starting time, time or period of time, origin location, destination location, user-specific criterion, availability and/or location of shuttles, etc., used by the non-shuttle service request selector 152 may be any criterion and/or parameter thereof (e.g., any amount, duration, type, etc.) without departing from the teachings of the present disclosure.

[0055] In an example embodiment, the non-shuttle service request selector 152 may be configurable to select one or more historic non-shuttle service requests having at least a portion of one or more of its routes in common with one or more other selected and/or identified historic non-shuttle service requests.

[0056] Alternatively or in addition to the route-based selection process by the non-shuttle service request selector 152, as described above and in the present disclosure, the potential user selector 154 may first identify and/or select one or more potential users for the shuttle service. The one or more potential users may be users that have been identified as being price-sensitive users. Alternatively or in addition, the one or more potential users may also be users that have been identified as having a history of unallocated, unmatched, cancelled, and/or abandoned requests. The non-shuttle service request selector 152 may then be configurable to select one or more historic non-shuttle service requests that have been identified and/or selected by the potential user selector 154 as being a request previously sent by one or more of the selected potential users. Alternatively or in addition, the non-shuttle service request selector 152 may be configurable to select one or more historic non-shuttle service requests that have been identified and/or selected as being a request that was not allocated, not matched, cancelled, and/or abandoned.

[0057] In an example embodiment, the non-shuttle service request selector 152 and the non-shuttle service request identifier 151 may be combined and/or integrated into a single or unitary element and/or process, in which case such a unified element or process may be configurable or configured to perform the searching, receiving, identifying, and/or selecting operations described above and in the present disclosure.

[0058] Candidate service route generator (e.g., candidate service route generator 153).

[0059] The processor 150 may include (and/or be configurable or configured to perform one or more functionalities of) of one or more candidate service route generators (e.g., candidate service route generator 153). The candidate service route generator 153 may be configurable or configured to derive, generate, and/or dynamically derive and/or generate (hereinafter "derive") one or more candidate shuttle service routes. The deriving of the one or more candidate shuttle service routes may be based on one or more of the historic non-shuttle service requests selected by the non-shuttle service request selector 152. Alternatively or in addition, the non-shuttle service request selector 152 may be configurable or configured to select, modify, and/or adjust candidate shuttle service routes that were previously derived (or not previously derived) by the candidate service route generator 153.

[0060] In an example embodiment, the deriving and/or selecting by the candidate service route generator 153 may be dynamically performed in a continuous manner (e.g., whenever a non-shuttle service request has been selected), intermittent manner (e.g., whenever a predetermined number of non-shuttle service requests have been selected), periodical manner (e.g., once per hour, once per day, once per week, once per month, etc.), and/or scheduled manner based on other considerations (e.g., whenever a predetermined number of price-sensitive users have been selected, whenever a predetermined number of unallocated, unmatched, and/or cancelled service requests for non-shuttle services reaches a predetermined number, whenever a demand for shuttle services reaches a predetermined number, whenever a supply for shuttle services reaches a predetermined number, etc.).

[0061] It is to be understood that the candidate shuttle service routes may be derived for potential users that have been identified as being price-sensitive users, potential users that have previously booked a shuttle service, potential users that have not previously booked a shuttle service, potential users that have a history of unsuccessful matches to a service provider, potential users that have a history of unallocated service requests, potential users that have a history of abandoned requests, potential users that have a history of cancelling service requests, and/or potential users that have a history of having their service requests being cancelled by a service provider.

[0062] In deriving the candidate shuttle service routes, the candidate service route generator 153 may derive an origin location (e.g., initial location, starting location, desired location, pick-up location, etc.) for each candidate shuttle service route. The origin location may be the location where the candidate shuttle service route will start from. The candidate service route generator 153 may also derive a start time for each candidate shuttle service route. The start time may be the time

when the candidate shuttle service route will start from, arrive at, and/or depart from the origin location of the candidate shuttle service route. The candidate service route generator 153 may also derive a destination location (e.g., final location, ending location, drop-off location, etc.) for each candidate shuttle service route. The destination location may be the location where the candidate shuttle service route will end. The candidate service route generator 153 may also derive one or more pick-up locations for each candidate shuttle service route. The candidate service route generator 153 may also derive one or more drop-off locations for each candidate shuttle service route.

[0063] In an example embodiment, the candidate service route generator 153 may be configurable or configured to derive the candidate shuttle service route, the origin location of the candidate shuttle service route, the start time of the candidate shuttle service route, and the destination location of the candidate shuttle service route based on one or more criterion and/or conditions, such as by geographical region, time or period of time (e.g., start times of the selected historic non-shuttle service requests, ending times of the selected historic non-shuttle service requests etc.), location (e.g., origin locations of the selected historic non-shuttle service requests, destination locations of the selected historic non-shuttle service requests, etc.), routes (e.g., routes of the selected historic non-shuttle service requests), user-specific criterion (which may be performed by the potential user selector 154), availability and/or location of shuttles (which may be performed by the candidate service provider selector 155), etc. The candidate service route generator 153 may also perform the deriving through a cooperation with one or more other elements of the system 100, such as with the potential user selector 154, the candidate service provider selector 155, databases 140, 140a-d, etc. In respect to geographical region, the candidate service route generator 153 may be configurable to derive candidate shuttle service routes for each country, region, province, state, city, county, district, specific area (e.g., within certain city blocks, on certain roads, within a geometric shape drawn on a map, etc.), etc., the granularity of which may be based on supply, demand, date, day, time, holidays or special events, etc. In respect to time periods, the candidate service route generator 153 may be configurable to derive candidate shuttle service routes for each year, month, week, day, specific hour(s) and/or minutes, peak hours, rush hours, etc. In respect to user-specific criterion, the candidate service route generator 153 may be configurable to derive the candidate shuttle service routes through a cooperation with the potential user selector 154, which may consider and/or target certain users or types of users (e.g., price-sensitive user, users that are frequent users of low cost services, and/or users with a history of unallocated requests, unmatched requests, cancelled requests, abandoned requests, etc.). In respect to route, the candidate service

route generator 153 may be configurable to derive candidate shuttle service routes based on a number or frequency of selected historic non-shuttle service routes having similar, the same, and/or overlapping routes or portions of routes. In respect to availability and/or location of shuttles, the candidate service route generator 153 may be configurable to derive candidate shuttle service routes based on whether a potential service provider of the shuttle service is or will be available and has or will have a location near to an origin location of candidate shuttle service route. It is recognized in the present disclosure that the one or more criterion and/or parameters, including geographical region, starting time, time or period of time, origin location, destination location, route, user-specific criterion, availability and/or location of shuttles, etc., used by the candidate service route generator 153 may be any criterion and/or parameter thereof (e.g., any amount, duration, type, etc.) without departing from the teachings of the present disclosure.

[0064] Potential user selector (e.g., potential user selector 154).

[0065] As described above and in the present disclosure, the processor 150 may include (and/or be configurable or configured to perform one or more functionalities of) one or more potential user selectors (e.g., potential user selector 154). The potential user selector 154 may be configurable or configured to perform an analysis, identification, and/or selection of potential users of a shuttle service. The analysis, identification, and/or selection of the potential users of the shuttle service may be based on, among other things, user information and/or settings, user priority level, user loyalty level, user payment history (form of payment and amounts), user booking history (e.g., history of booking low cost services, history of booking shuttle services, history of being price-sensitive, history of unallocated service requests, history of unmatched service requests, history of cancelled service requests, history of abandoned service requests, etc.), one or more of the historic non-shuttle service requests stored in a database 140, 140a-d, one or more of the identified and/or selected historic non-shuttle service requests, etc. Alternatively or in addition, the potential user selector 154 may be configurable or configured to select and/or drop potential users that were previously selected (or not previously selected) by the potential user selector 154.

[0066] In an example embodiment, the analysis, identification, and/or selection by the potential user selector 154 may be dynamically or non-dynamically performed for some or all users in a continuous manner, intermittent manner, periodical manner (e.g., once per hour, once per day, once per week, once per month, etc.), and/or scheduled manner based on one or more other considerations (e.g., for new users, new regions serviced, change in user activity level, change in services used by users, etc.).

[0067] Candidate service provider selector (e.g., candidate service provider selector 155).

[0068] As described above and in the present disclosure, the processor 150 may include (and/or be configurable or configured to perform one or more functionalities of) one or more candidate service provider selectors (e.g., candidate service provider selector 155). The candidate service provider selector 155 may be configurable or configured to perform an analysis, identification, and/or selection of candidate shuttles (or candidate service providers) for providing a shuttle service. The analysis, identification, and/or selection of the candidate shuttles for providing the shuttle service may be based on, among other things, availability of the candidate shuttle, existing schedule for servicing shuttle routes, current servicing of a shuttle route, current location of the candidate shuttle, expected/projected/predicted/estimated location of the candidate shuttle, etc. Alternatively or in addition, the candidate service provider selector 155 may be configurable or configured to select and/or drop candidate shuttles that were previously selected (or not previously selected) by the candidate service provider selector 155.

[0069] In an example embodiment, the analysis, identification, and/or selection by the candidate service provider selector 155 may be dynamically or non-dynamically performed for some or all shuttle service providers in a continuous manner, intermittent manner, periodical manner (e.g., once per hour, once per day, once per week, once per month, etc.), and/or scheduled manner based on one or more other considerations (e.g., for shuttle service providers based on activity level, new regions serviced, etc.).

[0070] Candidate shuttle service route selector (e.g., candidate shuttle service route selector 156).

[0071] The processor 150 may include (and/or be configurable or configured to perform one or more functionalities of) one or more candidate shuttle service route selectors (e.g., candidate shuttle service route selector 156). The candidate shuttle service route selector 156 may be configurable or configured to select one or more of the derived candidate shuttle service routes (as derived by the candidate shuttle service route generator 153) to provide a shuttle service. Alternatively or in addition, the candidate shuttle service route selector 156 may be configurable or configured to select, modify, and/or adjust candidate shuttle service routes that were previously selected (or not previously selected) by the candidate shuttle service route selector 156.

[0072] In performing the selecting of one or more of the derived candidate shuttle service routes to provide a shuttle service, the candidate shuttle service route selector 156 and/or one or more other elements of the processor 150 may be configurable or configured to first perform a projection, estimation, and/or prediction of the number of potential users of one or more of the candidate shuttle service routes. The candidate shuttle service route selector 156 and/or one or more other elements

of the processor 150 may also be configurable or configured to perform a projection, estimation, and/or prediction of the availability and/or locations of potential shuttle service providers that may be able to service one or more of the candidate shuttle service routes, and/or the number of required shuttle service providers that may be needed to service each candidate shuttle service route based on, among other things, the projected, estimated, and/or predicted number of potential users.

[0073] The candidate shuttle service route selector 156 and/or one or more other elements of the processor 150 may also be configurable or configured to perform an analysis and/or derivation of, among other things, the costs that would be incurred by each shuttle service provider to service each candidate shuttle service route. Such costs may take into consideration, among other things, the fuel cost, vehicle depreciation cost, opportunity cost, tolls and/or other additional fees, idle and/or wait times, costs to travel to the origin location of the candidate shuttle service route, commissions and/or fees to pay to others (e.g., owner, employer, platform provider, etc.), traffic considerations, etc.

[0074] The candidate shuttle service route selector 156 and/or one or more other elements of the processor 150 may also be configurable or configured to perform an analysis and/or derivation of the fees or fares to charge users of the shuttle service. Such fees may be a flat fee or variable fee based on distance, number of stops, date, day, time, holidays, traffic, etc. In determining such fees, various factors may be taken into consideration, including number of potential users, availability and location of potential shuttle service providers, costs for the shuttle service providers, fees for other services, current market fees, competitor fees, etc. may also be taken into consideration.

[0075] It is to be understood that other cost-related, fee-related, revenue-related, and/or profit-related considerations may also be taken into consideration. Alternatively or in addition, the candidate shuttle service route selector 156 may be configurable or configured to select, modify, and/or adjust potential user, potential shuttle service provider, cost, fee, revenue, and/or profit information that were previously analyzed, derived, projected, predicted, and/or estimated (each as applicable) (or not previously analyzed, derived, projected, predicted, and/or estimated, each as applicable) by the candidate shuttle service route selector 156.

[0076] The candidate shuttle service route selector 156 may then be configurable or configured to select one or more of the derived candidate shuttle service routes to provide a shuttle service based on one or more of the potential users, potential shuttle service providers, cost, fee, revenue, and/or profit considerations described above and in the present disclosure.

[0077] The selecting of the one or more derived candidate shuttle service routes by the candidate shuttle service route selector 156 may be dynamically performed in a continuous manner

(e.g., whenever a candidate shuttle service route has been derived), intermittent manner (e.g., whenever a predetermined number of candidate shuttle service routes have been derived), periodical manner (e.g., once per hour, once per day, once per week, once per month, etc.), and/or scheduled manner based on other considerations (e.g., whenever a predetermined number of price-sensitive users have been selected, whenever a predetermined number of unallocated, unmatched, and/or cancelled service requests for non-shuttle services reaches a predetermined number, whenever a demand for shuttle services reaches a predetermined number, whenever a supply for shuttle services reaches a predetermined number, etc.).

[0078] It is to be understood that the candidate shuttle service routes may be selected for potential users that have been identified as being price-sensitive users, potential users that previously booked a shuttle service, potential users that have not previously booked a shuttle service, potential users that have a history of unsuccessful matches to a service provider, potential users that have a history of unallocated service requests, potential users that have a history of abandoned requests, potential users that have a history of cancelling service requests, and/or potential users that have a history of having their service requests being cancelled by a service provider.

[0079] Each selected candidate shuttle service route may have an origin location (e.g., initial location, starting location, desired location, pick-up location, etc.). The origin location may be the location where the selected candidate shuttle service route will start from. Each selected candidate shuttle service route may also have a start time. The start time may be the time scheduled for the selected candidate shuttle service route to start from, arrive at, and/or depart from the origin location of the selected candidate shuttle service route. Each selected candidate shuttle service route may also have a destination location (e.g., final location, ending location, drop-off location, etc.). The destination location may be the location where the selected candidate shuttle service route will end. Each selected candidate shuttle service route may also have one or more pick-up locations and/or one or more drop-off locations. In selecting the candidate shuttle service route, the candidate shuttle service route selector 156 may select those candidate shuttle service routes having fewer drop-off and/or pick-up locations.

[0080] In an example embodiment, the candidate shuttle service route selector 156 may be configurable or configured to select the candidate shuttle service route based on one or more other criterion, such as by geographical region, time or period of time (e.g., closest match and/or most number of matches of start times and ending times to those of the selected historic non-shuttle service requests, etc.), location (e.g., closest match and/or most number of matches of origin

locations and destination locations to those of the selected historic non-shuttle service requests, etc.), routes (e.g., closest match and/or most number of matches of routes to those of the selected historic non-shuttle service requests), user-specific criterion (e.g., closest match and/or most number of matches of locations, start times, and/or routes to those of price-sensitive users and/or those of unallocated, unmatched, cancelled, and/or abandoned service requests), availability and/or location of shuttles (e.g., closest match and/or most number of matches of origin location, destination location, and/or start times to those of available and/or to-be-available shuttle service providers), etc. The candidate shuttle service route selector 156 may also perform the selecting through a cooperation with one or more other elements of the system 100, such as with the potential user selector 154, the candidate service provider selector 155, databases 140, 140a-d, etc. In respect to geographical region, the candidate shuttle service route selector 156 may be configurable to select candidate shuttle service routes for each country, region, province, state, city, county, district, specific area (e.g., within certain city blocks, on certain roads, within a geometric shape drawn on a map, etc.), etc., the granularity of which may be based on supply, demand, date, day, time, holidays or special events, etc. In respect to time periods, the candidate shuttle service route selector 156 may be configurable to select candidate shuttle service routes for each year, month, week, day, specific hour(s) and/or minutes, peak hours, rush hours, etc. In respect to user-specific criterion, the candidate shuttle service route selector 156 may be configurable to select the candidate shuttle service routes through a cooperation with the potential user selector 154, which may consider and/or target certain users or types of users (e.g., price-sensitive user, users that are frequent users of low cost services, and/or users with a history of unallocated requests, unmatched requests, cancelled requests, abandoned requests, etc.). In respect to route, the candidate shuttle service route selector 156 may be configurable to select candidate shuttle service routes based on a number or frequency of selected historic non-shuttle service routes having similar, the same, and/or overlapping routes or portions of routes. In respect to availability and/or location of shuttles, the candidate shuttle service route selector 156 may be configurable to select candidate shuttle service routes based on whether an available or to-be-available potential shuttle or service provider of the shuttle service has or will have a location near to an origin location of candidate shuttle service route. It is recognized in the present disclosure that the one or more criterion and/or parameters, including geographical region, starting time, time or period of time, origin location, destination location, route, user-specific criterion, availability and/or location of shuttles, etc., used by the candidate shuttle service route selector 156 may be any criterion and/or parameter thereof (e.g., any amount, duration, type, etc.) without departing from the teachings of the present disclosure.

[0081] Shuttle service route manager (e.g., shuttle service route manager 157).

[0082] The processor 150 may include (and/or be configurable or configured to perform one or more functionalities of) of one or more shuttle service route managers (e.g., shuttle service route manager 157). The shuttle service route manager 157 may be configurable or configured to manage the shuttle service routes selected by the candidate shuttle service route selector 156. In doing so, the shuttle service route manager 157 may be configurable to enable users to view and/or book on one or more of the selected shuttle service routes. The shuttle service route manager 157 may also be configurable to enable shuttle service providers to confirm servicing of one or more of the selected shuttle service routes. The shuttle service route manager 157 may also cooperate with the shuttle-side notification and dispatch controller 158 and/or the user-side notification and booking controller 159 to manage the selected shuttle service routes.

[0083] Shuttle-side notification and dispatch controller (e.g., shuttle-side notification and dispatch controller 158).

[0084] The processor 150 may include (and/or be configurable or configured to perform one or more functionalities of) of one or more shuttle-side notification and dispatch controllers (e.g., shuttle-side notification and dispatch controller 158). The shuttle-side notification and dispatch controller 158 may be configurable or configured to provide notifications to shuttle service providers of selected shuttle service routes.

[0085] Notifications provided by the shuttle-side notification and dispatch controller 158 may be provided to all shuttle service providers registered and/or located (or projected, predicted, or estimated to be located) within a geographical region covering the origin location and/or destination location of the selected shuttle service route, within a predetermined distance (and/or travel time) of the origin location and/or destination location of the selected shuttle service route, and/or to certain shuttle service providers based on one or more considerations.

[0086] For example, the notifications may be provided to those shuttle service providers that are available or will be available to service the selected shuttle service route at the starting time of the selected shuttle service route. As another example, the notifications may be provided to those shuttle service providers that have vehicle capacity to service the projected, predicted, or estimated number of potential users. As another example, the notifications may be provided to those shuttle service providers that have previously provided shuttle services. Other example considerations, including those provided above and in the present disclosure, are also contemplated without departing from the teachings of the present disclosure.

[0087] The shuttle-side notification and dispatch controller 158 may also be configurable to accept commitments from shuttle service providers who accept, confirm, and/or agree to service the selected shuttle service route, and dispatch the shuttle service provider(s) (including providing information on one or more of the following: starting time, origin location, destination location, pick-up location(s), drop-off location(s), fees to be charged or collected for each user, predicted, projected, or estimated number of users, etc.).

[0088] User-side notification and booking controller (e.g., user-side notification and booking controller 159).

[0089] The processor 150 may include (and/or be configurable or configured to perform one or more functionalities of) of one or more user-side notification and booking controllers (e.g., user-side notification and booking controller 159). The user-side notification and booking controller 159 may be configurable or configured to provide notifications to potential users of selected shuttle service routes.

[0090] Notifications provided by the user-side notification and booking controller 159 may be provided to all users registered and/or located (or projected, predicted, or expected to be located) within a geographical region covering the origin location and/or destination location of the selected shuttle service route, within a predetermined distance (and/or travel time) of the origin location and/or destination location of the selected shuttle service route, and/or to certain users based on one or more considerations.

[0091] For example, the notifications may be provided to those users who are projected, predicted, and/or expected to require transport-related services at the starting time of the selected shuttle service route, from the origin location and/or one of the pick-up locations along the route, to the destination location and/or one of the drop-off locations along the route, etc. As another example, the notifications may be provided to those users who have been identified as being a potential user. As another example, the notifications may be provided to those users who have previously booked shuttle services. Other example considerations, including those provided above and in the present disclosure, are also contemplated without departing from the teachings of the present disclosure.

[0092] The user-side notification and booking controller 159 may also be configurable to accept bookings from users, and/or provide confirmed details on the selected shuttle service route including one or more of the following: starting time, origin location, destination location, pick-up location(s), drop-off location(s), fees to be charged or collected for each user, details of the shuttle service

provider (e.g., make and model of the vehicle, license plate, color, name of driver, etc.), predicted, projected, or estimated number of total users, etc.).

[0093] **Method of managing a shuttle service based on routes (e.g., method 300).**

[0094] As illustrated in at least **FIGURE 3** and further described above and in the present disclosure, an example embodiment of a method (e.g., method 300) of managing a shuttle service may be based on, among other things, origin locations, destination locations, routes, starting times, and/or ending times of historic non-shuttle service requests. The method 300 may include searching a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests (e.g., action 302). Each historic non-shuttle service request may include a start time and a route. The route may be defined by at least an origin location and a destination location.

[0095] The method 300 may also include selecting a plurality of historic non-shuttle service requests (e.g., action 304). One or more of the selected historic non-shuttle service requests may include at least a portion of its route in common with (or overlapping) at least a portion of one or more other selected historic non-shuttle service requests. The selecting may be based on those historic non-shuttle service requests having start times within a first threshold time period (e.g., 5, 10, 15, 20, or 30 minute periods, etc.). The selecting may also be based on those historic non-shuttle service requests having origin locations located within a first threshold area (e.g., 5, 10, 20, 30, 50, 100 meter radius, same street, same intersection, same building or complex, customized area, etc.). The selecting may also be based on those historic non-shuttle service requests having destination locations located within a second threshold area (e.g., 5, 10, 20, 30, 50, 100 meter radius, same street, same intersection, same building or complex, customized area, etc.). In an example embodiment, the selecting may also include selecting historic non-shuttle service requests that were not allocated, not matched, cancelled, and/or abandoned. One or more of the selected historic non-shuttle service requests may also include requests for taxi service, private car service, and/or ride share service. Furthermore, each historic non-shuttle service request may be a transport-related request that is not a request for shuttle service.

[0096] The method 300 may further include performing an analysis to identify one or more users who may be price-sensitive. The method 300 may then include selecting one or more potential users for the shuttle service, at least one of the selected potential users being a user identified as being price-sensitive. The selecting of the one or more historic non-shuttle service requests may include selecting one or more historic non-shuttle service requests previously sent by one or more of the selected potential users.

[0097] The method 300 may also include deriving a candidate shuttle service route for use in providing a shuttle service (e.g., action 306). The candidate shuttle service route may be derived based on one or more of the selected historic non-shuttle service requests. In an example embodiment, the deriving of the candidate shuttle service route may be based on at least the start time, route, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

[0098] The method 300 may further include deriving one or more drop off and/or one or more pickup locations between the origin location for the candidate shuttle service route and destination location for the candidate shuttle service route. The one or more drop off and/or one or more pickup locations may be derived based on the start time, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

[0099] The method may further include refining, adjusting, and/or changing the candidate service route so as to minimize a quantity of pickups and/or drop offs along the candidate service route. The refining, adjusting, and/or changing of the candidate service route may also be based on one or more considerations and/or criterion described above and in the present disclosure. The refining, adjusting, and/or changing of the candidate service route may pertain to the start time and/or end time for the candidate shuttle service route, the origin location for the candidate shuttle service route, the destination location for the candidate shuttle service route, the pick-up location(s), the drop-off location(s), the costs, the fees or fares, etc.

[00100] In an example embodiment, the database of historic transport-related requests may also include a plurality of historic shuttle service requests, in which case, the deriving of the candidate shuttle service route may be further based on one or more of the historic shuttle service requests.

[00101] The method 300 may also include deriving a start time for the candidate shuttle service route, an origin location for the candidate shuttle service route, and a destination location for the candidate shuttle service route. The start time for the candidate shuttle service route, the origin location for the candidate shuttle service route, and the destination location for the candidate shuttle service route may be derived based on the start time, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

[00102] The method 300 may also include selecting one or more potential users for the shuttle service and communicating to one or more of the selected potential users. Such communicating may include providing information pertaining to the candidate shuttle service route and/or an opportunity to receive shuttle service on the candidate shuttle service route.

[00103] The method 300 may also include performing a service provider matching process to match a service provider with the candidate shuttle service route. The service provider matching process may be based on minimizing a travel distance and/or travel time by the matched service provider between servicing a prior candidate shuttle service route and servicing the candidate service route. Alternatively or in addition, the service provider matching process may be based on minimizing a travel distance and/or travel time by the matched service provider between servicing the candidate service route and a next candidate shuttle service route.

[00104] **Method of managing a shuttle service based on available and/or nearby shuttles (e.g., method 400).**

[00105] As illustrated in at least **FIGURE 4** and further described above and in the present disclosure, an example embodiment of a method (e.g., method 400) of managing a shuttle service may be based on, among other things, available and/or nearby shuttles or shuttle service providers. The method 400 may include searching a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests (e.g., action 402). Each historic non-shuttle service request may include a start time and a route defined by at least an origin location and a destination location.

[00106] The method 400 may also include selecting one or more of the historic non-shuttle service requests (e.g., action 404). Each selected historic non-shuttle service request may include at least a portion of its route in common with one or more other selected historic non-shuttle service requests. The selecting of the one or more historic non-shuttle service requests may be based on those historic non-shuttle service requests having start times within a first threshold time period. Alternatively or in addition, the selecting of the one or more historic non-shuttle service requests may be based on those historic non-shuttle service requests having origin locations located within a first threshold area. Alternatively or in addition, the selecting of the one or more historic non-shuttle service requests may be based on those historic non-shuttle service requests having destination locations located within a second threshold area.

[00107] In an example embodiment, the selecting of the historic non-shuttle service requests may include selecting historic non-shuttle service requests that were not allocated, not matched, cancelled, and/or abandoned. Furthermore, one or more of the selected historic non-shuttle service requests may include requests for taxi service, private car service, and/or ride share service. Each historic non-shuttle service request may be a transport-related request that is not a request for shuttle service.

[00108] The method 400 may also include performing an analysis to identify one or more users who may be price-sensitive. The method 400 may then include selecting one or more potential users for the shuttle service. At least one of the selected potential users may be a user identified as being price-sensitive. The selecting of the one or more historic non-shuttle service requests may include selecting one or more historic non-shuttle service requests previously sent by one or more of the selected potential users.

[00109] The method 400 may also include selecting one or more candidate service providers available to service one or more of the selected historic non-shuttle service requests (e.g., action 406). The selecting of the candidate service providers may be based on minimizing a travel distance and/or travel time by the candidate service providers between servicing a prior candidate shuttle service route and servicing the candidate service route. Alternatively or in addition, the selecting of the candidate service providers may be based on minimizing a travel distance and/or travel time by the candidate service providers between servicing the candidate service route and a next candidate shuttle service route.

[00110] The method 400 may also include deriving one or more candidate shuttle service routes (e.g., action 408). The one or more candidate shuttle service routes may be derived based on one or more of the selected historic non-shuttle service requests. The deriving of the candidate shuttle service route may be based on at least the start time, route, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

[00111] The method 400 may also include deriving a start time for the candidate shuttle service route, an origin location for the candidate shuttle service route, and a destination location for the candidate shuttle service route. The start time for the candidate shuttle service route, the origin location for the candidate shuttle service route, and the destination location for the candidate shuttle service route may be derived based on the start time, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

[00112] The method 400 may also include deriving one or more drop off and/or one or more pickup locations between the origin location for the candidate shuttle service route and destination location for the candidate shuttle service route. The one or more drop off and/or one or more pickup locations may be derived based on the start time, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

[00113] The method 400 may further include refining, adjusting, and/or changing the candidate service route so as to minimize a quantity of pickups and/or drop offs along the candidate service route. The refining, adjusting, and/or changing of the candidate service route may also be based on

one or more considerations and/or criterion described above and in the present disclosure. The refining, adjusting, and/or changing of the candidate service route may pertain to the start time and/or end time for the candidate shuttle service route, the origin location for the candidate shuttle service route, the destination location for the candidate shuttle service route, the pick-up location(s), the drop-off location(s), the costs, the fees or fares, etc.

[00114] In an example embodiment, the database of historic transport-related requests may also include a plurality of historic shuttle service requests, in which case, the deriving of the candidate shuttle service route may be further based on one or more of the historic shuttle service requests.

[00115] The method 400 may also include selecting one or more of the candidate shuttle service routes for use in providing a shuttle service (e.g., action 410). The selected one or more candidate shuttle service routes may be selected based on one or more of the selected candidate service providers.

[00116] The method 400 may further include selecting one or more potential users for the shuttle service, and communicating to one or more of the selected potential users. The communicating may include providing information pertaining to the candidate shuttle service route and/or an opportunity to receive shuttle service on the candidate shuttle service route.

[00117] **Method of managing a shuttle service based on potential users and/or previously unallocated, unmatched, and/or cancelled requests (e.g., method 500).**

[00118] As illustrated in at least **FIGURE 5** and further described above and in the present disclosure, an example embodiment of a method (e.g., method 500) of managing a shuttle service may be based on, among other things, potential users and/or previously unallocated, unmatched, cancelled, and/or abandoned requests. The method 500 may include searching a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests (e.g., action 502). Each historic non-shuttle service request may include a start time and a route defined by at least an origin location and a destination location.

[00119] The method 500 may also include selecting one or more potential users for a shuttle service (e.g., action 504). One or more of the selected potential users may be identified as a price-sensitive user.

[00120] The method 500 may also include selecting one or more of the historic non-shuttle service requests (e.g., action 506). One or more of the selected historic non-shuttle service requests may be a request previously sent by one of the selected potential users. Alternatively or in addition, one or more of the selected historic non-shuttle service requests may be a request that was not allocated, not matched, cancelled, and/or abandoned. Each selected historic non-shuttle service

request may include at least a portion of its route in common with one or more other selected historic non-shuttle service requests. The selecting of the one or more historic non-shuttle service requests may be based on those historic non-shuttle service requests having start times within a first threshold time period. Alternatively or in addition, the selecting of the one or more historic non-shuttle service requests may be based on those historic non-shuttle service requests having origin locations located within a first threshold area. Alternatively or in addition, the selecting of the one or more historic non-shuttle service requests may be based on those historic non-shuttle service requests having destination locations located within a second threshold area. One or more of the selected historic non-shuttle service requests may include requests for taxi service, private car service, and/or ride share service. Furthermore, each historic non-shuttle service request may be a transport-related request that is not a request for shuttle service.

[00121] The method 500 may also include deriving a candidate shuttle service route for use in providing the shuttle service (e.g., action 508). The candidate shuttle service route may be derived based on one or more of the selected historic non-shuttle service requests. The deriving of the candidate shuttle service route may be based on at least the start time, route, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

[00122] The method 500 may also include deriving a start time for the candidate shuttle service route, an origin location for the candidate shuttle service route, and a destination location for the candidate shuttle service route. The start time for the candidate shuttle service route, the origin location for the candidate shuttle service route, and the destination location for the candidate shuttle service route may be derived based on the start time, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

[00123] The method 500 may also include deriving one or more drop off and/or one or more pickup locations between the origin location for the candidate shuttle service route and destination location for the candidate shuttle service route. The one or more drop off and/or one or more pickup locations may be derived based on the start time, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

[00124] In an example embodiment, the database of historic transport-related requests may also include a plurality of historic shuttle service requests, in which case, the deriving of the candidate shuttle service route may be further based on one or more of the historic shuttle service requests.

[00125] The method 500 may further include performing an analysis to identify one or more users who may be price-sensitive. The method 500 may then include selecting one or more potential users for the shuttle service. At least one of the selected potential users may be a user

identified as being price-sensitive. Furthermore, the selecting of the one or more historic non-shuttle service requests may include selecting one or more historic non-shuttle service requests previously sent by one or more of the selected potential users.

[00126] The method 500 may further include communicating to one or more of the selected potential users. The communicating may include providing information pertaining to the candidate shuttle service route and/or an opportunity to receive shuttle service on the candidate shuttle service route.

[00127] The method 500 may further include performing a service provider matching process to match a service provider with the candidate shuttle service route. The service provider matching process may be based on minimizing a travel distance and/or travel time by the matched service provider between servicing a prior candidate shuttle service route and servicing the candidate service route. The service provider matching process may also be based on minimizing a travel distance and/or travel time by the matched service provider between servicing the candidate service route and a next candidate shuttle service route.

[00128] Example embodiments of the method of managing shuttle services 300, 400, and/or 500, as described above and in the present disclosure, may include or not include one or more of the actions and/or functionalities described above and in the present disclosure, may include additional actions and/or functionalities, may be performed and/or used in different sequences, combinations, and/or configurations, and/or one or more of the actions and/or functionalities may be combinable into a single action and/or functionality and/or divided into two or more actions and/or functionalities.

[00129] While various embodiments in accordance with the disclosed principles have been described above, it should be understood that they have been presented by way of example only, and are not limiting. Thus, the breadth and scope of the example embodiments described in the present disclosure should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with the claims and their equivalents issuing from this disclosure. Furthermore, the above advantages and features are provided in described embodiments, but shall not limit the application of such issued claims to processes and structures accomplishing any or all of the above advantages.

[00130] For example, as referred to herein, a processor, device, computing device, telephone, phone, server, gateway server, communication gateway server, and/or controller, may be any processor, computing device, and/or communication device, and may include a virtual machine, computer, node, instance, host, or machine in a networked computing environment. Also as

referred to herein, a network or cloud may be or include a collection of machines connected by communication channels that facilitate communications between machines and allow for machines to share resources. Network may also refer to a communication medium between processes on the same machine. Also as referred to herein, a network element, node, or server may be a machine deployed to execute a program operating as a socket listener and may include software instances.

[00131] Database (or memory or storage) may comprise any collection and/or arrangement of volatile and/or non-volatile components suitable for storing data. For example, memory may comprise random access memory (RAM) devices, read-only memory (ROM) devices, magnetic storage devices, optical storage devices, solid state devices, and/or any other suitable data storage devices. In particular embodiments, database may represent, in part, computer-readable storage media on which computer instructions and/or logic are encoded. Database may represent any number of memory components within, local to, and/or accessible by a processor and/or computing device.

[00132] Various terms used herein have special meanings within the present technical field. Whether a particular term should be construed as such a "term of art" depends on the context in which that term is used. Such terms are to be construed in light of the context in which they are used in the present disclosure and as one of ordinary skill in the art would understand those terms in the disclosed context. The above definitions are not exclusive of other meanings that might be imparted to those terms based on the disclosed context.

[00133] Words of comparison, measurement, and timing such as "at the time," "equivalent," "during," "complete," and the like should be understood to mean "substantially at the time," "substantially equivalent," "substantially during," "substantially complete," etc., where "substantially" means that such comparisons, measurements, and timings are practicable to accomplish the implicitly or expressly stated desired result.

[00134] Additionally, the section headings and topic headings herein are provided for consistency with the suggestions under various patent regulations and practice, or otherwise to provide organizational cues. These headings shall not limit or characterize the embodiments set out in any claims that may issue from this disclosure. Specifically, a description of a technology in the "Background" is not to be construed as an admission that technology is prior art to any embodiments in this disclosure. Furthermore, any reference in this disclosure to "invention" in the singular should not be used to argue that there is only a single point of novelty in this disclosure. Multiple inventions may be set forth according to the limitations of the claims issuing from this disclosure, and such claims accordingly define the invention(s), and their equivalents, that are

protected thereby. In all instances, the scope of such claims shall be considered on their own merits in light of this disclosure, but should not be constrained by the headings herein.

Claims

What is claimed is:

1. A method of managing a shuttle service, the method being implemented by one or more processors, the method comprising:

operating one or more non-shuttle service request identifiers to search a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests, each historic non-shuttle service request including a start time and a route defined by at least an origin location and a destination location, wherein the one or more processors are configured to be in communication with the database;

operating one or more non-shuttle service request selectors to select a plurality of historic non-shuttle service requests from the database, one or more of the selected historic non-shuttle service requests having at least a portion of its route in common with one or more other selected historic non-shuttle service requests, wherein at least one of the selected historic non-shuttle service requests includes a historic non-shuttle service request that was sent from a user computing device and received but not allocated or matched to an available non-shuttle service provider; and

operating one or more candidate service route generators to derive a candidate shuttle service route for use in providing a shuttle service, the candidate shuttle service route derived based on one or more of the selected historic non-shuttle service requests that were sent from a user computing device and received but not allocated or matched to an available non-shuttle service provider.

2. The method of claim 1, wherein

the candidate shuttle service route is derived based on at least the start time, route, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

3. The method of claim 1, wherein the one or more historic non-shuttle service requests is selected based on those historic non-shuttle service requests having:

start times within a first threshold time period;

origin locations located within a first threshold area; and/or

destination locations located within a second threshold area.

4. The method of claim 1, wherein operating the one or more candidate service route generators further comprises deriving a start time for the candidate shuttle service route, an origin

location for the candidate shuttle service route, and a destination location for the candidate shuttle service route;

wherein the start time for the candidate shuttle service route, the origin location for the candidate shuttle service route, and the destination location for the candidate shuttle service route are derived based on the start time, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

5. The method of claim 4, wherein operating the one or more candidate service route generators further comprises deriving one or more drop off and/or one or more pickup locations between the origin location for the candidate shuttle service route and destination location for the candidate shuttle service route;

wherein the one or more drop off and/or one or more pickup locations are derived based on the start time, origin location, and/or destination location of one or more of the selected historic non-shuttle service requests.

6. The method of claim 1, wherein one or more of the following apply:

one or more of the selected historic non-shuttle service requests include requests for taxi service, private car service, and/or ride share service; and/or

each historic non-shuttle service request is a transport-related request that is not a request for shuttle service.

7. The method of claim 1, further comprising

operating one or more potential user selectors to:

perform an analysis to identify one or more users who are price-sensitive; and

select one or more potential users for the shuttle service;

wherein at least one of the selected potential users is a user identified as being price-sensitive;

wherein the selecting of the one or more historic non-shuttle service requests includes selecting one or more historic non-shuttle service requests previously sent by user computing devices of one or more of the selected potential users.

8. The method of claim 7, wherein the one or more historic non-shuttle service requests previously sent is by the user identified as being price-sensitive.

9. The method of claim 1, wherein

the database of historic transport-related requests further includes a plurality of historic shuttle service requests sent from user computing devices of a plurality of users; and

wherein the deriving of the candidate shuttle service route is further based on one or more of the historic shuttle service requests.

10. The method of claim 1, wherein operating the one or more candidate service route generators further comprises:

refining the candidate service route so as to minimize a quantity of pickups and/or drop offs along the candidate service route.

11. The method of claim 10, wherein the refining of the candidate service route includes adjusting the start time for the candidate shuttle service route, adjusting the origin location for the candidate shuttle service route, and/or the adjusting destination location for the candidate shuttle service route.

12. The method of claim 1, further comprising operating one or more potential user selectors to select one or more potential users for the shuttle service; and

operating one or more user-side notification and booking controllers to communicate to user computing devices of one or more of the selected potential users, the communicating including providing information pertaining to the candidate shuttle service route and/or an opportunity to receive shuttle service on the candidate shuttle service route.

13. The method of claim 1, further comprising performing a service provider matching process to match a service provider with the candidate shuttle service route.

14. The method of claim 13, wherein the service provider matching process is based on one or more of the following:

minimizing a travel distance and/or travel time by the matched service provider between servicing a prior candidate shuttle service route and servicing the candidate service route; and/or

minimizing a travel distance and/or travel time by the matched service provider between servicing the candidate service route and a next candidate shuttle service route.

15. A method of managing a shuttle service, the method being implemented by one or more processors, the method comprising:

operating one or more non-shuttle service request identifiers to search a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests received from a user computing devices of a plurality of users, each historic non-shuttle service request

including a start time and a route defined by at least an origin location and a destination location, wherein the one or more processors are configured to be in communication with the database;

operating one or more potential user selectors to perform an analysis to identify one or more price-sensitive users;

operating one or more potential user selectors to select one or more potential users for a shuttle service, at least one of the selected potential users being identified as a price-sensitive user;

operating one or more non-shuttle service request selectors to select one or more of the historic non-shuttle service requests based on one or more of the following:

the historic non-shuttle service request is a request previously sent by user computing devices of one or more of the selected potential users identified as being a price-sensitive user;

the historic non-shuttle service request is a request that was not allocated, not matched, and/or cancelled; and/or

the historic non-shuttle service request has at least a portion of its route in common with one or more other selected historic non-shuttle service requests; and

operating one or more candidate service provider selectors to select one or more candidate service providers available to service one or more of the selected historic non-shuttle service requests;

operating one or more candidate shuttle service route generators to derive one or more candidate shuttle service routes, the one or more candidate shuttle service routes derived based on one or more of the selected historic non-shuttle service requests;

operating one or more candidate shuttle service route selectors to select one of the candidate shuttle service routes for use in providing the shuttle service, the selected candidate shuttle service route selected based on one or more of the selected candidate service providers.

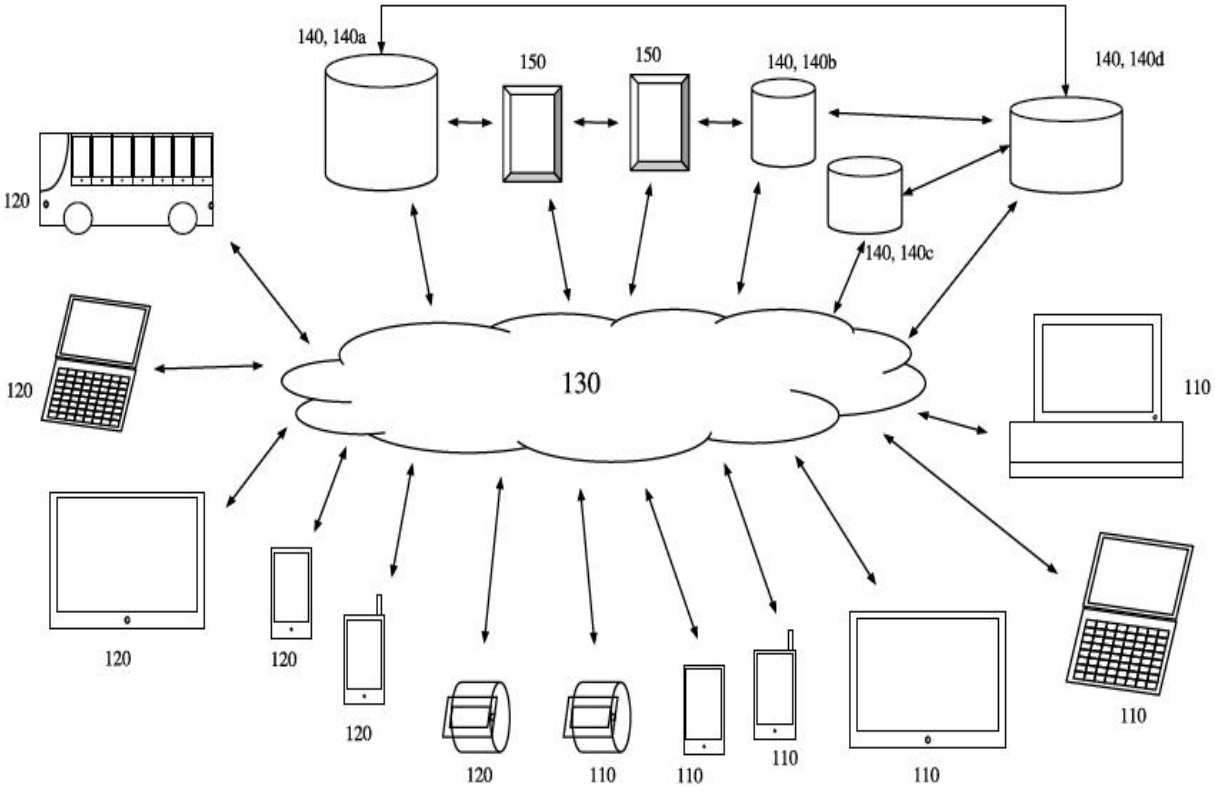

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Figure 1

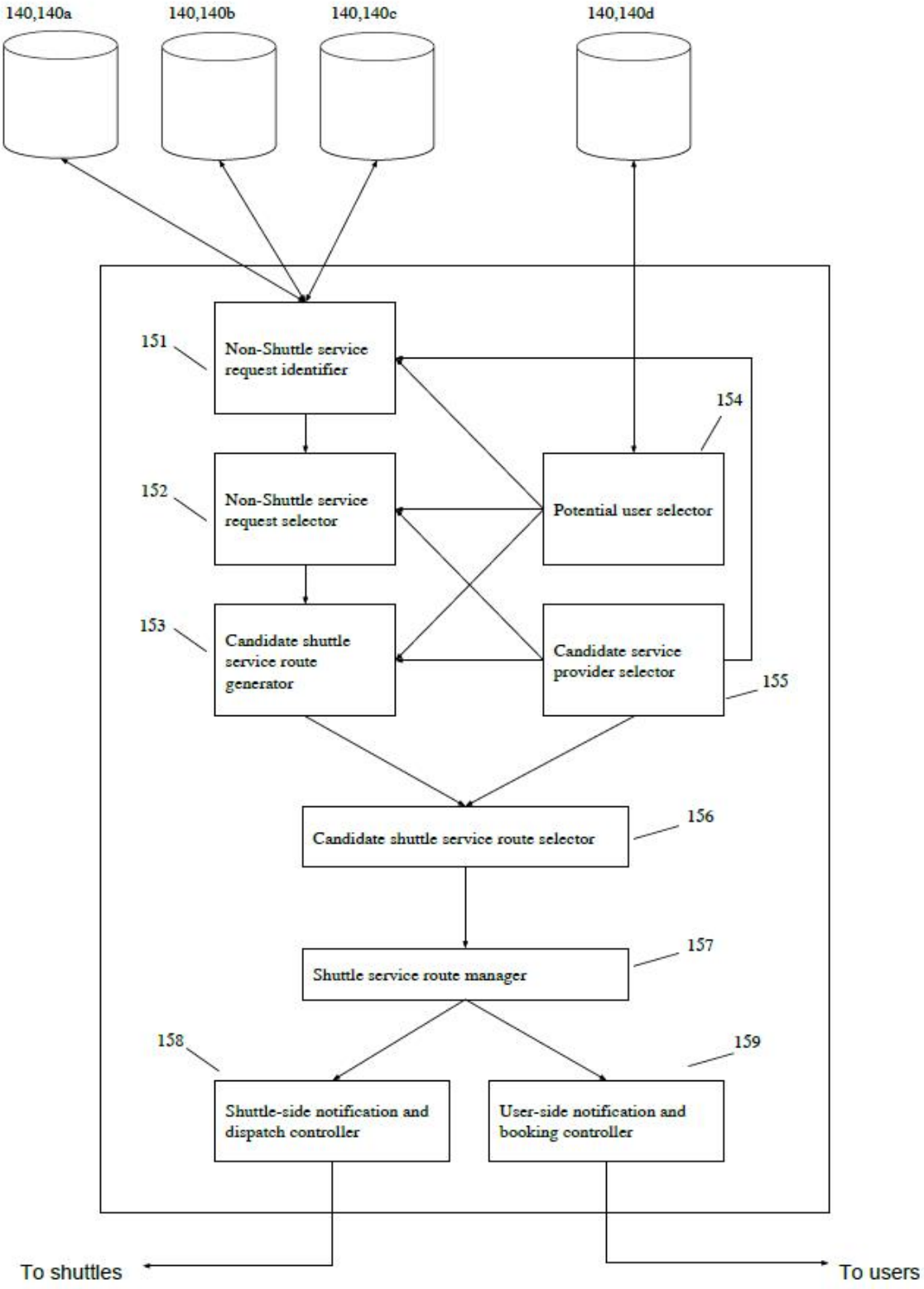

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Non-Shuttle service request identifier
154
152
Non-Shuttle service request selector
Potential user selector
153
Candidate shuttle service route generator
Candidate service provider selector
155
Candidate shuttle service route selector
156
Shuttle service route manager
157
158
159
Shuttle-side notification and dispatch controller
User-side notification and booking controller
To shuttles
To users

Figure 2

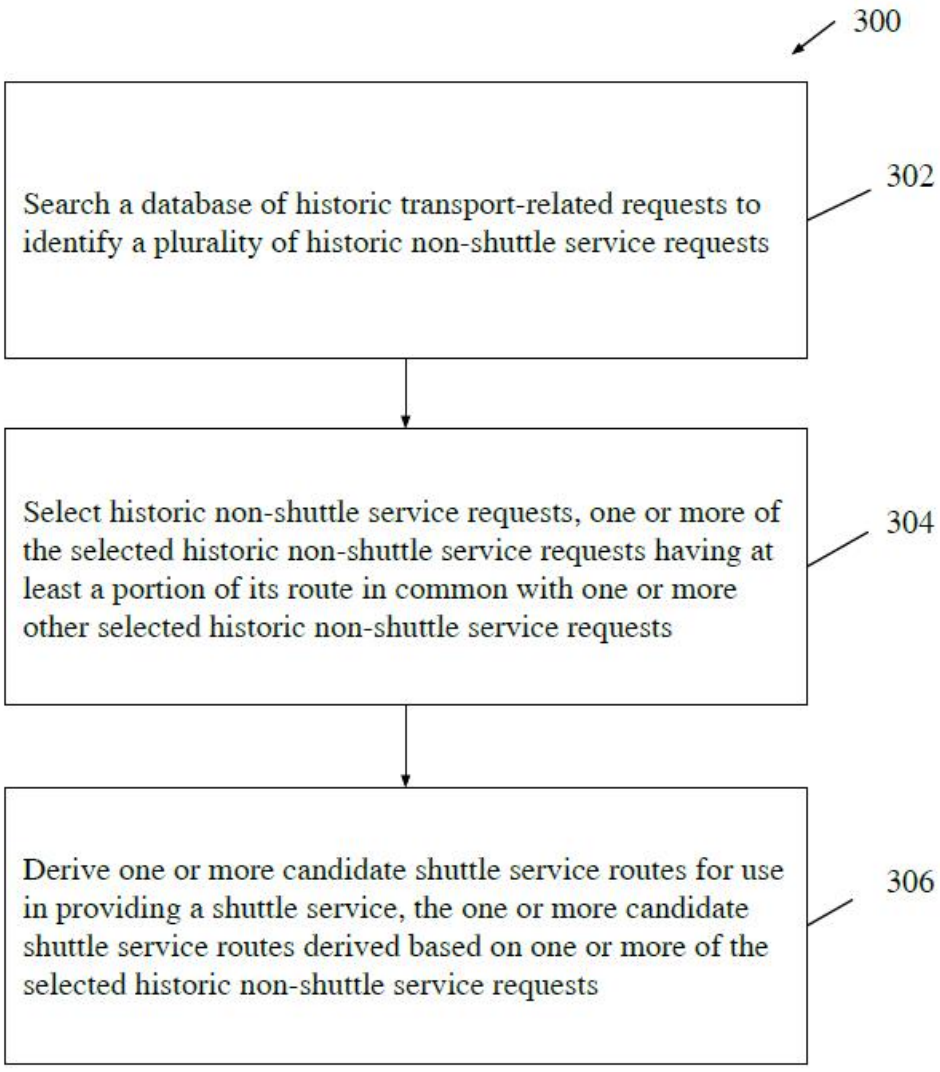

300
Search a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests
302
Select historic non-shuttle service requests, one or more of the selected historic non-shuttle service requests having at least a portion of its route in common with one or more other selected historic non-shuttle service requests
304
Derive one or more candidate shuttle service routes for use in providing a shuttle service, the one or more candidate shuttle service routes derived based on one or more of the selected historic non-shuttle service requests
306

Figure 3

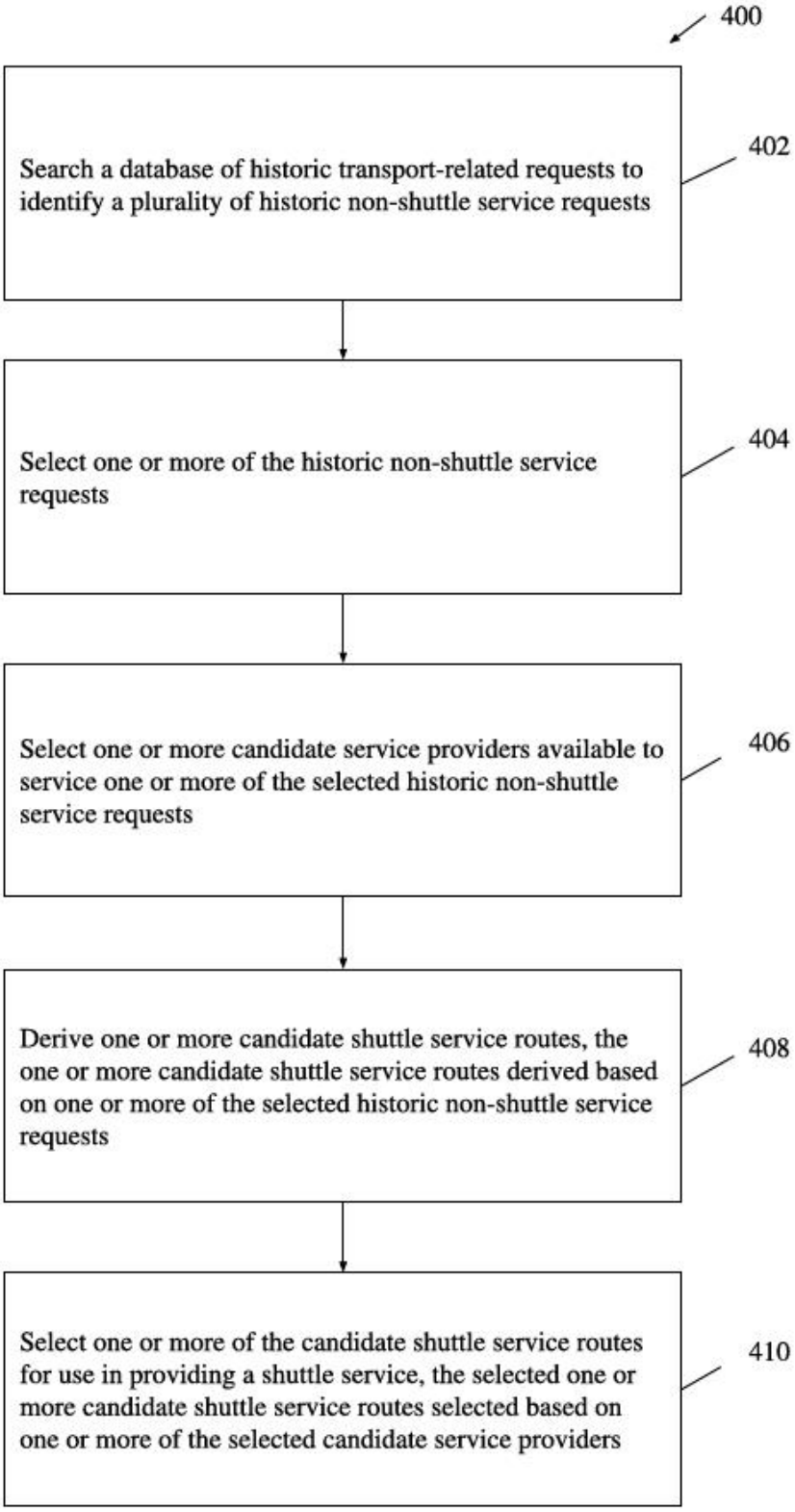

400
Search a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests
402
Select one or more of the historic non-shuttle service requests
404
Select one or more candidate service providers available to service one or more of the selected historic non-shuttle service requests
406
Derive one or more candidate shuttle service routes, the one or more candidate shuttle service routes derived based on one or more of the selected historic non-shuttle service requests
408
Select one or more of the candidate shuttle service routes for use in providing a shuttle service, the selected one or more candidate shuttle service routes selected based on one or more of the selected candidate service providers
410

Figure 4

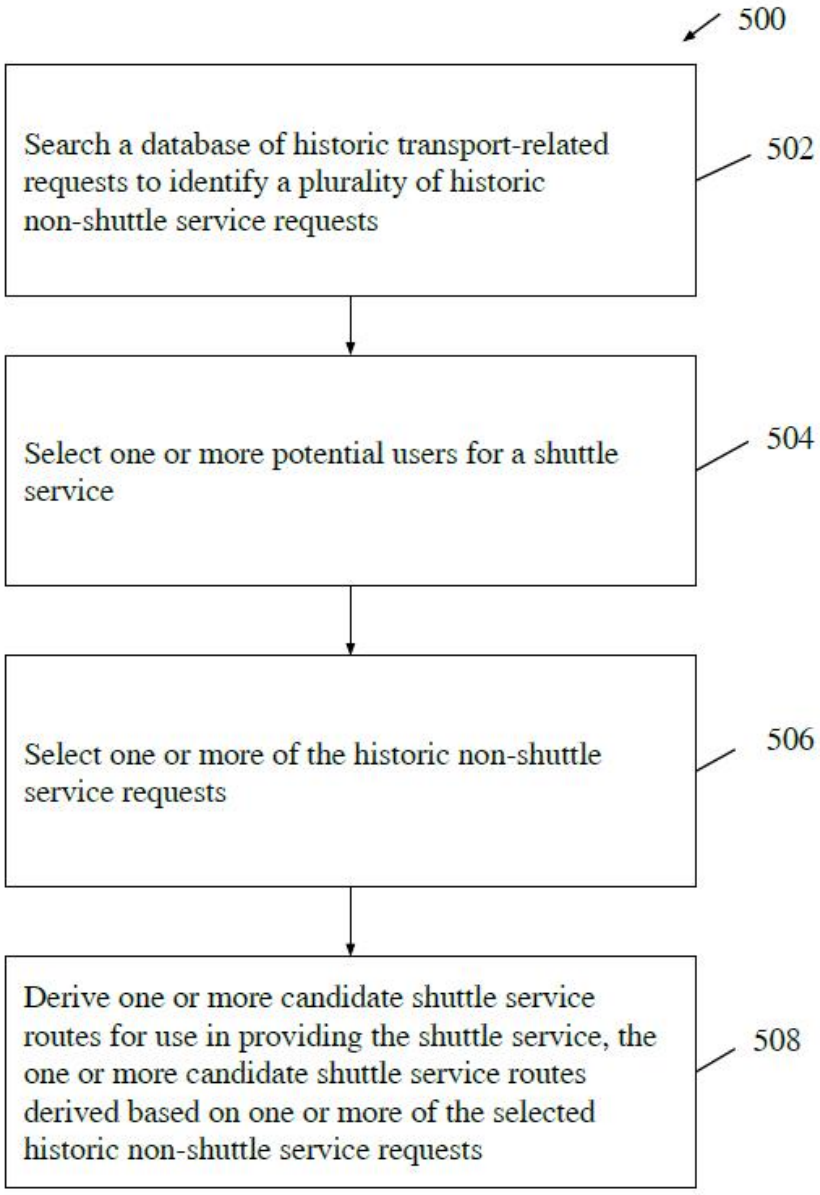

500
Search a database of historic transport-related requests to identify a plurality of historic non-shuttle service requests
502
Select one or more potential users for a shuttle service
504
Select one or more of the historic non-shuttle service requests
506
Derive one or more candidate shuttle service routes for use in providing the shuttle service, the one or more candidate shuttle service routes derived based on one or more of the selected historic non-shuttle service requests
508

Figure 5