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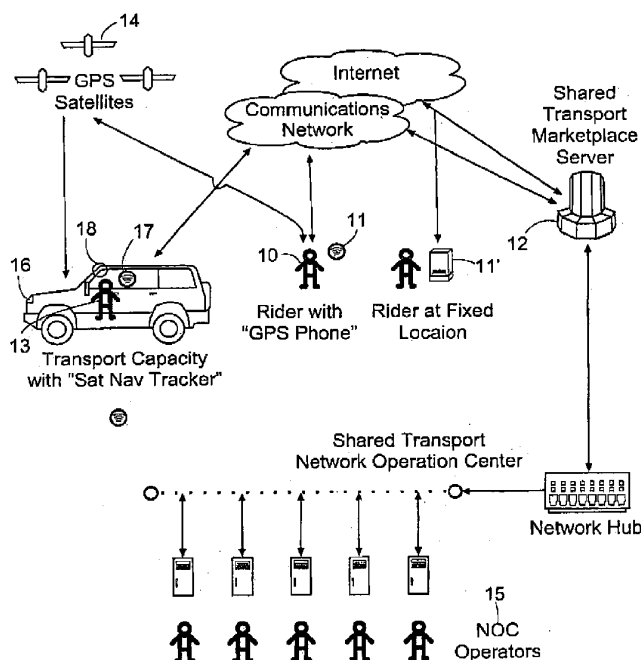
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(54) Title: SHARED TRANSPORT SYSTEM AND SERVICE NETWORK

FIG. 1



(57) Abstract: The network system matches the supply and demand of transportation services by incorporating unused transportation capacity (i.e., empty seats) with a real-time allocation and matching service that enables individuals and goods to conveniently hire that capacity with attractive pricing, rapid responsiveness, better information availability and trusted security. The network system provides an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles, an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of individuals and a central processing capability to effect a match of the transport capacity of at least one transport vehicle with the transport demand of at least one individual.

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SHARED TRANSPORT SYSTEM AND SERVICE NETWORK

This application claims priority of Provisional Patent Application 60/900,808 filed February 12, 2007.

This invention relates to a ground transportation network. More particularly, this invention relates to a ground transportation network matching individuals with transport capacity on a supply and demand basis.

Transport capacity, for example cars, often travel long distances with minimal load (i.e., SUVs on daily commutes with only the driver occupying the vehicle). Such capacity is disused because of a number of reasons, including (a) an occasional need for greater capacity causes consumers to buy excess transportation capacity, (b) variations in schedule and destinations traveled create non-matched transportation needs compared with other household members, (c) lack of knowledge of trusted users who could conveniently use this excess capacity, and (d) difficulty in providing an economic benefit to incentivize the driver to share their excess capacity. Meanwhile, the driver of a vehicle often has no choice but to use a personal transport vehicle (despite the high costs involved) because of lack of accessibility, inconvenient scheduling, or multiple interchanges required if they were to rely on public transport systems.

Proposals have been made, for example, in US Patent 6,697,730, to use a central assigning system and communications devices adapted to be associated with vehicles for transmitting information from the vehicles to the central assigning system, and for receiving information from the central assigning system. In the 1990s, the US Department of Transportation designated this "Dynamic Ridesharing" area a specific area of research interest, under the designation ATIS8 as part of the National ITS

Architecture, and has proposed methods for transactions, interchange of billing data, and the like. Such systems, if implemented, would represent advances over methods in common practice, however, it is believed the invention described herein makes such systems more practical and useful because of the following significant innovations and claims: methods to reduce the workload/steps necessary on the driver and the rider to make this system more convenient; methods to improve the trustability of drivers and riders, increasing the likelihood people will use this system; a hardware device which would communicate visually to external riders; automatic determination and registration of transport capacity destination and capacity, increasing availability of shared transport vehicles; methods to characterize and publish information about "ad-hoc" transport capacity in manners similar to traditional, centrally controlled transit systems, in order to increase trust and ridership in the system; and an ad-hoc nature to the proposed system which enables casual use by registered users.

The inefficient use of transport capacity results in approximately 3-4 times as many cars on the road as would be necessary if capacity were only 50% occupied. This has the additional implications created by the excess consumption of fuel in potential environment problems (CO₂ pollution and global warming) as well as geopolitical problems (for example, many countries including the United States could be energy self-sufficient if they used their existing transportation capacity only 40% better (versus the 200+% better that could theoretically be achieved).

In cities such as Los Angeles, the transportation network is largely dysfunctional (i.e., the average worker spends 1.6 hours of their day in unproductive and costly commuting via personal car on congested highways). Additionally, such a consumer

cannot rely on public transit because mass transit "doesn't take them from where they live to where they work".

Inadequate "feeder systems" for the public transit network mean that billions of dollars are spent creating subway and rail systems that are massively underused, in terms of persons transported per hour versus the potential capacity of these rail systems. The flexibility of highway and road networks, along with the critical mass of car penetration and the marketplace dynamic of urban real estate value, however, means that wherever a highway is built, personal transport cars will soon fill it, creating further urban sprawl, with all the societal and ecological disadvantages that implies.

Personal transport cars are common, among other reasons, because (a) the lack of availability of mass transit networks to serve the home or destination of the driver, (b) the inconvenience of waiting a long or unknown period of time for public transit, (c) fear of traveling with strangers or fear in waiting for long periods at public transit points.

Many large cities have successfully implemented mass transit systems which are widely used by people from a wide variety of socio-economic backgrounds (i.e., London, New York, Madrid, Tokyo). While even these systems can be improved, these examples show that if a Shared Transport system exists with sufficient timeliness and advantages, it will be widely used. These cities provide transit systems because these systems reduce their cost for infrastructure (i.e., building ever-larger and more inefficient highways) and increases productivity for their citizens and the companies in their region.

So, cities have long sought to provide mass transit systems which take people from where they live to where they work and/or where they shop. However, since the

popularization of highways in the 1950s in the US, cities have become increasingly suburban. Highway systems do not complement mass transit systems and, in fact, work against mass transit systems by enabling urban sprawl to the point where mass transit infrastructure is unsustainable (at the extremities of a city center, due to lack of population density) and unattractive (because of inconvenient intermodal interchange). As fewer people use mass transit, less routes are supportable, less area is reachable via mass transit, and thus more people need to rely on relatively costly and ecologically damaging individual transport, resulting in the mass transit system itself imploding with a lack of critical mass, while personal transport systems simultaneously suffer through massive over-congestion.

It is an object of the invention to provide a system that enables regular highway traffic and privately owned personal transport systems to augment and enable public mass transit networks.

It is another object of the invention to match a need to move individuals and/or goods from one geographic point to another geographic point ("Transport Demand") with an unrelated driver's unused transportation capacity.

It is another object of the invention to provide riders and transport providers with information services and content that adequately enable the use and expansion of such a system.

Briefly, the invention provides a network system that matches the supply and demand of transportation services by incorporating unused transportation capacity (i.e., empty seats) with a real-time allocation and matching service that enables individuals

and goods to conveniently hire that capacity with attractive pricing, rapid responsiveness, better information availability and trusted security.

The network system incorporates telecommunications and computing technology to match the supply of excess transport capacity with the demand for personal transport. In areas where a critical mass of transport providers can be established, this system aims to provide pick-up and drop-off service to within a few hundred yards to the majority of locations in the covered area, with response/waiting times of 3-15 minutes under optimal circumstances. In addition, different levels of service can be provided, including the provision of transport for goods, persons with special needs, and persons or goods within closed communities of transit providers.

The network system ("Shared Transport System") demonstrates how interconnecting personal communication devices and computer networks with personal and corporate Shared Transport vehicles can (1) provide revenue streams to drivers who share their vehicle, (2) provide security through the provision of track-ability and identification of both drivers and Riders, (3) provide "feeder systems" for public transit networks, (4) provide trusted networks of pre-approved providers to accommodate scheduled services for special needs cases, such as children or physically disabled persons, and (5) provide a variety of service levels for those who need more than just commuter style transport.

It is believed that an efficient use of the network system would mean that a significant fraction of those households with two or more cars would no longer require the additional car, and that a smaller portion of a national economy will be devoted to

widening and expanding a country's highway networks and importation of energy sources such as oil.

The below "Shared Transport System" accomplishes this aim by enabling private transport vehicles to serve as an extension of the mass transit system. Where no mass transit is available, or is inefficient, private transport vehicles can act as a public transport mechanism. Where mass transit is available and cost effective and timely, private transport vehicles act as a feeder network to the public transit system.

In situations such as a daily commute, predictable trends will flow from the data generated by this shared ride system, and will enable rapid and flexible route allocation that will enable public or private mass transit providers the capability to offer new transit services, such as bus routes, that are determined via stochastic measurement. A rapidly responsive and timely public transit network will result in increasing numbers of public transit riders and recreate the market parameters that are needed for mass transit systems to gain critical mass in ever changing and expanding markets.

Whereas, many systems exist for measurement of traffic over specific sections of road network (loop detection systems, video camera monitoring systems), the bulk of these systems are infrastructure dependent and typically measure the transport throughput of a given road segment, without capability to evaluate the total journey of the vehicle. It is well known, as well, that GPS systems could be used for the generation of road usage charging systems that are anticipated to come into use in the next several years. There are also systems in use, or proposed, that allow traffic speeds to be measured (and displayed on interactive maps) by the collection of data about the speed of a vehicle ("probe vehicles") to characterize the speed of segments in a traffic

network. However, the advantage of the present system is that it uses the speed, journey start and end points, intermediate destinations, spare vehicle capacity, and vehicle type characteristics of registered transport capacity to automatically generate specific information about journey capabilities between any point in the covered road network. The availability of this information is believed to be critical to the success of user acceptance of this method of transport.

A current drawback to carpooling systems, that of lack of information about the availability of services and timing between locations, can be overcome through the display of the available transport capacity.

Current mass transport systems, typically run by governmental organizations, provide schematic diagrams of the locations served by these networks, and timetables of operations. These schematic diagrams give confidence to the transport user that there is a steady flow of available capacity that they can rely upon. With this confidence, the transport user can elect to rely on public transport rather than purchase a car or second car for their household. However, carpool systems have had no equivalent, because these carpools are traditionally organized between a small group of tightly associated individuals.

The present system generates schematic and geographic maps indicating coverage areas, and is also capable of indicating typical availability and travel times at a variety of times throughout the day or week, based off a model of historic usage and travel times ("stochastic model").

Another drawback to current carpooling systems, due primarily to the difficulty of co-ordination and lack of computing and communications capabilities, is that they

assume the transport user must go to the same destination, or along the route of the transport provider. This is often suboptimal, as transport is often a "last mile" problem, and if one transport provider moved the transport user to another location where they could get directly home (using either public transport or the present system), the use of transport capacity could be made much more efficient, and vastly extend the possible reach and combinations of destinations. The present system, because of its ad-hoc nature and computational network model, can provide these transfer instructions to the transport user, and, importantly, providing graphical presentation of the reach of the transport network, giving confidence to the user that they won't be stranded.

Above was mentioned the issue of fear of traveling with strangers in public transit systems. The below system incorporates a security verifying and rating system to provide that the strangers in Shared Transport systems are trustworthy. For example, (a) bad drivers (those with excess points or driving convictions) are not allowed to participate in the system, (b) drivers with continually risky behavior are identified through a real-time rating mechanism available to riders and the in-car computer measurement system, (c) drivers who do not pick up riders are rated for their proclivity for failing to do so, (d) riders are rated for unusual behavior through a rating mechanism available to drivers, and (e) riders who refuse rides or miss rides are rated for their proclivity for doing so.

Alongside the issue of trustable strangers is the issue of anonymity. Riders or drivers may be concerned about their safety if a stranger knows how to contact them via their phone. Thus, the below system incorporates a mechanism allowing riders and drivers to contact each other through their phones without knowing the other's phone

number or full name, yet still allowing, for example, a driver to message a rider that a hat was left in the vehicle.

These and other objects and advantages of the invention will become more apparent from the following detailed description taken in conjunction with the accompanying drawings wherein:

Fig. 1 schematically illustrates a network system in accordance with the invention;

Fig. 2 provides a table of the transport capacity computing and communications components of the network system in accordance with the invention;

Fig. 3 provides a table of the rider technology components and rider demand request details of the network system in accordance with the invention;

Fig. 4 graphically illustrates the marketplace actors, their modes of access, information options and specification for operations of the network system in accordance with the invention;

Fig. 5a graphically represents the steps of the rider in using the network system in accordance with the invention (Rider Experience);

Fig. 5b provides a table of some functional options of information specification and actions of the rider in accordance with the Rider Experience;

Fig. 6a graphically represents a flow chart of the experience of a driver (Driver Experience) in accordance with the invention:

Fig. 6b presents a table of some functional options within the driver experience and subsystems in using the network system in accordance with the Driver Experience;

Fig. 7 graphically illustrates various components, subsystems and databases required for an optimal implementation of the invention;

Fig. 8a graphically represents the geographic track of a driver on their journey between a journey start point and the journey destination, shown as a dark solid line from Parnell Place to Kinsale;

Fig. 8b logically represents the driver's journey of Fig 8a with certain intermediate destination points of the driver's journey summarized, along with activity at each point and the variation of timing as expected by the shared transport active management system for that time of day on that route;

Fig. 9a shows a representation of the shared transport network at a moment in time, where active capacity is available (or expected to be available);

Fig. 9b shows a logical representation of the shared transport network displaying each stop using compact orthogonal and diagonal lines rather than geographic lines to emphasize the city center network's interconnections, to minimize distances in the rural areas and to present the network in a more readable format;

Fig 10a shows elements and data communication channels used to determine continuous co-ordinated proximity using a method where it is desired to have independent confirmation of the positional location;

Fig 10b represents the logic between elements of Fig 10 to determine and report on when and where the elements are in continuous co-ordinated proximity;

Fig 11a shows elements and data communications channels used to determine continuous co-ordinated promixity using a method where it is desired to use near-field communications as means for verifiable proximity;

Fig 11b represents the logic between elements of Fig 11a to determine and report on when and where the elements are in continuous co-ordinated proximity;

Fig 12a graphically illustrates elements of an Access Control System that would allow restricted or favorably charged access to road or parking resources depending on acceptable business rules for each type of use in accordance with the invention;

Fig 12b shows the server-side logic of the Access Control System where this authentication is, in the preferred implementation, pushed to the local device (where such information needs to be processed in real-time);

Fig 12c shows the client-side logic of the Access Control System where this authentication is, in the preferred implementation, pushed to the local device (where such information needs to be processed in real-time);

Fig 12d shows the central server-side logic of the Access Control System where this authentication is pulled from the server or cached servers (may be more appropriate in certain applications or for after-the-fact tariffs, etc);

Fig 12e shows the client-side logic of the Access Control System where this authentication is pulled from the server or cached servers (may be more appropriate in certain applications or for after-the-fact tariffs);

Fig 13 shows the logic of a communication system which proxies messages between a transport user and transport provider, providing as well an operator intervention and automatic rating adjustment to the user's trust level if inappropriate content is requested to be transferred;

Fig 14a graphically illustrates a geographical representation of an example shared transport network at a fixed moment in time, with pick-up locations and active vehicles in the shared transport network shown on a street map;

Fig 14b graphically illustrates a geographically simpler representation of the above network with all the street network segments that cannot be reached reduced out of the diagram to make it easier for the transport user to see what service is available;

Fig 14c graphically illustrates a representation of the above network with only those locations that are directly reachable without transfers, and only those vehicles that are relevant to the starting location of the transport user;

Fig 14d graphically illustrates a representation of the above network, showing the capacities and capabilities of the overall shared transport network, based on a stochastic model, which therefore is used to illustrate the capacity and capability of the network on average, at various day-parts, or using other criteria as specified by the system or by the user;

Fig 14e graphically illustrates a representation of the above network, coded with colors, icons, text, and/or line thickness to indicate the number of transfers, wait time, and potentially other factors, necessary for the transport user to reach their destination;

Fig 14f shows a representation of the above network, showing times of arrival for a given departure point, and whether a transfer was necessary from that point;

Fig 14g provides a table presentation of the above network, showing time of day output of a hypothetical stochastic model for a set journey start and end point;

Fig 14h provides a table presentation of the above network, showing a real time "Departure Board" for a given start point in a combined stochastic and real-time traffic and capacity model of the network; and

Fig 14i provides a table presentation of the above network, showing a real time "Journey Planner" for a given start location and destination location, with information including the available transport options, pricing, and arrival times using the transport method.

Referring to Fig 1., a person 10 desiring transportation service ("Rider") has a personal communications device 11, optimally equipped with location information ("GPS Phone"), and uses this device 11, optimally equipped with a software layer with transport intelligence ("Rider Software Interface"), to signal a transportation marketplace network ("Shared Transport Marketplace") 12 with a demand interest for a particular start-point ("Pick-up Point") and endpoint ("Destination Point", and together, the "Demand Route"). The Rider 10 has previously registered with the Shared Transport Marketplace 12, providing whatever registration details are necessary to contact and verify the identification of the Rider 10.

Alternatively, the Rider 10' may employ a fixed communications device 11' in order to communicate with the Shared Transport Marketplace 12.

At the same time, all vehicles that wish to provide transportation services which are in transit ("Transport Capacity") have a navigation device, typically using GPS or other location finding technology, with built-in or external data communication capability, typically using cellular phone or wide area wireless data networks ("Sat Nav Tracker"), running a software layer with a Shared Transport interface ("Driver Software Interface").

When a driver starts the vehicle ("Driver" 13), a Driver Software Interface automatically determines if the Driver 13 is engaged in a traditional route ("Supply Route"), and registers the transport capacity of the Driver 13 ("Transport Capacity") with the Shared Transport Marketplace 12. Alternatively, if the Driver is not engaged in a traditional route, the driver is prompted for their destination, or possibly is shown a list of riders possibly headed in the same general (or likely) direction as the Driver, for the Driver to consider sharing, if the Driver's destination is not known. This Transport Capacity would be then registered with the Shared Transport Marketplace 12.

The Shared Transport Marketplace 12, which is also accessible by any internet terminal, provides to the Rider 10 and to the Driver 13 information about Transport Capacity and Transport Demand. Optimally, this marketplace 12 is automatically populated with Supply Routes of public transport (buses, trains, commuter bus lines), to provide the Rider 10 with a variety of service types and prices to choose from. Additionally, given the on-demand nature of rides and personal transport, stochastic models can populate the Supply Routes and Demand Routes, in order to enable the Rider 10 and Driver 13 to make better transport decisions. For example, a Rider 10 in a subdivision of 500 homes at 8:30am on a weekday may poll for a Demand Route and see that the only options available from his house to his destination, e.g., Dublin, are a bus that leaves in 90 minutes for €4 or a taxi that could be available in 10 minutes for €35. Given these options, the Rider 10 would possibly be forced to choose a taxi. However, if the stochastic model indicates that 60 cars depart from that subdivision for Dublin every weekday morning between 8am and 9am, the Rider 10 could be provided the information that, with 90% certainty, a Supply Route would be available in 4 minutes

for €4.50. (That is, the Driver of this car in that subdivision simply has not turned on his car yet, and would only be in the subdivision for 2 minutes before leaving it for the highway. Therefore, the value of stochastic probable route offerings dramatically increases the quality of the information provided to a prospective Rider; and thus also increases the likelihood of Riders choosing to use Shared Transport in general). Means of displaying this capacity and providing useful decision-making ability to the Transport User are described in further detail below.

The Driver 13 could pre-register a specific price for a given transit route, or could change their price on-the-fly for a route to reflect the supply and demand for that Route, and the class of service provided (for example, charging more for a Rider who has excess luggage, or for direct point-to-point service by taxi transport, or for inclusion of in-vehicle wireless Internet access in places where that service is available).

Normally, however, pricing for a route would be determined by means such as per mile default rates, the number of seats occupied and other preset fixed and variable charges (zoned pricing, etc). While it is anticipated that some users of this system, particularly those Drivers with minibuses or even buses, could use it for profit-making routes, it is thought that normally the individual consumer user will simply be recovering some or most of their transport costs. Some applications may offer services without any charge or billing whatsoever.

One of the possible means, and the most likely, of determining positioning for the Sat Nav Tracker device 17 and the GPS Phone 11 is through the use of a GPS 14 or Magellan satellite as indicated in Fig. 1. Other means for determining position include

the use of cell phone towers to determine location, position look-up from WiFi hotspot data services, etc.

Use may also be made of the Internet as indicated in Fig. 1, as one of the means of communicating to and from users and drivers and from fixed kiosks to register trip requests.

The Rider 10, depending upon the mode preferred and the equipment available, can select a Pick-Up Point and Destination Point through a variety of functionally equivalent methods, including (1) calling a person or voice-response system via telephone whom they can tell verbally or through a DTMF IVR system; (2) using SMS via telephone, or e-mail, with text indication of Demand Route (i.e., "Go Home", or "Go from 12 Marlboro St to Albany Airport"); (3) via an Internet web interface or dedicated kiosk; or (4) via a GPS Phone with an intelligent and data-driven software interface.

The Rider 10, upon submitting a Demand Route into the Shared Transport Marketplace 12, could be presented with a sorted list of the transport options available, by class of service, type of vehicle, time until Transport Capacity arrives at start-point, estimated transit time to end-point, number of legs in the journey, and cost.

The Destination Point could also be specified by category or purpose, in order to increase the transport availability and options for the Rider. For example, if the Rider just wants to go to a shopping center, and there are 10 shopping centers in various directions, they could register the general category, and make their selection from the available transport options at that point. This could also be limited by brand, such as Starbucks coffee shops or RadioShack electronics stores; or, in the case of purpose,

the Rider could register a request to see a particular movie, regardless of the cineplex where the film was playing.

In the event that the Rider 10 has a Rider Software Interface on their phone 11, the Rider 10 selects from the options available to them. A message is sent to the nearest appropriate Transport Capacity. The Driver 13 is automatically guided to the pick-up point, optimally through the Sat Nav Tracker 17 display unit with verbal instructions. A Driver Software Interface determines if the Driver 13 is complying with the pick-up request, optimally based off the vehicle's movement and a period of time for the Driver 13 to automatically accept or deny the request ("Reserved Capacity").

In the event that the Rider 10 does not have a Rider Software Interface, the Rider can receive/respond to a message of available capacity via the means most conveniently appropriate to them (i.e., verbally, via text message, selecting at the Internet web site, and the like).

Confirmation is then sent to the Rider 10 via a message which optionally directs Rider to an alternate nearby optimal Pick-up Point in order to maximize transport efficiency. For example, if the Rider made a request on an infrequently used street, the Rider may be directed to walk a block or two to a Pick-up Point where Transport Capacity is available.

At any time up to the proximity alert warning period ("Three Minute Warning"), the Shared Transport Marketplace 12 will be working to optimize available capacity and services and will substitute Riders and Drivers, create multiple Riders at the same Pick-up Point to fill the Transport Capacity more efficiently, and the like. The Shared Transport Marketplace 12 will also monitor the Transport Capacity to see if any new

capacity has become available which offers a superior service and/or a lower price option to the Rider 10 (for example, if capacity is introduced which reduces the number of transfers necessary).

At the time of the Three Minute Warning, a message is sent to the Driver Software Interface and the Rider(s) with the information pertinent to the pick-up destination and the Riders. The Driver Software Interface then guides the Driver, optimally through audible cues, directly to the Pick-up Point.

At the time when the Rider needs to be in queue ("One Minute Warning"), the Shared Transport Marketplace will optimally automatically confirm from the Rider's GPS Phone 11 that the Rider is positioned within a certain proximity to the Pick-up Point ("Reasonable Rider Proximity"). If the Rider is not within Reasonable Rider Proximity, the Demand Route request is rescheduled and the Driver is informed that the Rider is not available ("Rider No Show").

At or before the One Minute Warning Time, a message would optimally be sent to indicate to the Rider to be on the lookout for the Transport Capacity, along with the specific color, model, picture and/or other identifying characteristics of the transport capacity that was arriving. If necessary, the Rider would also be provided with a PIN to verify their identity and booking.

Communications between the Sat Nav Tracker 17 and the communications network or the GPS Phone 11 can be accomplished from any one or a combination of a variety of direct or indirect data communications networks, including commonly used wide area networks such as GPRS, 3G, and other cellular communications traffic; 802.11 Wifi or Bluetooth or other similar local data communications networks (in

conjunction with, relayed and/or proxied by longer range communications networks as necessary), and other wide area networking techniques such as WiMax and other technologies that will be introduced in the marketplace from time to time.

Referring to Fig. 7, rider transactions and events are logged by the Shared Transport Marketplace (see elements 702, 704, 706, 707, 709), and if a disproportionately high percentage of Rider Demand Route requests result in Rider No Shows (for example, more than 1 out of 10) ("Unreliable Rider"), then the Rider 10 is tested for Reasonable Rider Proximity at earlier times, such as the Three Minute Warning period, and the Driver 13 will not be notified to pick-up this class of Unreliable Rider, unless the Unreliable Rider is already at the Pick-up Point, until such time as Rider No Shows passes a standard reliability as approved by the Shared Transport Marketplace.

Likewise, as illustrated in Fig. 7, a History for Driver transactions is logged by the Shared Transport Marketplace 12 (see elements 702, 704, 705, 708, 709). If the Rider 10 is waiting at the Pick-up Point and for whatever reason the Driver 13 does not pick up the Rider 10 ("Driver No Show") and/or is consistently late in picking up Riders, the Driver 13 would be measured for timeliness and Driver No Show rating ("Unreliable Driver"). Such lateness should include reasonable adjustments for consistently gridlocked locations such as city centers, as would be indicated through stochastic measurement of other Driver performance at the same Pick-up Point. The Driver 13 would likewise be expected to measure up to a higher level of performance to overcome an earlier unreliability, or the Driver 13 would be ranked lower ("Star Ratings"), matched less frequently, and/or possibly expelled from the Shared Transport Marketplace 12.

Although Riders/Drivers remain anonymous, system rankings are available, and Riders have the ability to only request Transport Capacity from Drivers with specified quality Star Ratings, and the like.

Transport Capacity optimally would have an external indicator ("Route ID Display"), optimally a bright display that is about the size and position of the passenger's side sun visor in a car, preferably mounted on the interior of the car, that optimally presents a visual confirmation of the route identification to the external Rider, so that as the Transport Capacity approaches, the Rider can begin approaching the Transport Capacity. While this Route ID 18 is somewhat analogous to the function served by a Bus Route Information display, the Route ID Display 18 has the following additional functions more necessary for a point-to-point, rider-by-rider shared transport network: Route ID Display 18 can be triggered automatically to become visually distinctive as it approaches a Rider Pick-up Point (analogous to the flashing lights of a School Bus as it stops to pick up children). As there could be hundreds of vehicles on the road that also provide Transport Capacity, this distinctive display serves the unique function of distinguishing the Dispatched Transport Capacity which has been matched to the Demand Route from other Transport Capacity which may be on the same road at the same time. In a low-tech, lower function incarnation, this could simply be a placard sticker with a fixed ID number.

As the Transport Capacity comes within a viewable distance ("50 meter display"), the Route ID Display 18 could show the particular Demand Route information and/or other Identification information (Personalized Route ID Information), for example, the readable distance ("20 meter display"), the Route ID Display could show the particular

Demand Route information and/or other Identification information (Personalized Route ID Information), for example, the Nickname(s) of the Rider(s) being picked up, the Destination Point(s) of the Demand Route(s), and the like.

As Transport Capacity approaches the Pick-up Point, the Driver would position the vehicle at the Pick-up Point, and optimally the Driver would be presented with a picture of the Rider(s) and the identification name of each Rider ("Nickname"). If the Rider does not match their picture, the Driver would choose to refuse the shared ride, and would submit, through the Driver Software Interface, the reason for denying the ride. (At this point, an operator of the Shared Transport Marketplace 12 would attempt to contact the Rider through the information provided with their registration details to see if there was a human error or to see if the Rider's GPS Phone had been stolen, in order to disable future Shared Transport Services). If a PIN were provided to the Rider, the Rider would be prompted by the driver to enter the PIN (or the driver would enter it himself), and the match would thus be verified, or the match could also be verified through the method of Continuous Co-ordinated Proximity, described below.

Upon a match-up of Rider 10 and Driver 13, Rider would enter the Transport Capacity vehicle ("In Process Journey"). The Shared Transport Marketplace 12 would then optimally verify, through the location information in the Sat Nav Tracker 17 and in the GPS Phone 11, that the Rider and Driver were indeed at the same location.

If the Driver 13 left the Pick-up Point area without picking up the Rider 10 (the Shared Transport Marketplace 12 could know this due to the divergence in location information between the GPS Phone 11 and the Sat Nav Tracker 17, as shown in Figs. 10a, 10b, 11a and 11b), the Shared Transport Marketplace 12 could send messages to

the Driver 13 and Rider 10 verifying that this was their intent; for example, if the Rider 10 had suddenly changed their mind, perhaps to go back to their house to get their umbrella. However, if the Demand Route was still needed, the Rider 10 and Driver 13 would be queried on their next action; for example, if the Rider wished to re-submit their Transport Demand request. In that case, the Rider's request would receive higher prioritization in the event there is a queue of Riders at the same location, so that the Rider would not have to return to the end of the queue.

When the Driver 13 approached the Rider Destination, and possibly at points along the way, the Rider 10 and Driver 13 could be polled for their location information to verify that the ride was progressing ("Continuous Co-ordinated Proximity" elements and methods of which are illustrated in Figs. 10a and 10b). Processing and communications could be done either locally (using software inside the Transport Capacity vehicle, in Driver Software Interface and Rider Software Interface, and communicating via near-field communications inside the Transport Capacity vehicle using software in Driver Software Interface and Rider Software Interface, via communications technologies such as Bluetooth, 802.11, RFID or their equivalents) or via network polling to Sat Nav Tracker 17 or GPS Phone 11, or a similar combination of methods and communications. The delivery of the transport service could be proven beyond a reasonable doubt through the continuous co-ordinated proximity between the Driver and the Rider according to the verification of simultaneous geographic proximity as illustrated in Fig 10b. At the end of this journey, a message would be send to Rider with the details and any billing information about the journey.

An alternative method of verification of continuously co-ordinated proximity would be to use the establishment and continuance of near-field communications as the primary consideration for determining start point of ride sharing experience, and use the breaking of this near-field communications between the Sat Nav Tracker 17 and the GPS Phone 11 (in cases other than power-off or reset of devices) to establish the verified termination point of the journey. The elements involved in this method are shown in Figure 11a, with the methodology shown in Figure 11b.

Alternately, in a low-tech (and only partially verifiable) implementation of the above, the verification of the Rider pick-up and delivery could be accomplished through the use of a PIN transmitted to the Rider, the entry of that PIN by the driver, and a lack of negative confirmation when the Rider is presented with the journey summary information.

Important aspects of the above system that were not mentioned in the above narrative: Trusted Drivers and Trusted Riders are a large part of the viability of any Shared Transport System. In order to improve on the quality of this trust, and to provide security assurance to Riders and Drivers, certain behaviors would prompt alert conditions, especially those related to security or safety. For example, when a Transport Demand is established which results in an In-Process Journey which is terminated before or at a different point than the established Destination Point, this information is logged and could further be used to generate, for example, automated phone calls to verify the intent of the Rider & Driver, including prompting the Rider or Driver for verification of pass codes ("Favorite Color") which would be established upon user registration. If a Rider or Driver was unable to verify their Favorite Color, human

intervention and responses and queries (from Network Operators, optimally, at a Network Operations Center (15), as shown in Figure 1) could escalate the situation response as appropriate, even initiating vehicle tracking and dispatching security personnel if appropriate.

Other methods of assuring that the Shared Transport System developed and maintained good social and safety standards would be a comprehensive ratings system. At the end of each journey, as the Rider leaves the vehicle, they are messaged with the details and cost of their journey on their GPS phone 11 (via SMS, e-mail, or via a special application or web page, for example). This message also could prompt the Rider to rate the Driver, for example, with 1 to 5 stars, on one or more scales (safety, comfort, social factors). A sufficiently low rating (for example, 1 star), could be used to automatically "blacklist" that Rider from ever matching with the Driver again (using the Matching Engine 701, as shown in Figure 7, in conjunction with the rating systems of the Transport Provider Management System 705 and the Transport User Management System 706).

Likewise, at the end of the driver's journey, as they stop their vehicle, they would be automatically prompted to rate the Rider(s) that they had carried on their Supply Route. Using the same or similar criteria, they would provide their feedback to the system about the rider. A sufficiently low rating would probably also prompt more requests for information, such as why the rating was so low.

Such an automatic feedback system would help police the network for bad behavior and thus encourage more responsible behavior on the part of everyone using the network.

The network system may also be provided with the following capabilities.

Real-time Self-correcting network redundancy elimination:

System feedback, in real-time, to a driver that another public vehicle or Shared Transport vehicle is available within set criteria (ie., with destination < 1/4 mile of theirs, with 0 or 1 transfers, with maximum of a 5 minute wait). If interested, the driver would receive the location/directions to a car park that is in-route.

Period benefit cost/time analysis:

System log periodically (weekly/monthly, for example) compares transit network availability with actual usage data from an in-car navigational unit and provides a trip-by-trip summary of which trips would have benefited through use of the Shared Transport Marketplace, what the cost/time savings would have been if the user had dropped their car at a Park & Ride; also, what the EARNINGS would have been if the user had picked up available fares (plus/minus 5 minutes); also, generic trip data about the average speed, journey time, CO₂ generated and gas consumed.

Additionally, network capacity demand can be used to calculate any possible public subsidy or tax credit benefit that can be awarded to potential drivers in exchange for their availability on their normal transit routes.

Identity Verification system:

Personal communications device could show the picture and name identification of the driver responding to pickup request.

Service Provider (Driver) display shows the picture of the Rider 10 (service requester in case of cargo or concierge) requesting pickup service.

Rider/Driver Proxy Messaging System

Normally Riders and Drivers would have no need or use for contacting each other directly; however, there could be a few circumstances where it would be useful for one to contact the other, such as in the event of a lost or found item in a car, or perhaps in certain rare cases where they need to reach each other to arrange exact transport details. Normally these users of the system may desire to keep their contact details and full identity information (such as name, e-mail or phone number) private.

Fig. 13 shows a message proxy system that would enable communications between members of the community without losing this identity, and also, importantly, disabling any inappropriate content or contact between community members as well as adjusting the rating of any community member as necessary.

In normal usage, the system would function as illustrated in Fig. 13. For example, if a Driver 13 identifies lost items left in their vehicle, they could choose a function on the in-vehicle device (or via a web page), to send a message to the Rider 10. The system 12 would then receive this message 131, evaluate the content for appropriate content 132, and if it could automatically determine this, would redirect the message 134 on to the Rider 10, coding the message with a unique identifier so that it would know to respond to the Driver 13 if the Rider 10 responds. If the system could not automatically approve the content of the message, the operator would review the content 136, and if the content was OK, the message would be passed on, but if not, the message would be rejected 138 and the Driver may receive a rating adjustment 137 and message to reflect the inappropriate use of the system. If the Driver's misuse of the system was sufficiently untrustworthy, the operator may choose to restrict the Driver's messaging

capabilities, blacklist the Driver 13 for future matches with this Rider 10, or make other adjustments to the Driver's ratings.

The network could generate near real-time messages using SMS, e-mail, or voice messages for example, or could, using a similar technique, proxy a phone call if desired and appropriate.

Friends & Family Transit network

Riders and Drivers can restrict Transport Capacity and Transport Demand matches to operate only inside closed communities of members, if desired. Such closed communities could be, for example, employees of a company, students and parents at a given school, or membership in a given social or sports association. These closed communities could be defined inside the various interfaces available as part of the Shared Transport Marketplace 12, including web pages, or could in fact be authenticated from other means, such as all those members of the Shared Transport Marketplace who had e-mail addresses ending in @mycompany.com or @myuniversity.edu.

The Network System could also allow users to tag drivers or riders as "friends and family" post ride, over the web in displays of private network drivers, or through e-mail opt-in.

Existing internet social communities could be used to instantly pre-populate the social communities that the user would want to make their Transport Capacity or Transport Demand known to, to help advertise and expand the reach of the Shared Transport network, or to match exclusively, or preferably, within the social community.

These “friends & family” designations would become part of the criteria used to rank available drivers and riders, where the rider or driver has a preference. Similarly, a rider or driver can tag the other as “not again”, which could rank these alternatives lower or completely “blacklist” a Rider or Driver from matching directly with each other in the future.

Scheduled rides confirmation:

For rides which are pre-scheduled, software on the user device or through the network software will offer periodic warnings and require confirmation from a Rider a preset advance notification time (say 15 minutes) in advance of pickup, then again a preset nearby notification time (say three minutes) before pickup. The Rider has the option to delay or cancel pickup. The Driver is not routed off course or dispatch information sent until and unless rider confirms such pre-scheduled intent.

Advantages of shared transport system and service network

The invention thus provides a system that has the following advantages which have benefits to the area of public transport:

A. A matching system for transportation capacity with transportation demand. The System maintains a matrix of journey time and cost estimates for the nodes (pick-up and drop-off points). Next available capacity, and estimated travel time between each of these nodes is maintained.

B. A characterization method for summarizing transport capacity for individual drivers. Vehicles delivering transport services to commuters (trains, buses, planes) have long used the characterization of “stops” to summarize their transport network services in a way that the consumer could relate to (for example, the #6 subway line,

stopping at 34th St, Grand Central Station, 49th St, etc. However, for an individual driver on their personal daily commute, the typical characterization of a route is the start and end address. This characterization makes the matching of a driver journey difficult for a passenger. The introduction of computers or GPS systems to the problem doesn't necessarily make the solution any easier, as computers and GPS systems will often just reduce an address down to its geographic co-ordinates (latitude/longitude), or represent a drivers' route as a stream of latitude/longitude points.

The system herein described provides an automatic way of converting the computer's representation of a driver's route into a format which is more usable for further analysis and presentation. Figure 8a graphically illustrates an example driver's journey from their work location (Parnell Place, in City Center 802) to their home location (Kinsale 803, in the rural areas). The GPS unit of a car, when recording (or calculating) the driver's exact route, would represent this journey as a a set of co-ordinates. However, for the purposes of establishing a shared transport network, it is useful to establish a network of pick-up and drop-off points (nodes), so that Riders and Drivers can be guided to places that are safe and convenient and comfortable for both the Riders and Drivers. This network of stops can, for example, be pregenerated from existing databases of stops from existing bus networks, entered using traditional GIS systems, or in fact created by the in-vehicle system 17.

The route of the driver's journey is shown in Figure 8a as a dark line (801) moving from the north of the map towards the south of the map. The system calculates the places where the route of this line intersects a stop node, and thus can present the journey at the end of the route in the format of a very useful and concise set of major

stops, rather than an incomprehensible list of addresses or geographic co-ordinates. For example, the driver's route 801 can automatically indicate that the path of this route is from Parnell Place 802 to Cork Airport 804 to Farmer's Cross 805.

Furthermore, once the geographic representation is abstracted to stop nodes, it is possible to show the driver's route in a variety of alternate presentations, such as the presentation shown in Fig 8b. Here, we see the journey described with an abstraction of the journey start and end-points 811, where the start point is characterized by the town name; and we see a graphical presentation of boxes summarizing activity at each stop along the journey; and we can also see a level of characterizations. A busy city route may actually have many dozens of stops it could theoretically stop on if there were people waiting at the stop, but perhaps only the most major stops (as coded separately using operator intervention or data entry, for example) would be shown in order to present the information more clearly. The major stops of a route, as shown in 817, may not necessarily even include the start point or end point if they are not where the likely traffic would be, for example.

As shown in the elapsed time between stops 816, it becomes manageable to represent travel times between nodes using driver's journeys when organized as a stream of stop nodes. Likewise, stop nodes makes it easier to characterize capacity and frequency of travel between locations.

As graphically illustrated in Figure 9a, using the automatically generated driver's stop nodes to measure and predict capacity, it is also possible to show the real-time transport capacity of the shared transport network, and/or the predicted capacity from the stochastic transport capacity network model. This particular representation shows

the same network model as Figure 8a, but trimmed to only show those segments and nodes in the network that have active transport capacity on them at the time the user displays the model. This method of graphically presenting the reach of the transport network dramatically improves the confidence that a user would have in the shared transport model, knowing that they can get from one place to another, and knowing, through the stochastic model, what the availability would be at a different time of day.

Traditional transport networks have known this for a long time, of course, and so maps of network capacity have long been available on public transport systems, although they have not yet been applied usefully to carpooling systems or this invention of public shared transport. Traditional public transport networks have also sought to make their transport more understandable by simplifying the geographic maps into quasi-geographic schematic representations that enhance readability and information display by distorting the geographic accuracy in certain manners (using only orthogonal and diagonal lines, for example). The system could generate schematic maps automatically (several such programs and techniques are known in academia) using as its source the dynamically created transport network as generated by the real time and/or stochastic shared transport node model. An example of this schematization of a shared transport network is shown in Figure 9b, using the model of the 9a network.

C. An active monitoring system for generation of usage/demand data for point-to-point routing of participating vehicles. The system looks for overlaps of capacity and seeks to eliminate redundant capacity (within certain distance criteria, transfers criteria and timing criteria) by suggesting route changes or route termination. For example, if five cars were on the route to the same destination, the system could inform the cars

that the quality of shared transport service on their route was high, and could suggest that one or more cars pull over into a Park & Ride (for the Driver to become a Rider in another vehicle's car, as it would be far more economical than driving himself in a single occupancy vehicle to the same destination). Alternately, this monitoring system's data reporting and analysis can be used to suggest the generation of new routes, or on-the-fly routes, for public transport when enough demand capacity exists to create transport routes which bypass crowded city centers or, minimally, can skip stops on an existing route (generating express routes by selecting appropriate Riders to get on the transport capacity).

D. An active monitoring system for generation of traffic flow data; combined with a central information repository, gives real time network for traffic flow throughout a metropolitan area. . The system as described has the capability to enable any of the Transport Capacity vehicles to act as "traffic probes", reporting on throughput and delays in traffic. The system would use this data internally in order to better predict arrival time of Transport Capacity at the Rider's Pick-up Point, but this data could also be shared with the general transport community at large as a substitute for other means that they may normally use to determine road traffic (loop detectors, video cameras, traffic probes, etc).

E. A system to generate matches between route capacity and timing and Transport Demands, from usage data. Regular traffic between nodes and subsets of nodes is gathered by this system continually (Fig 7, elements 709, 710, 711, 712), The system 12 can thus tell a user who wishes to go from one point to the next how to best get there using the available transport capacity via it's matching engine (element 701).

A graphic illustration is shown in Fig. 14a. In this case, a Transport User 1401 wants to go from the departure point 1406 to the arrival location 1409. Active Transport Capacity 1402 and 1403 both pass by 1406 (as known by the system by the declaration of their Supply Routes. Whereas Transport Capacity 1402 has registered a route of 1405, 1406, 1407, 1408, Transport Capacity 1403 has registered a route of 1410, 1404, 1406, 1407, 1408, 1409. All other considerations being equal, the matching engine 701 would thus match the transport request between stop 1406 and stop 1409 using Transport Capacity 1403.

As other vehicles regularly travel between the nodes 1410, 1404, 1406 and 1409 at this time of day and day of week, the system would be able to reliably calculate how much time will elapse until the vehicle has arrived at the Transport User 1401's pick-up point, and would start the notification processes as detailed in the system appropriately. The system could also tell the Transport User 1401 at what time they would arrive at their destination 1409.

If Transport Capacity 1403 did not make their service available to Transport User 1401, the geographic scope of the search could be widened and the User could be alerted that an option exists that would get them to a drop-off location 1408 rather than the desired 1409 drop-off location, and the user could choose to accept this transport instead.

As illustrated in Fig. 4, Transport Capacity and Transport Demand will have a variety of providers (402) and users (403), with a potentially complex set of requirements and preferences (404, 405). The matching engine (401) provides the

Transport User with a means to display and/or automatically book the best options available.

F. Display methods to show available transport capacity and options to Transport Users. While no working system currently exists for the kind of real-time shared transport envisioned by this invention, the closest computing systems that perform a similar function are those car-sharing or carpooling schemes which attempt to match riders by destination and origin, for the purpose of establishing one-time or regular commuting matches. A major weakness of current state-of-the-art systems for carpooling is the limited representational capability of these systems, as it is usually difficult to find if there are any services on offer in a given neighborhood or area, to a given neighborhood or area. Current state of the art systems assume that no transfers are possible between shared transport providers or public transport, and work best when all of the users of the system have a common shared destination or origin (for example, commuters to a given campus, students at a university, or (when trips are to be made across country), members of a given urban area). The present system, however, generates a number of representations of transport capacity which will give encouragement to transport users and providers that service is possible using the present system.

From the live usage data of the system, maps can be presented which show the real-time capacity of the system. As graphically presented in Fig 14a, live maps could be displayed which show the real time transport capacity of the network and the stops in the network. However, these maps by themselves do not provide a sufficient quality of information to give confidence in the likelihood of a user being able to get from their

start point (1406) to their destination point (1409). Fig 14b demonstrates a more useful presentation of the street network, which begins to inform a user how they would use the shared transport network to reach their chosen destination, or what kind of service availability they would have using the system.

Until a certain critical mass is achieved in a given geography, transfers to non-commercial private transport vehicles will be limited, and so it is important to also be able to show representations of the transport system showing all possible destinations where no transfers are necessary. This is graphically illustrated in Figure 14c.

G. A prediction system to generate available route capacity and timing from summary usage data. Traffic data is essentially stochastic, and therefore this system provides predictions of transport capacity between points in a way that can be useful to transport users in matching their transport needs and in providing them with useful information that makes them grow to trust the system and make better transport decisions. . Because the nature of this system is extremely ad-hoc, few bookings will be matched far in advance for a specific transport capacity. The best capacity for the journey is the capacity flowing by the transport user as they need it. While this approach enables a large number of advantages, the central weakness to this approach is in the uncertainty of a booking, both in terms of its timing and the provider of the service. Therefore, it is particularly important that this system provide excellent information services which overcome these uncertainties.

As mentioned above, usage data for this system is continually gathered. Beyond the use of this real-time information for the benefit of matching is the categorization of this usage data into a transport model (Figure 7, items 701, 702, and 702). This

transport model would contain day part information for traffic capacity flows. Thus, even if a transport demand were made that did not currently have transport capacity available, the model would be able to stochastically determine the likelihood of service, at any part of the day. This is graphically depicted in Figure 14d, where the historical availability of transport capacity is represented by lines in the street network. Of course, instead of using a street map presentation of wait times or capacity, a logical schematic of the network amongst transport stops could also be formatted to similarly display timeliness and throughput. As shown (1434), the map or schematic could be shown for any day or time period.

In many uses, of course, a tabular representation is preferable and augments the understanding of a network, and from the generated capacity model, tables such as that presented in Fig 14g would be generated to approximate the appearance of timetable schedules of traditional transport providers, such as city bus or subway networks. These timetables would of course be based off the ad-hoc transport capacity as driven by transport providers over time. These forms of definitive and statistically useful information will help transport users gain the confidence in the viability of shared transport, as well as be aware of better options that they may want to consider. For example, referencing the combination of Fig 14g for tabular data and Fig 14e for graphical presentation of a given transport user 1449, we can see that the tabular presentation shows that from the start point 1471 of the transport user (1441 on the map), to the destination point 1472 (1442 on the map), the general availability would be better at location 1443 (1473), where the average waiting period 1475 being less than

that at location 1444 (1474). However, for the most common commuting hours (7:30-10am and 4:30-7pm), the availability is similar.

Of course, in some cases drivers could be guided off their normal route to pick up passengers, and the system would be capable of doing that, but in most cases, it would be more desirable to pick up passengers without inconveniencing or disorienting the driver.

It can be readily appreciated how the availability of this information would enable users to make better commuting choices. In the table shown in Fig 14g, only two stops were shown and the rows were broken up by time of day and subdivided by stop; naturally, this information could be extended if desired into a larger array, or shown in a format of stops as columns, stops as rows with cells displaying average frequencies; or other typical timetable schedules.

The directionality of the transport traffic is also a major factor in the display of this stochastic information, and as shown in Fig 14e, the reverse route for a commuter transport user 1441 when returning home could appear very different graphically, depending on transport capacity usage history, from the opposite direction. Fig 14e also shows how a combination of historical data plus real-time data can be used to provide a blend of information to the transport user. This presentation of a blend of statistically generated timetables as well as real-time presentation of capacity would also be essential to the operations center staff in helping transport users understand their options as well as influencing any marketing or operations plans they would have to expand the network, and could also be used to help determine automatically if there

are any unusual activities such as road closings or traffic jams, where the historical data and the real-time data varied significantly.

Using this system it can be extremely useful to display the combination of statistical transport models with real-time information in tabular format. Fig 14h graphically illustrates one form of a "departure board" for a shared transport network. Departure boards, as seen often in airports, train stations and other transport hubs, provide the answer to the question "where can I go from here?".

Shared transport would provide a new opportunity for departure boards to be used in corporate campuses, lobbies, and other places where public transport has traditionally underserved the population. Shared transport departure boards could combine public transport information, private shuttle services, and shared transport services. While a preferred form of a departure board would be a separate physical display, it is of course possible to have departure boards take the form of web pages, a frame within web pages, or special "widget/gadget" style small programs that people could run on their portable phones or personal computing devices.

However, in the case where the transport service is not provided by scheduled services, the provision of a statistical transport model in conjunction with a real-time network is essential to providing this information, particularly in cases where the transport is leaving from within a campus (or housing subdivision) and moving out of range quickly. In a case where 15 vehicles leave a subdivision and head to a city center between the hours of 7:30 and 8:00am daily, it could be approximated that one vehicle moves between this journey's start and end points once every two minutes.

Consider again Fig 14e, where a transport user 1449 would like to find out what the availability of capacity is between start point 1441 and destination point 1442. Some transport capacity 1448 is positioned in a parking garage near the city center and also intends to go to destination 1442. As the transport capacity 1448 turns on their vehicle, they may only be within the area close to start point 1441 for a minute and two. As a result, if most of the transport capacity were coming from similar location, the transport user 1449 may not see the possible destinations until a few moments before they became available for matching, if at all.

As departure boards also serve the function of advertising the availability of transport options, the shared transport departure board would be under-representing the possible answers to the question "where can I go from here?" unless it includes a statistical model in the presentation of the departure board. Fig 14h shows a table combining real time network information with statistical network information. Here, Fig 14h is a tabular representation of Fig 14e, and the transport user 1449 wants to go from 1441/1481 to 1442/1482, Estimated departure times 1485 show two forms of numbers, perhaps graphically displayed with different characteristics, with real-time information for actual vehicles shown as indicated in 1486 and statistically established timing shown as in 1487.

Note also the departure board format would display major intermediate journey nodes 1488, as discussed above and calculated and characterized automatically by the system. Oftentimes, an end destination 1485 is not known by a viewer, and the intermediate points 1488 are the points of interest. As the purpose of the departure board is to improve the perception and communication of transport options, the

characterization of the path of stops , described above in the description of Figures 8a and 8b, further improves the transport user's information experience.

H. A journey planner for a shared transport network. Journey Planners, which show best available routes between start point 1491 and destination point 1492 as well as cost and schedule information, are a well-known concept for public transport, but have not been used to describe non-scheduled transport services. As shown in Fig 14i, the Journey Planner would operate similarly to existing public transport network journey planners, but would also incorporate the statistical model of available shared transport 1495, and real-time shared transport information to provide best possible combinations between 1493, 1494 to provide the user with the widest range of useful options.

I. As the Shared Transport network expands, more transport capacity will become available regularly on certain routes. The system as described would be fully aware of which routes have underutilized capacity, and would also be aware of transport users previously registered transport demands. Whereas normal public transport networks don't appear to have any awareness of who is using their services, the present system would communicate with its transport users to let them know about expanded hours of quality service (for example, less than 10 minute wait for services), and/or expansions of service into new outlying areas for that user, etc.

J. Governmental agencies and local authorities have long sought to encourage the use of carpooling, using incentives such as HOV (high occupancy vehicle) lanes, discounted tolls, and tax deductions for the use of public transport means. In the near future it is anticipated that further incentives may be brought to bear, given the extreme shortages of oil which are expected in the years of 2011 and beyond, as well as the

increased awareness of global warming. In addition, companies and organizations who are pressed for parking spaces are highly motivated to try to get their workers to carpool, and sometimes provide free or premium location car parking spaces to those who carpool. To increase the effectiveness and efficiency and compliance with these measures, it is anticipated that automated means may be desirable to authenticate the use of the vehicle in shared transport applications, as shown in Figure 12a.

In this access control system, a vehicle 1209 would approach an "access gate" 1208, for example, a toll booth 1204 or a parking lot access gate 1206. Whether the system was a server push or client pull system (Fig 12b, Fig 12c, Fig 12d, or Fig 12e), the information about the Shared Transport status and business rules would be processed at the Access Server 1207, and, if access was permissible, the gate 1208 would be lifted, allowing free or discounted access to the resources of the company or governmental agency. In fact, no gate 1208 would necessarily be required, as the system could be a tolling system which simply charges a different rate depending on the occupancy of the car, etc.

Throughout the year that the car is used, the usage of the car could be measured in terms of the percentage of time it was used for shared transport, and this could, if it passed a certain threshold, qualify the transport provider to benefit from certain tax benefits, carbon credits, and the like.

K. A trust system for managing networks of Transport Providers with varying trust characteristics. As shown in Fig. 7, the Transport Providers/Drivers are managed by a system 705 which considers their ratings (as provided to the system by an Activity and Event Manager 702) and their community memberships 713. This enables, as shown in

Fig 4, the Matching Engine 401 to consider matching transport demands with a variety of Transport Providers 402 and Provider criteria 404.

L. A self-correcting trust system for feedback of Rider response to Driver performance. As shown in Fig.7, when a Journey has been matched between a Transport Provider 720 (Driver) and a Transport User 721 (Rider), the Journey is actively managed by the system 704. As part of this process, the Rider is prompted to provide a measurement of trustability to the Driver. This event 702 is then passed on to the self-correcting trust system within the Transport Provider Data Management system 705.

M. A self-correcting trust system for managing Driver preferences of various Riders. Likewise, as shown in Fig 7, the Transport Provider is prompted to provide a measurement of trustability to the Transport User. This event 702 is then passed on to the self-correcting trust system within the Transport User Data Management system 706.

N. A modification of the above system to allow it to be used to transport goods and merchandise by having the Transport User send packages instead of using the system for personal transport., but otherwise using a similar Shared Transport Marketplace for matching transport need and rating of providers.

O. The Driver can also be driving a bus (whether a private or public transport service), a taxi, and the like.

Referring to Fig. 2, the transport capacity computing and communications components of the network system include components for (1) location and direction, many of which can supplement the locational accuracy where GPS technology is not

functional or is less desired (for example, underground transport forms would be more likely to use fixed position "markers" to determine the location of the transport capacity, and in the same underground transport situation, the GPS Phone would ideally be equipped with 802.11b technology and a reference database of positional location of underground wireless 802.11b or similar local wireless networking broadcasting devices in order to determine location and facilitate data communications); (2) Far-field communications list some of the communications methods used to facilitate interaction with the Shared Transport Marketplace, including the possibility of using voice or IVR interaction with a system operator rather than data networking; (3) Near-field communications detail methods would could be used to communicate between Rider and Driver computing/communication devices (preferred in order to reduce data congestion and airtime charges); (4) supply routes include those information sources and database of commonly used and widely known location names that will feed the Shared Transport Marketplace with available and potentially available transport capacity from the Driver and public transport sources; and (5) Demand route, which includes several possible methods of requesting a route by a Rider. The devices and inputs used by each of these five components are as listed.

Referring to Fig. 3, the rider technology components of the network system include components for (1) Location, that is, several methods for determining the exact position of the Rider for communication to the Shared Transport Marketplace; (2) Location transmission, that is, the interface that the Rider uses to transmit his Demand Request; (3) Computing Component, that is, the device that the Rider uses to transmit his Demand Request; (4) Internet, that is, either the broad Internet or a limited Intranet

which enables the data transmissions between the Shared Transport Marketplace and the Rider; and (5) Demand Route, which includes many of the databases and the pricing and membership models which enable a given Rider to take advantage of a variety of possible types of Transport Capacity. In addition, the devices and inputs used by each of these five components are as listed.

Referring to Fig. 4, the multiple uses and operations of the network system are shown graphically and include components for (1) Supply Side Routes, which include the databases of providers of shared transport services, (2) Demand Side Routes 407, which include a subset of possible methods for a Transport User 403 to request a Route, (3) Request Methods 408 and Availability Methods 406, which include a variety of methods which could be used to communicate between the Rider, Driver, and the network system. The Matching Engine 401 would consider the availability of transport capacity, provider criteria 404 and transport demand criteria 405 in providing ideal matches for the request.

Referring to Fig. 5a, the experience of a rider in using the network system are shown as a flowchart and are believed to be self-explanatory, as they have been described in text above. Use of specific references to time, ie., "Three Minute Confirmation", are completely configurable by the user and would be changed either automatically or manually to reflect different modes of transport and interchange or uses of the general system. The accompanying table, Fig 5b., provides further specifics on data and usage of the functions in the flowchart of Fig 5a. The experiences may stored in memory and printed out.

Referring to Fig. 6a, the experiences of a Driver in using the network system is shown as a flowchart and are believed to be self-explanatory, as they have been described in the text above. The experiences may be stored in memory and printed out. The accompanying table, Fig. 6b, provides further specifics on data and usage of the functions in the flowchart of Fig. 6a.

Referring to Fig. 7, the Shared Transport Marketplace will be composed of a number of computer servers networked together to perform the data and communications functions as specified. Communications interfaces 723 will enable the system to communicate automatically between other automated computer systems, to individuals via computer interfaces, to individuals via telephonic interfaces, Sat-nav units, and the like.

Continuous Co-ordinated Proximity System

In order to improve the user experience and the rapidity of verification of transport user ID and thus reduce the delay of loading people or goods into a transport vehicle, it would be desirable to have means to quickly verify the identity of the transport user for the transport provider, in order to know that the passenger is a paying and trustworthy passenger, as well as to confirm the drop-off location of the transport user.

Referring to Fig. 10a, the elements necessary to determine if there exists continuous co-ordinated proximity are the monitoring and verification system 1001, a Transport User Device 1002 and a Transport Provider Device 1003. Each of the devices 1002 and 1003 would need to have a means to determine their location. Additionally, for the "independent verification" method, there would need to be far-range data communication means 1005 and 1006. Optionally, there can also be

communications between the devices 1002 & 1003 via a far-range or near-field data communications means.

Referring to Fig. 10b, the logic necessary for a central server to determine if there exists continuous co-ordinated proximity by the method of independent verification is shown in the flowchart.

Referring to Fig. 11a, the elements necessary to determine if there exists continuous co-ordinated proximity via verification of near-field communications link are the the monitoring and verification system 1101, a Transport User Device 1102 and a Transport Provider Device 1103. Additionally, for this "near-field communications verification" method, there would be near-field data communication means 1104 between devices 1102 & 1103. Optionally, there can also be communications between one or more of the devices 1102 & 1103 via a far-range communications means 1105 or 1106. In the near-field communications method, one or more of the devices 1102 and 1103 need to have a means to determine location. The logic for the determination of continuous proximity, as shown in Fig 11b, would run on either device 1102 or 1103, though more likely on the Transport Provider device 1103. The communications with the Monitoring and Verification system 1101 would be between the device running the logic as shown in Fig. 11b. In the event that the data does not need to be communicated real-time, or in service areas where there isn't continuous data communications capacity, the logic system could cache the start and end positions of the transport service between devices 1102 and 1103, or a plurality of other such transport services, and when the logic system does come into networking contact of Monitoring system 1101, the entire cache could then be transmitted.

Using such a cache system would have the following benefits: reducing the data communications expenses by sending less transmissions, increasing the areas of service to include those areas where data communications is unavailable, and, where no far-field communications are needed at all, reducing the hardware requirements of a continuous co-ordinated proximity service. In this case, the transport provider would have to, perhaps daily, come in contact with a near-field communications network.

Hardware and Software Components

Transport User Device

Optimally, a GPS phone with an ability to display graphics, serving the primary functions of enabling Transport User to book travel, receive updates on travel information, confirm bookings and receive activity receipts, provide proof of identity and location, as well as update trust ratings on providers in the network.

Transport Provider Device

Minimally, a GPS phone with an ability to display graphics. Optimally, a personal navigation device or built-in sat-nav unit, serving the primary functions of enabling transport provider to advertise spare transport capacity, route the driver to pick-up locations, confirm or cancel bookings, provide proof of identity and location, update trust ratings on transport users and suitability of geographic locations.

Network Operations Center

Computers and Display systems networked to the Shared Transit Marketplace Server, with telecommunications capacity for call center and operations staff, serving the primary functions of enabling the booking of travel and conveyance of information about network services, customer inquiries, management of physical and logical and

transportation network capacity and organization, and the business management of transport operations.

Shared Transit Marketplace Server

A network of computers attached to the Internet and telecommunications services. Providing automated functions for the Network Operations Center, Transport Users and Transport Providers, including matching demands, refining trustability ratings, optimizing capacity and efficient throughput of the system.

Characteristics of the Shared Transport Marketplace Method

- a) providing an electronic registry of capacity containing a plurality of geographic locations, where one or more electronic devices in each of a plurality of transport vehicles registers the spare transport capacity and location information of the vehicles via wireless data communications to the registry of capacity,
- b) providing an electronic registry of demand, where the transport demand needs of a plurality of individuals or items is registered by a plurality of means to the registry of demand by the transport user,
 - i. where such plurality of individuals or items can include registration via Internet web pages and Internet applications, via SMS messages, via e-mail, via IVR systems, via telephone operators, via applications or web pages running on handheld wireless devices such as location-aware phones, and the like
 - ii. where such demand can be limited to a set of rules not just between start and destination locations and needed capacity of seats or space, but also

include such limitations as requirements for the transport provider to be of a certain level of experience, gender, or membership in certain closed communities, or for the transport capacity to have certain conveniences or services, such as baby seats, wheelchair access.

(a) where such closed communities may include persons associated with a certain company, university, social group, or Internet social networking community, for example.

iii. where such demand can include destination locations that are specified by purpose of journey or type of destination, increasing the availability and timeliness of transport options to the transport user.

(a) where such type of destination could be specified to be any typical consumer or business category, such as supermarket, shopping mall, coffee shop, or a specific brand of these,

(b) where such purpose of journey could be one or a combination of factors, such as to see a specific movie title, regardless of the cineplex where it was showing.

c) providing a central processing capability in each or in a plurality of geographies to provide one or more matches of the transport capacity with the transport demand,

i. according to any specific limitations the demand may restrictively preset, and any predetermined trustability parameters set by the transport demand and the transport capacity.

- (a) including trust parameters, such as the sex or experience of the transport provider or transport user
- (b) including demand requirements, such as the availability of a child seat or wheelchair access
- (c) including trust parameters restricting matches to those within a set of pre-approved transport providers or transport users from a given company
- (d) including trust parameters restricting matches to those with membership in a pre-defined social group, club, or Internet community.
- (e) including trust parameters restricting matches to those with sufficiently high transport community ratings,
 - 1. providing a self-correcting system to the community of transport capacity providers and transport users to continuously update transport provider and transport user ratings,
- d) providing a means of automated communication with the transport capacity to confirm the availability and willingness of the capacity to transport the demand; and likewise providing a means of automated communication with the transport demand to confirm the booking details of the capacity;
 - i. providing a means to direct the transport capacity to the geographic position of the transport demand(s), and automatically redirecting the transport capacity to the meeting point location of the transport demand if transport capacity needs to be re-routed,

- ii. describing booking details to the transport demand of the transport capacity including such possibilities as, the time and location of the pickup along with identifying characteristics of the transport capacity and booking confirmation information.
 - (a) where, depending on the timeliness reliability rating of the transport user, notice of the transport capacity must be confirmed at an earlier time than otherwise required.
- e) providing a means of tracking the pick-up and delivery of the transport demand by the transport capacity
 - i. automatically re-allocating and rescheduling a missed pick-up to other available transport capacity in the registry of transport
 - ii. providing a registry of missed pick-ups which is updated whenever the Transport Provider fails to pick up the Transport User who was in position at the Transport Start, where the missed-pick-up registry is used as a factor in the rating system for the transport Provider.
 - iii. providing a report of missed pick-up to a network operations center to provide for manual intervention if necessary.
 - iv. providing a means of verifying and vetting the truth and authorization of the transport provider and the transport user
 - (a) where such means of verification of the pick-up of the transport capacity by the transport provider can be accomplished by methods including

1. entry of a PIN (personal identification number) provided by the transport user to the transport provider and entered on the in-vehicle system.
 1. where such PIN could be generated automatically and communicated to the transport user upon confirmation of the transport capacity via automated communications (SMS or e-mail or IVR) in the booking details.
 2. near-field communications between the in-vehicle system and the transport user's personal communications device (or other ID, including payment ID), verifying the transport demand's physical presence.
 3. automatic determination of continuous proximity between the transport capacity's geographic location with the transport demand's geographic location, by periodic confirmation by the central tracking system of the location of the in-vehicle device and the personal communication device.
 4. interaction, either through data or through verbal communication, between the network operations center and the transport provider and the transport user, using predetermined pass codes to confirm the identity and testimony of the transport provider and the transport user.
2. providing the transport user's proof of delivery to the destination location by the registration of route positions and timing of the transport

capacity via automatic communication between the in-vehicle device, by the confirmation of the transport provider and the transport user.

1. where the confirmation of the transport provider and the transport user can be automatically provided by electronic devices, or by the co-ordinated proximity method, or by the breaking of near-field communications between the transport user and the transport provider, or by a services message receipt which remains uncontested at the destination location.

Characteristics of the network operations center

- f) bringing service irregularities to the attention of operations personnel,
- g) alerting such personnel to events from missed pick-ups to occasions, such as a transport provider who is off-route from the destination location of the transport capacity ("errant vehicle").
- h) providing automated escalation of response, depending on safety and security preferences and needs, whereby potentially dangerous situations are rapidly escalated for manual intervention of operators at the network operations center or security or public safety personnel,
- i) providing an ability to continuously track the physical location of an errant vehicle and the transport capacity.
- j) providing the capability of booking services to those who don't use more automated means, with the network operations personnel booking the request, or answering requests for information, for the telephone caller.

Additional Secondary Registry of Transport Capacity

An additional secondary registry of transport capacity may be added to the system

- to allow transport capacity to see both the shared transport network data and network data of public and private transportation network operators,
- to show the transport user whichever network services best fits their demand
- to book transport capacity on the shared transport network or with public and private operators.

- i. providing similar notification and cashless transaction benefit to users of both public transport and shared transport.

- (a) where the public or private transport operator has an existing system with PIN authorization, or an integrated ticketing system compatible with the shared transport system, providing necessary authorization and PIN to the transport user.

- (b) where the public or private transport operator has no existing system for PIN authorization, providing the transport operator with the in-vehicle device, or a commercial version of the same.

- ii. enabling the benefit of reduced tax consequences for those governmental entities that allow pre-tax deductions or credits for transportation expenses as detailed.

The transport capacity can be registered automatically, by simple movement of the vehicle indicating the direction and destination of the transport capacity:

- where the destination of the vehicle is predetermined by a route or schedule pre-registered by the transport capacity;

- where the destination of the vehicle is determined by comparing its position and timing to predetermined schedules associated with that vehicle

The usage of the system by transport providers and transport users can be tracked:

- providing a registry of service credits provided by transport providers and transport users, including,

- i. interchanging services with all other members of the network, providing documentation to eliminate taxable consequences where local laws permit,
- ii. reducing effective cost for the transport user where local laws permit by providing the transport user with an authorization system to credit the service credit system from their pre-tax income, either directed by the employer or by the employee,
- iii. providing a detail and registry of usage which qualifies transport providers and transport users with information means sufficient to satisfy governmental laws to qualify for any tax credits or means for preferential road allowances and privileges which may be enabled through legislation,
 - (a) means for preferential road allowances shall include such preferential treatment such as access to HOV lanes, reduced or eliminated cost for such governmental programs as congestion charging, road usage charging, toll road access, parking and preferred-location parking.
 - (b) qualification for tax credits could include the computation of carbon benefits, vehicle registration taxes, annual road charges of using the invention over traditional means of transport.

(c) whereby information means to satisfy governmental authorization could include such means as real-time access to a central or proxy servers,

1. real-time access control including such things as barrier gate authorization at tolls, reduced charges for road usage when the vehicle contains more transport users or transport capacity, access to HOV lanes, or in parking lots.

iv. providing access control information for private or governmental users for parking or entry gates,

(a) whereby the approval of the access to restricted, preferred parking, or reduced charges for such, could be determined via real-time or near-real time access to the central registry (or its proxy), or an on-board device authorized by the activity of the transport capacity.

The system for tracking the usage of system by transport providers and transport users may comprise

- measuring the volume of journeys between a plurality of locations, where the volume of spare transport capacity is continually monitored by wireless communications with the location-aware vehicles,
- storing this information in a stochastic data model, which can then predict available capacity and demand between any point in the covered geographic regions of the network by time of day, day of week, and day of year,
- providing transport users and transport providers with means to retrieve information about the likely availability of transport capacity and transport

demand between any given start and destination locations, at a specific time of day or in general.

This latter system may also be provided with system means to retrieve information via real-time display on web pages, via SMS/e-mail, via IVR or operator-assisted verbal conveyance of this information. The information may be periodically sent to the transport user, or sent to the transport user when triggered by new services or higher quality options appearing in areas where the user has registered an interest or previously travelled using the system.

The system also provides for showing real-time, variable transport capacity on a display. To this end, the system:

- provides a registry which is able to store and display a series of destinations and times from any given departure area, along with other specifics
 - i. including public and private transport operations
 - ii. including departure points within a departure area (that is, gates, bays, or geographically distinct pick-up points in densely populated areas, modal interchange points, and campuses).
 - iii. displaying major intermediate locations served by the individual routes
- shows the plurality of transport capacities passing the departure area
 - i. where the display could be placed in the lobby of a corporate campus as a visual reminder as people leave work that there are other transport options available to them

ii. where the display could be shown as a web page, a frame or portal within a web page, or as a component of a user's configurable home page, portal, or social networking community,

iii. where the display could also be mounted as a conventional real-time passenger Information display at or near a conventional bus or public transport stop, with the added shared transport information displayed.

- shows the real-time departure needs of registered Transport Demands, as a means of stimulating Transport Capacity market for more capacity.

- calculates and displays a real-time network map of available transport in the shared transport network, where such map is a graphic representation (like a subway network of a city) of the available destinations reachable by the transport network.

The display of transport capacity may include the stochastic availability of transport capacity between locations, such as, for example, average availability of spare capacity every 5 minutes between 8am and 9am from Portarlinton to Dublin.

The transport capacity has the ability to provide one or a plurality of ratings for the transport demand, after the demand has been satisfied. These ratings of the transport provider and transport user can be affected by issues, such as their proclivity to miss reserved meetings or not pay for their transport usage.

The transport capacity can visually signal its arrival at a meeting place by distinctive, externally visible indicators, e.g. one or a plurality of light emitting devices attached to the side of the vehicle's navigational system which faces in the direction of the driver's trajectory and/or the side of the navigational system which is in the direction

of the face of the car, or attached to the rear side of the passenger's side sun visor of the car, or triggered by an in-vehicle system, but would use built-in external lights of the vehicle displaying in a set pattern to indicate pertinent information.

The externally visible indicator could also contain a particular message which would match with a code corresponding with the transport capacity's details. The message could be the name of a passenger or destination of the transport capacity or could contain a portion of a confidential Personal Identification Number that the transport capacity would have received in its confirmation message of the transport capacity.

Automatic verification of the delivery of transport services by independent confirmation of continuous co-ordinated proximity can be performed. For example, two different devices, one possessed by the transport provider, and the other by the transport user, with each having separately determined but accurate location and time information (for example, GPS phones) can be asserted to be verifiably in transit with each other through their continuous co-ordinated proximity. This assertion could be used as a verification of services provided or services used for the time and distance spent in transit, with related charges. This enables billing for the delivered service.

Further, two different devices can be used, one possessed by the transport provider, and the other by the transport user, with at least one having accurate location information, but both having a means to determine their continuous proximity to each other. One example of a means of determining continuous proximity would be the continuous presence of a near field wireless link (such as two devices with bluetooth or 802.11b).

Where both devices have live wireless data transmission capabilities to some central server, to provide independent confirmation of continuous proximity with link, reducing possibilities of fraud.

The invention thus provides a system that enables regular highway traffic and privately owned personal transport systems to augment and enable public mass transit networks.

The invention also provides a system that can match a rider's needs to move from one geographic point to another geographic point with an unrelated driver's unused transportation capacity.

The invention further provides an ad-hoc shared transport system for matching transport capacity with transport demand across a plurality of transport providers and a plurality of transport users.

What is claimed is:

1. A method of sharing transportation comprising the steps of
providing an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles;
providing an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of individuals; and
providing a central processing capability to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one individual in said electronic registry of demand.
2. A method as set forth in claim 1 wherein said indication of transport demand includes start and destination locations.
3. A method as set forth in claim 1 wherein said indication of transport demand includes at least one of needed capacity of seats, baby seats and wheelchair access.
4. A method as set forth in claim 1 wherein said indication of transport demand includes requirements for a transport provider to be of at least one of a predetermined level of experience, gender, or membership in a predetermined community.
5. A method as set forth in claim 1 further comprising the step of providing automated communication between a matched transport vehicle and individual.
6. A method as set forth in claim 1 further comprising the step of directing a matched transport vehicle to a geographic location of the matched individual.

7. A method as set forth in claim 1 further comprising the step of providing identifying characteristics of a matched transport vehicle to the matched individual and identifying characteristics of a matched individual to the matched transport vehicle.
8. A method as set forth in claim 1 further comprising the step of tracking the pick-up and delivery of the matched individual by the matched transport vehicle.
9. A method as set forth in claim 1 further comprising the step of automatically re-allocating and rescheduling a missed pick-up of a matched individual to another matched transport vehicle in said registry of capacity.
10. A method as set forth in claim 1 further comprising the step of automatically determining the distance between said matched transport vehicle and said matched individual.
11. A ground transportation network comprising
 - an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles;
 - an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of individuals; and
 - a central processing capability to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one individual in said electronic registry of demand.
12. A ground transportation network as set forth in claim 11 further comprising a plurality of wireless data communicators, each said communicator being disposed in a respective transport vehicle for delivering information to said

electronic registry of capacity indicative of the spare transport capacity and location of said respective transport vehicle.

13. A ground transportation network as set forth in claim 11 further comprising a plurality of means for delivering information to said electronic registry of demand indicative of the transport demands of a plurality of individuals.
14. A ground transportation network as set forth in claim 11 further comprising a network operations center for effecting at least one of bringing service irregularities to the attention of operations personnel, alerting operations personnel to a missed pick-up, providing automated escalation of response of a transport vehicle, continuously tracking a transportation vehicle and booking a request for service.
15. A ground transportation network as set forth in claim 11 further comprising secondary registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles in at least one of a public and private transportation network and said central processing capability further effects a match of said transport capacity of at least one transport vehicle in said secondary registry of capacity with said transport demand of said at least one individual in said electronic registry of demand.
16. A ground transportation network as set forth in claim 11 further comprising means for tracking usage of the network by transport vehicles and individuals.

FIG. 1

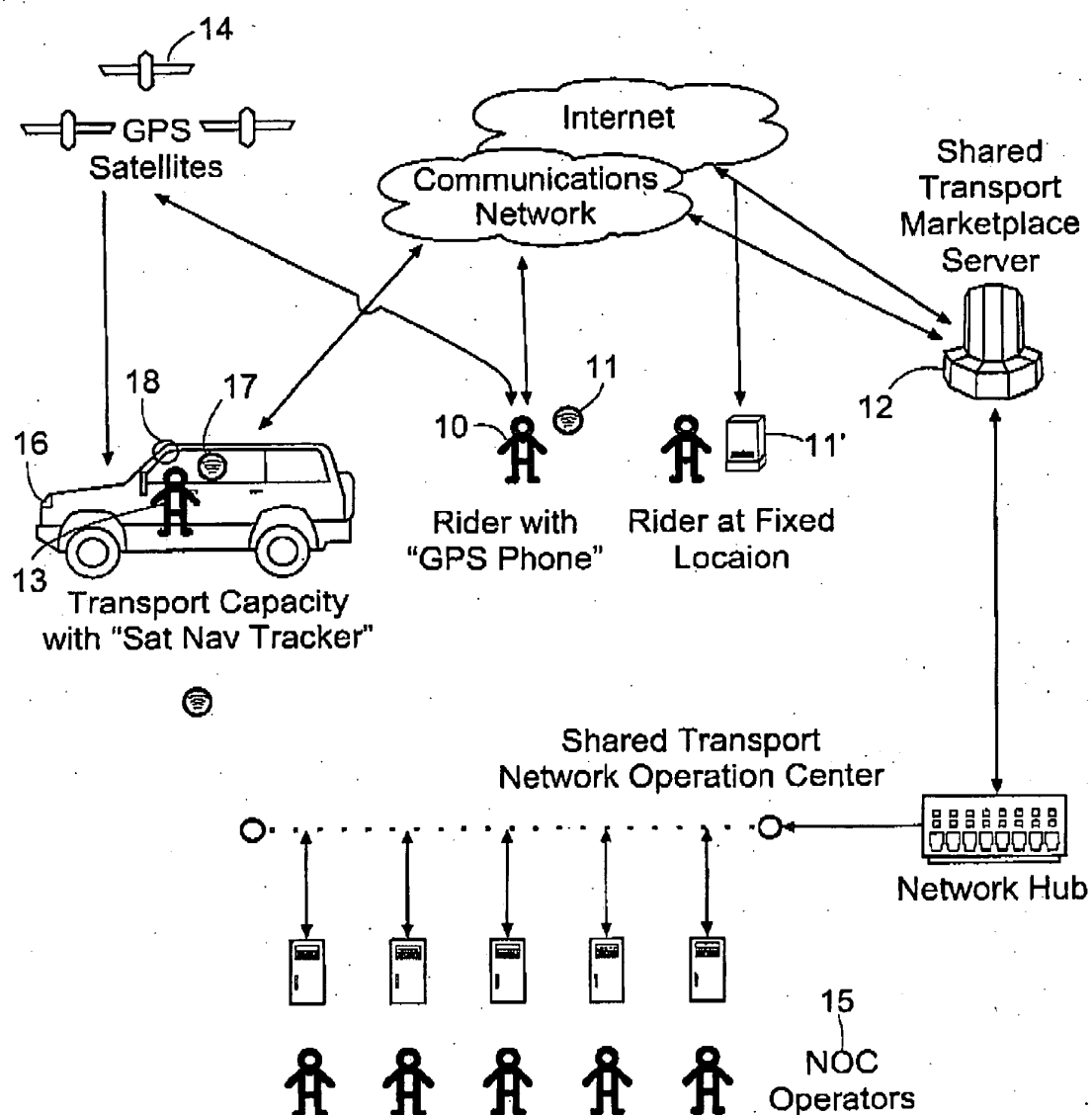


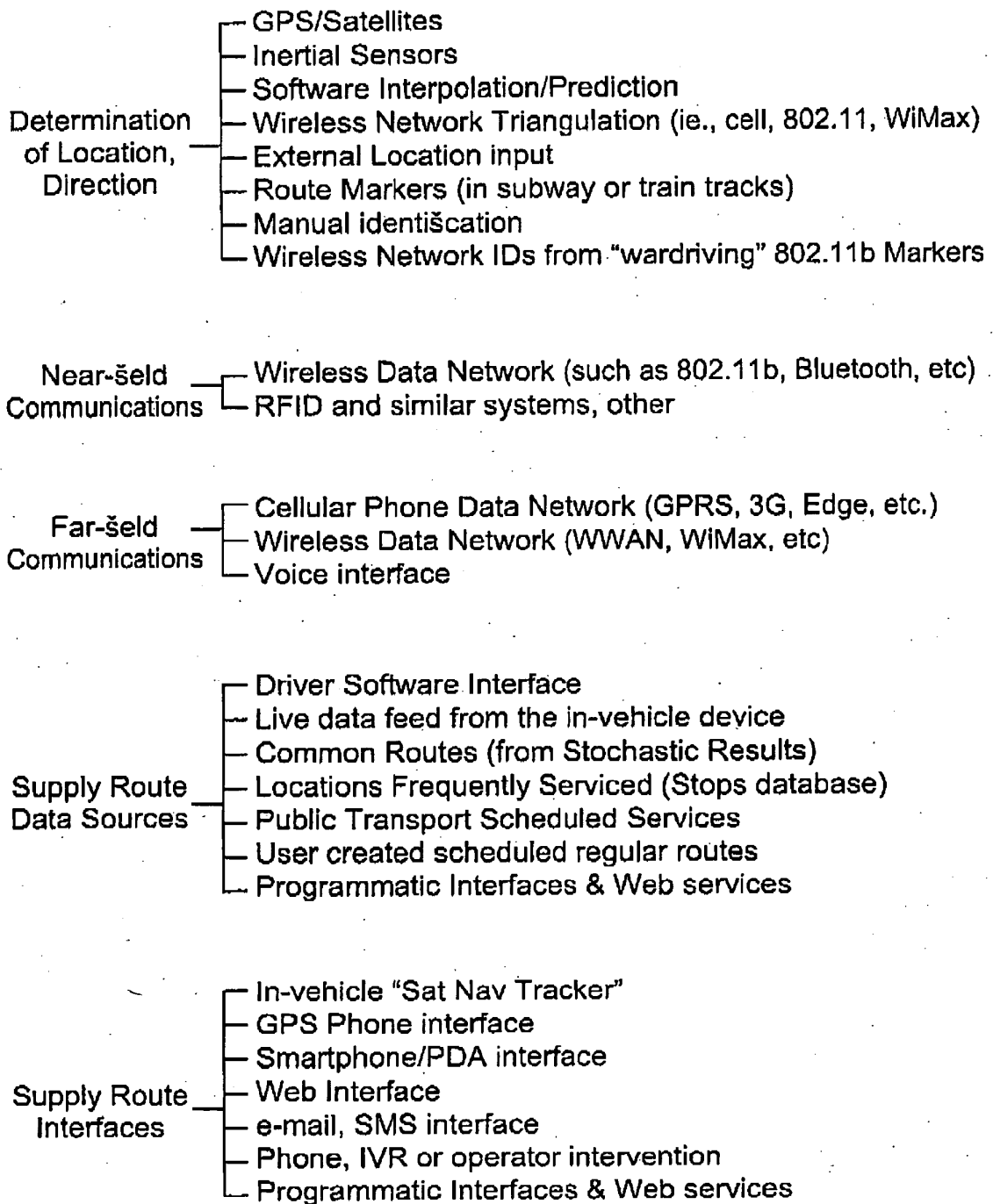
FIG. 2

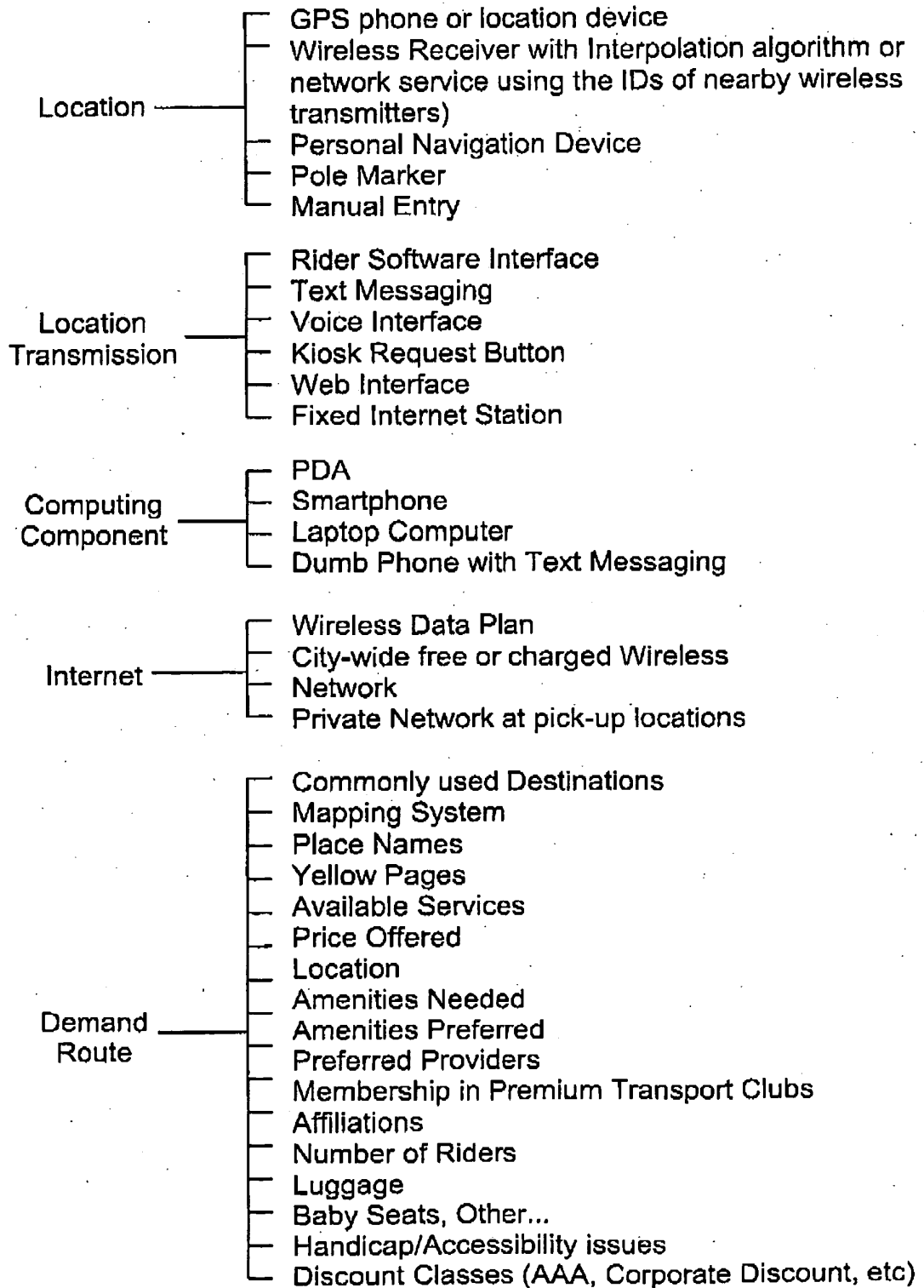
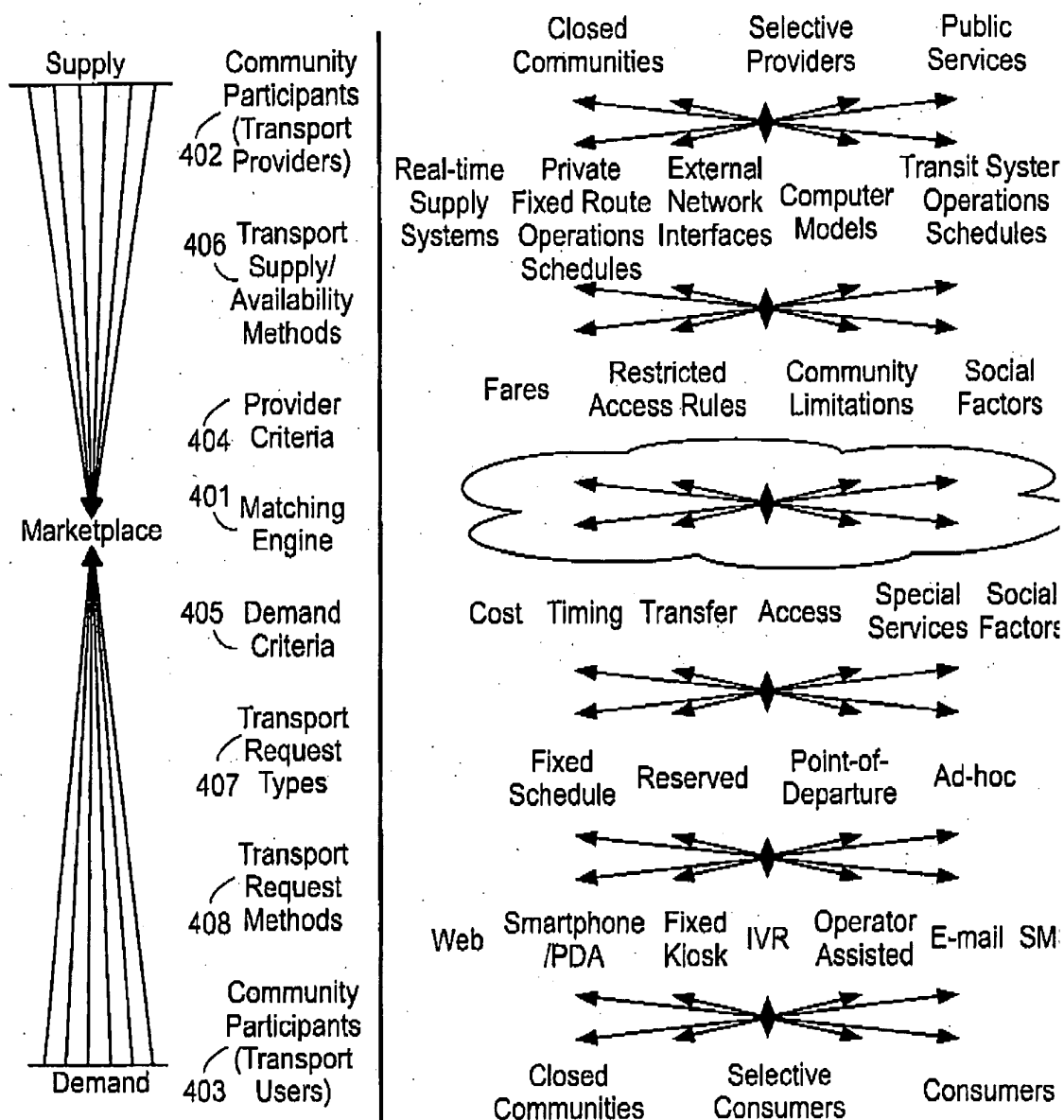
FIG. 3

FIG. 4

Public Shared Transport Providers
 Bus Networks
 Rail & Subway Networks
 Jitney/Share Taxi Providers
 Private Scheduled Service Bus

Closed Member Communities
 School Bus Systems
 Employee Shuttle Buses

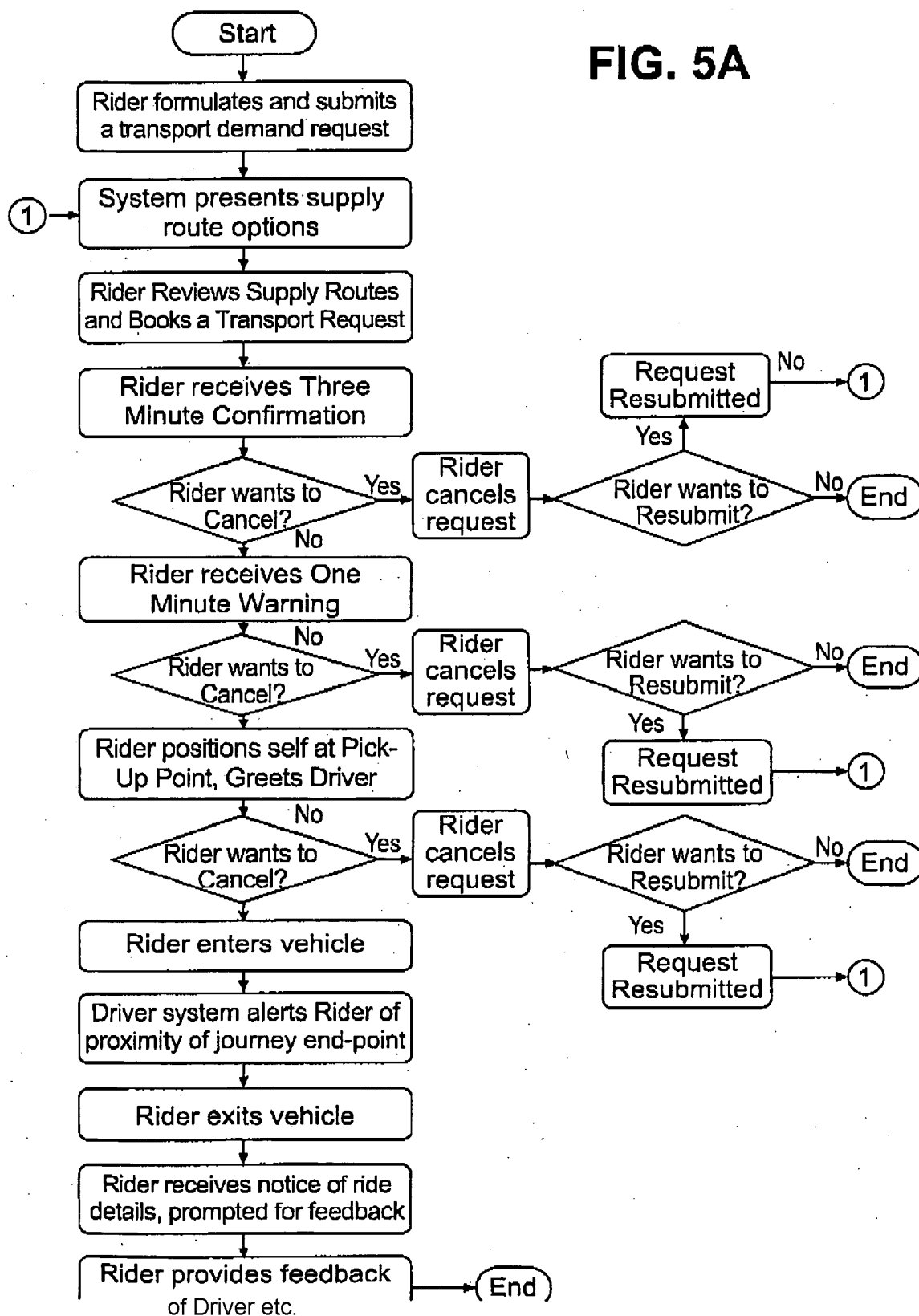
Affiliations (social clubs, sports networks)

Freight Transport Providers
 Private Package Transport Companies
 National Postal Carriers
 Independent Operators
 Ad-hoc consumer

Dispatchable, non-Shared Transport
 Taxi Companies
 Private Hackney operators

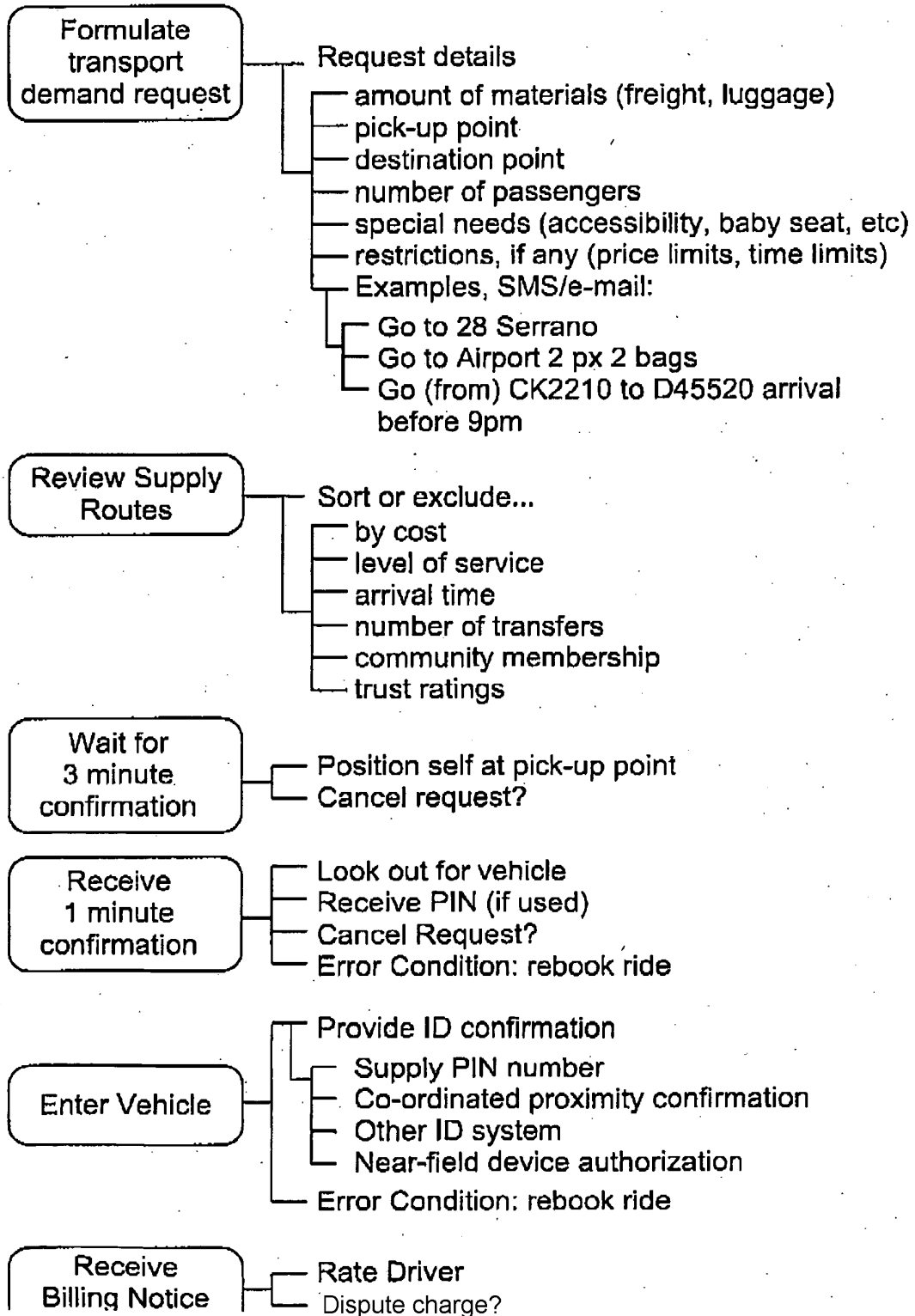
Premium service transport operator

FIG. 5A



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Dispute charge

FIG. 5B

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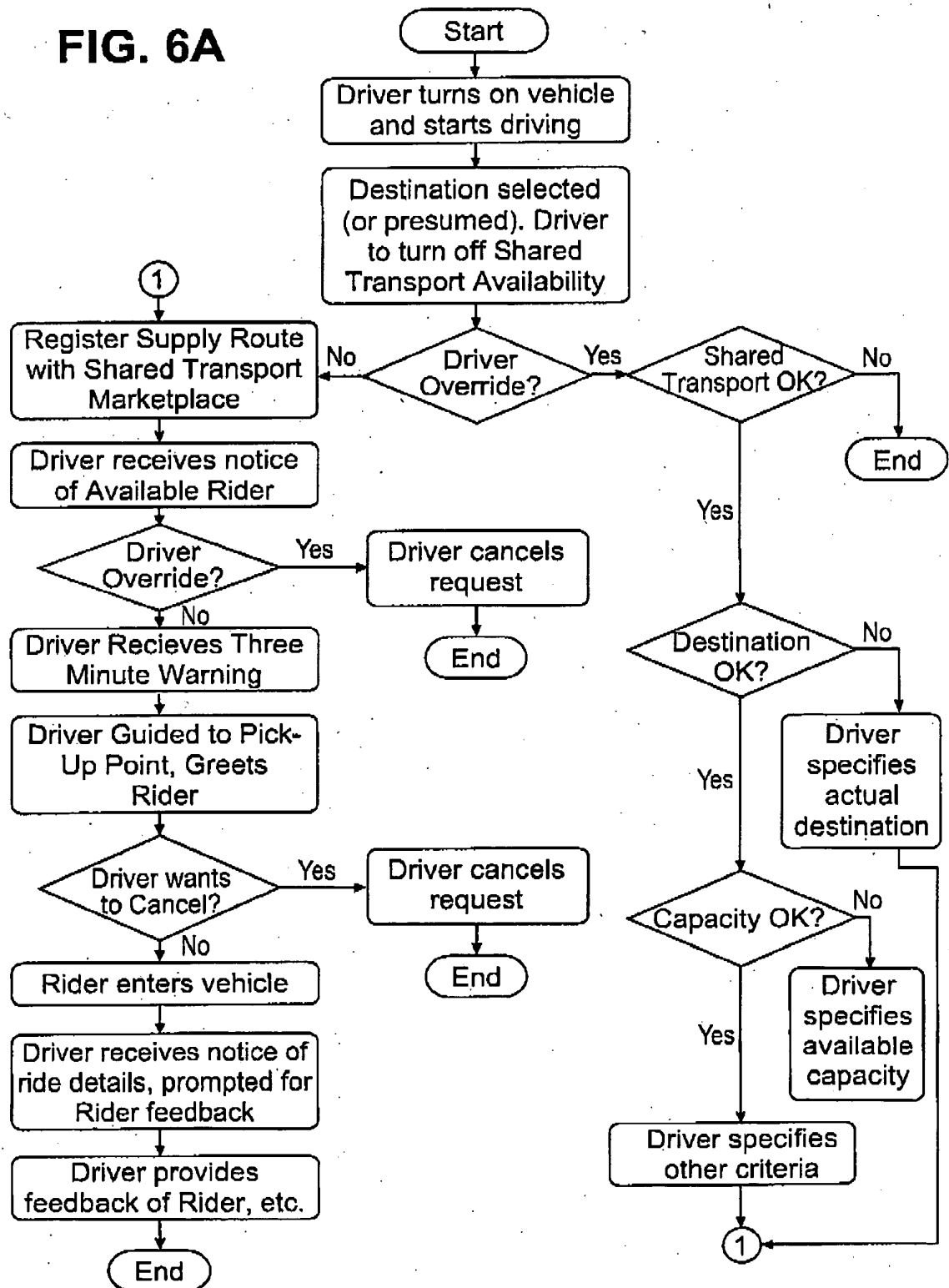
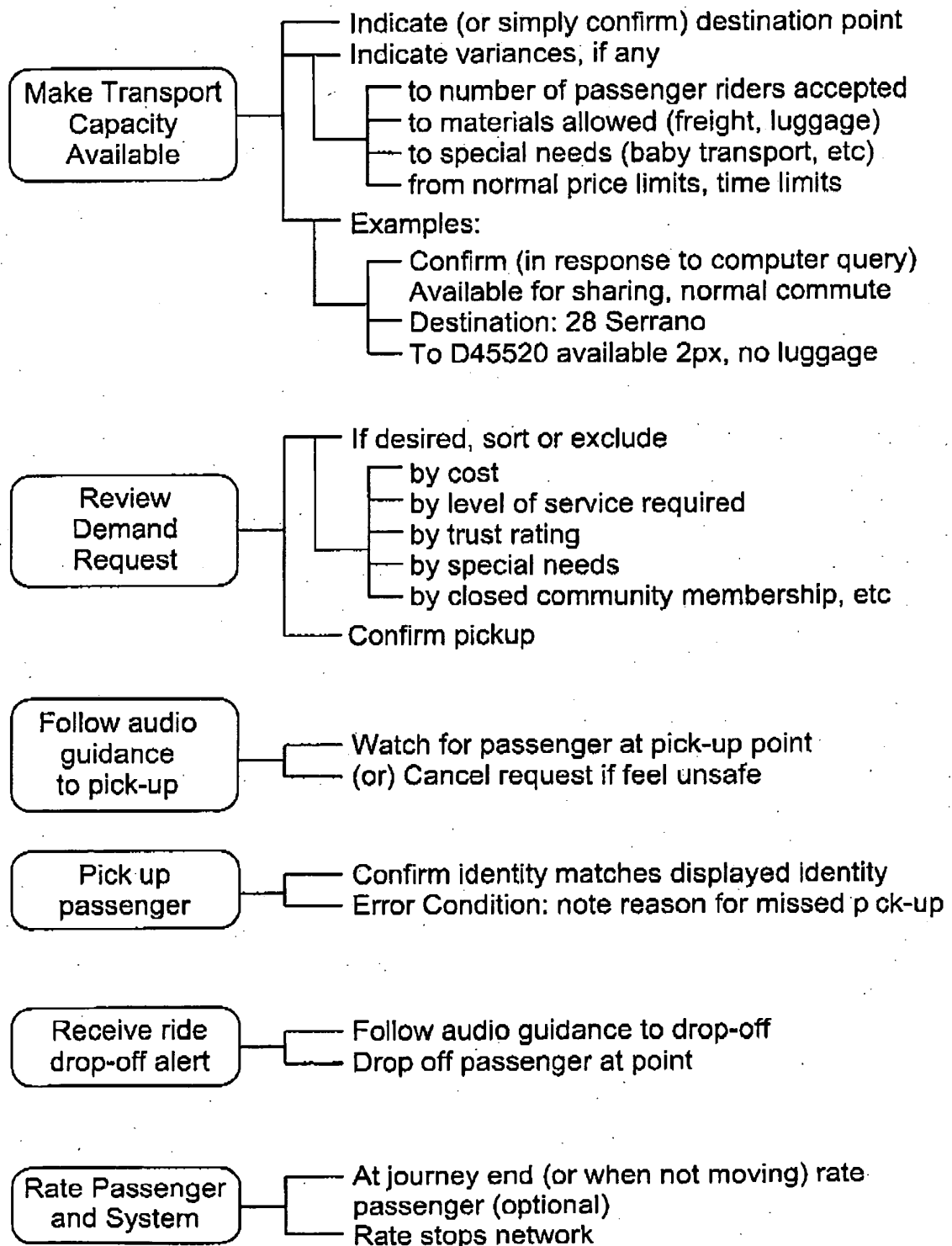
FIG. 6A

FIG. 6B

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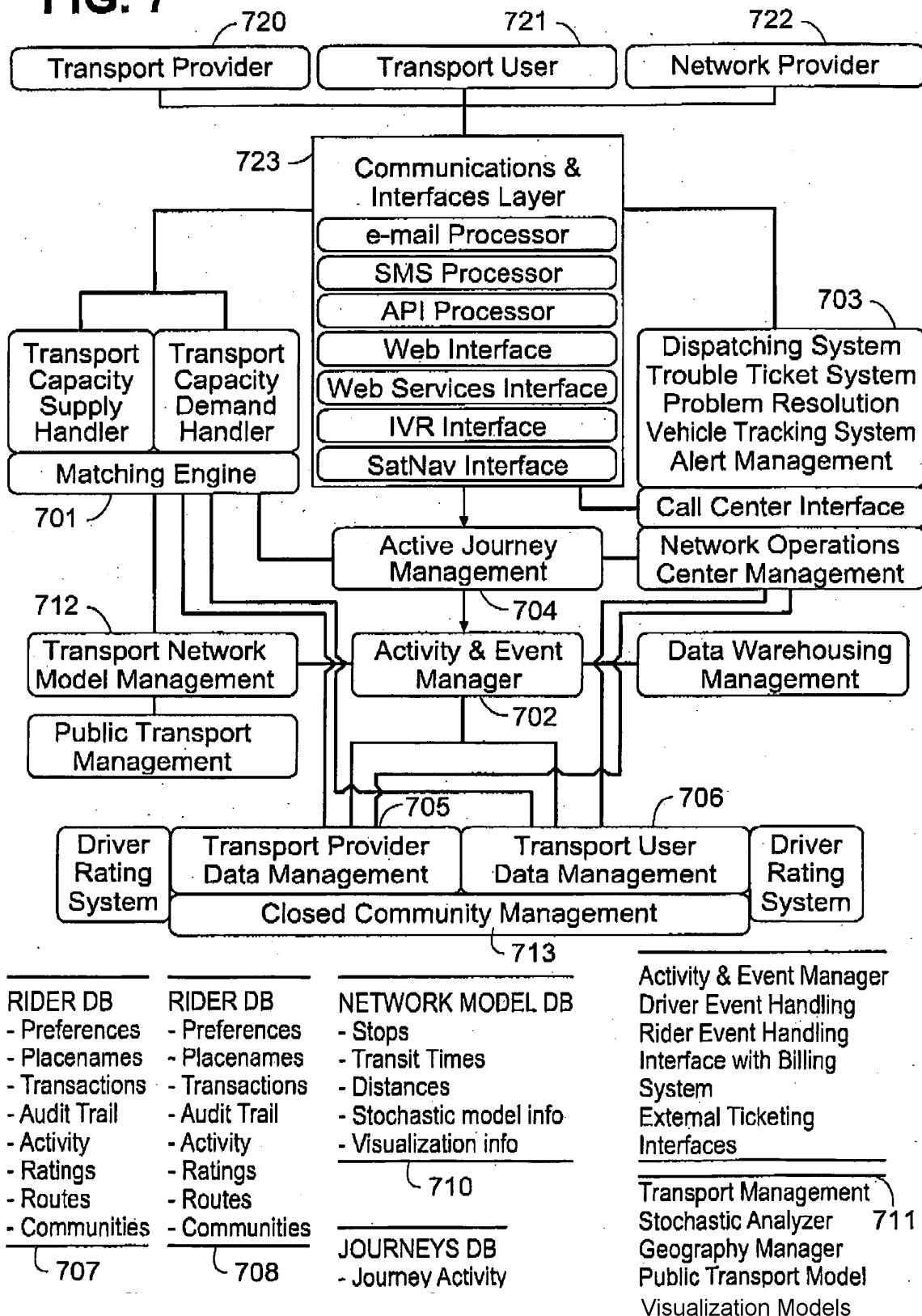
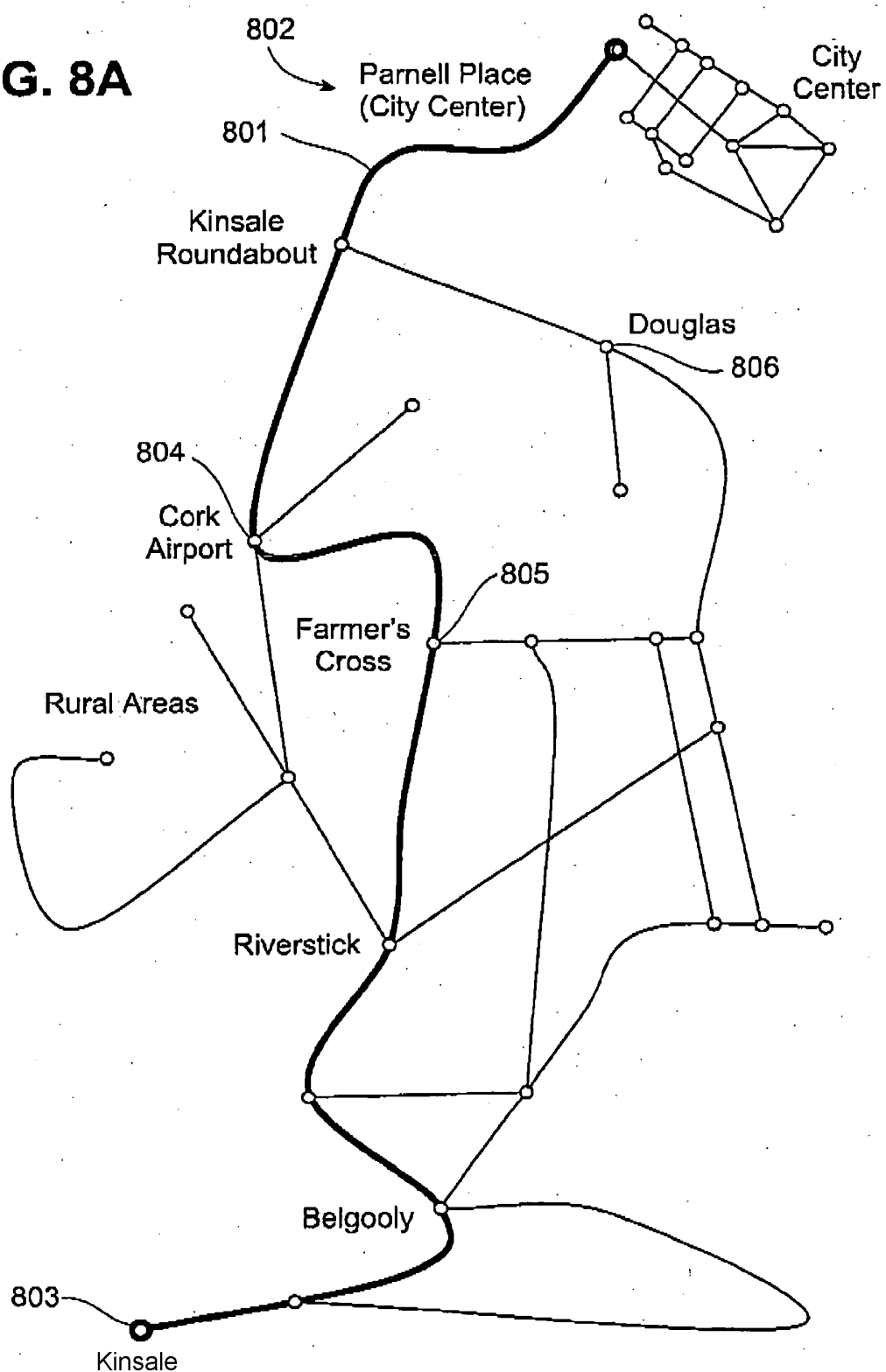
FIG. 7

FIG. 8A

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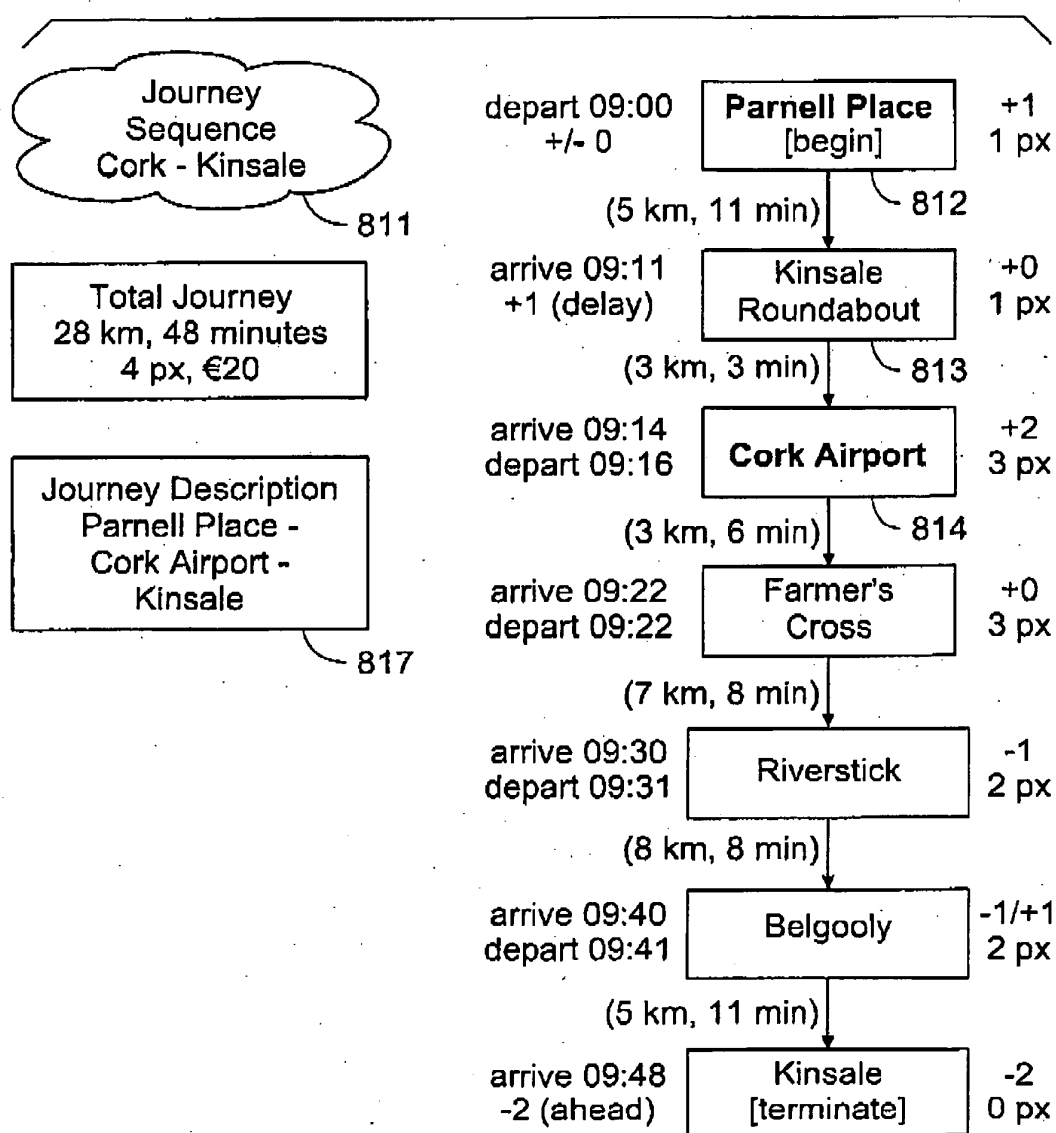
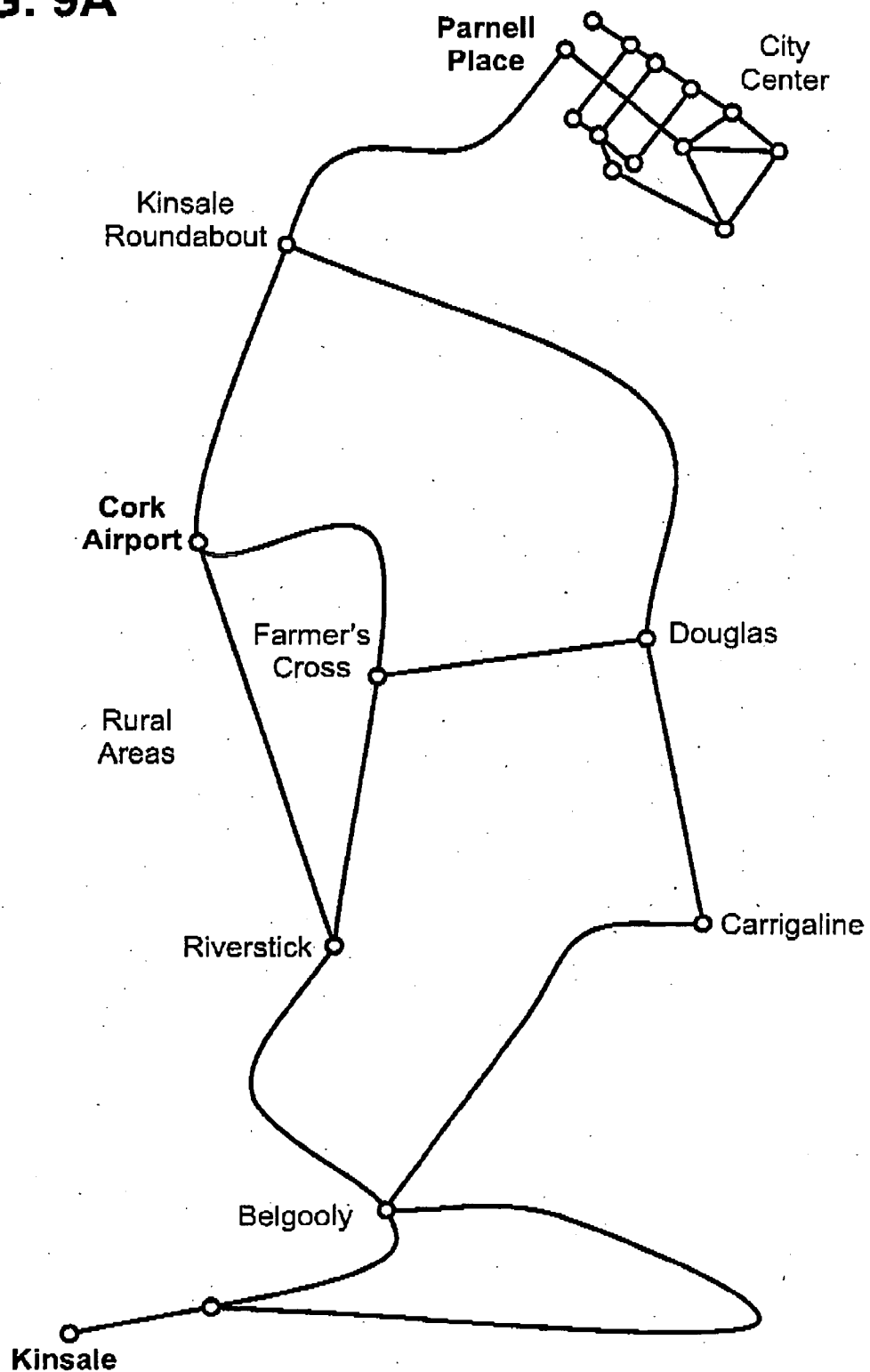
FIG. 8B

FIG. 9A

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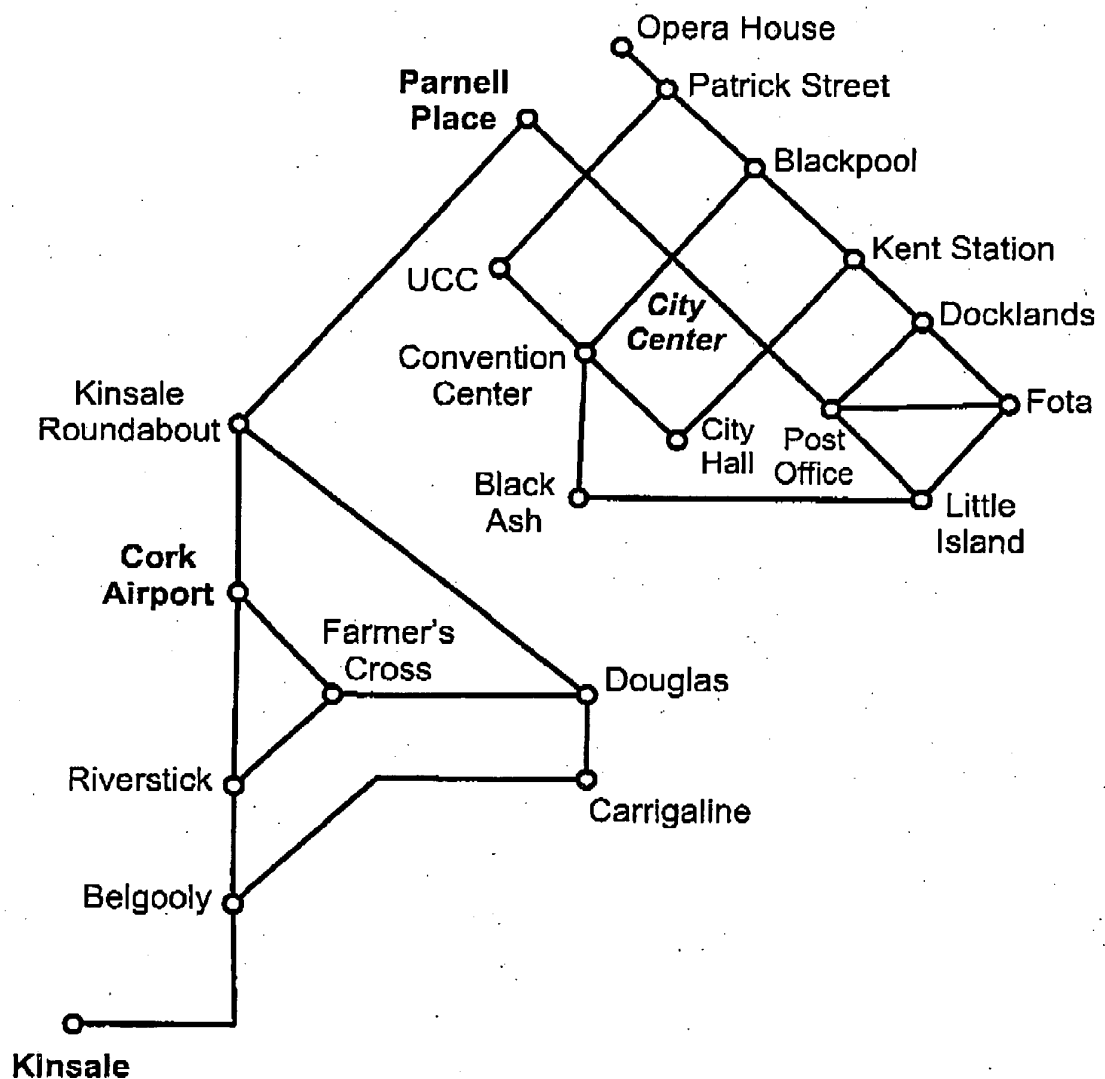
FIG. 9B

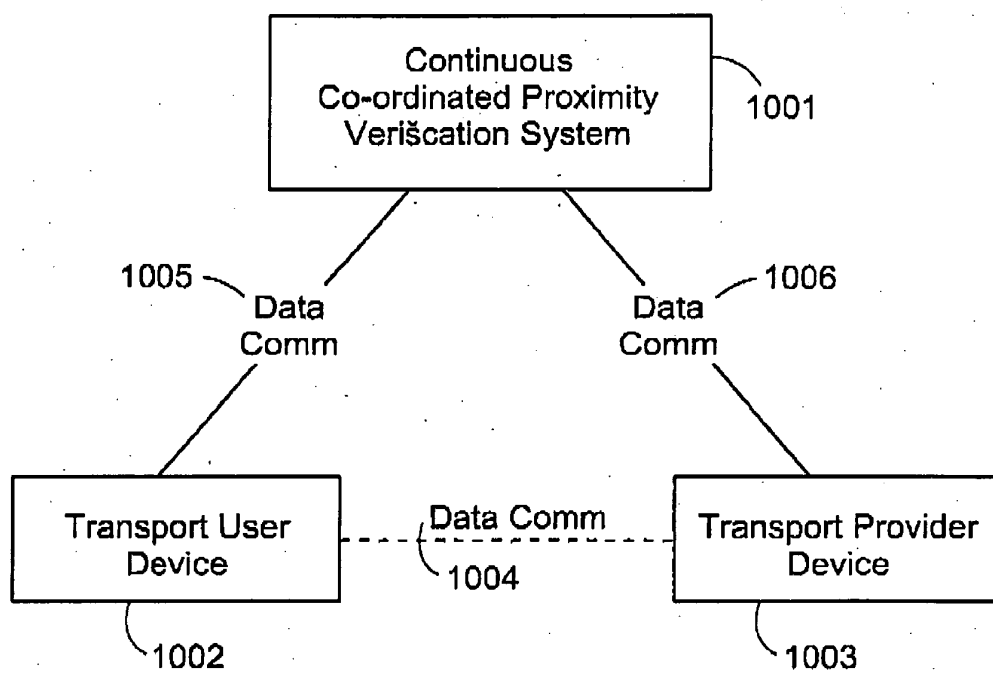
FIG. 10A

FIG. 10B

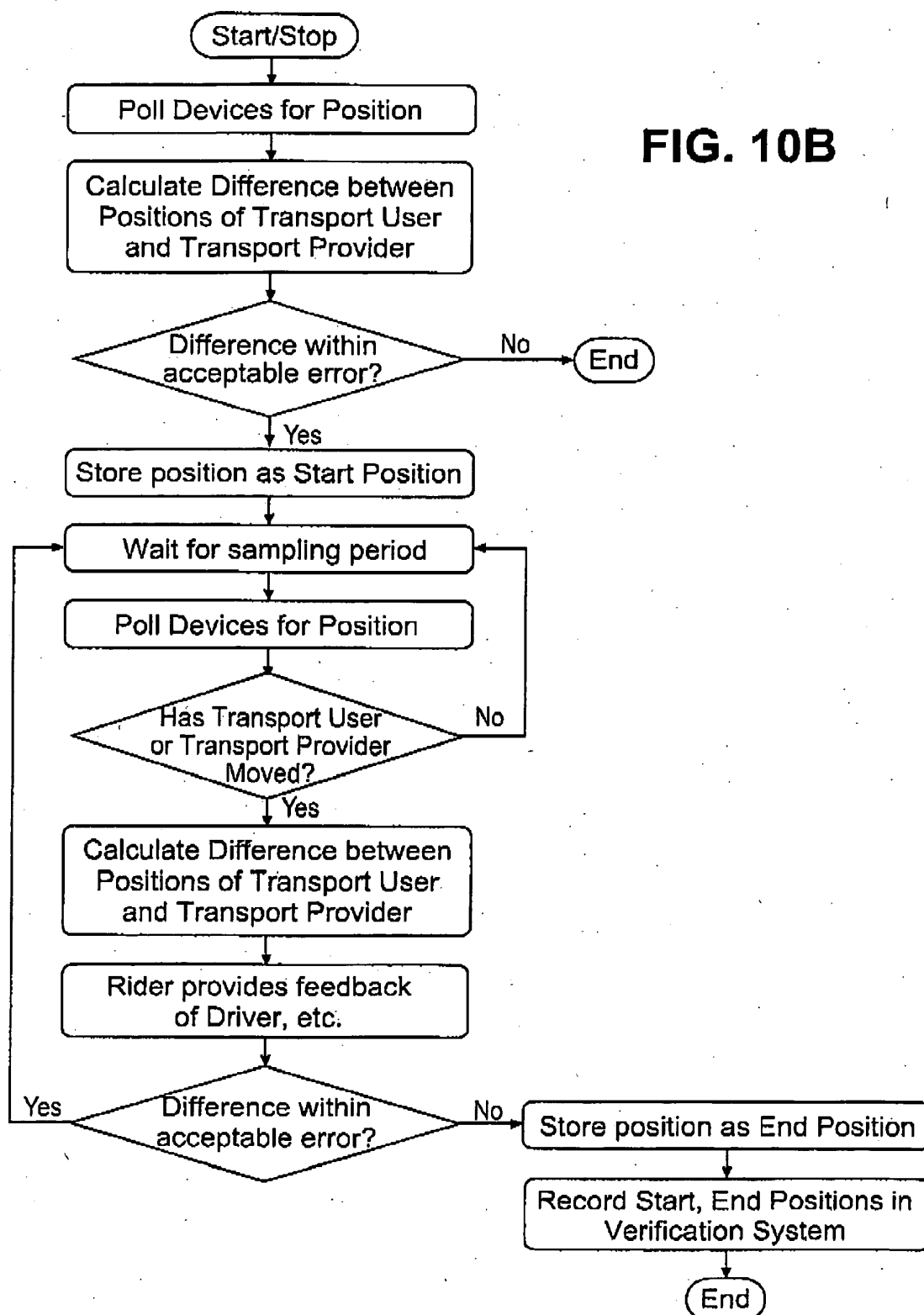


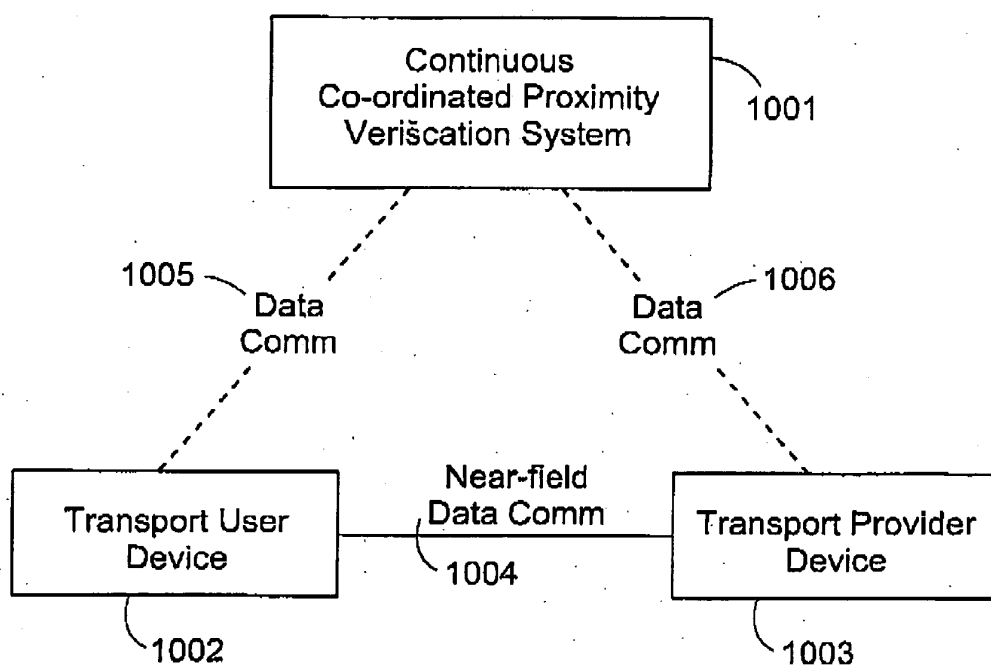
FIG. 11A

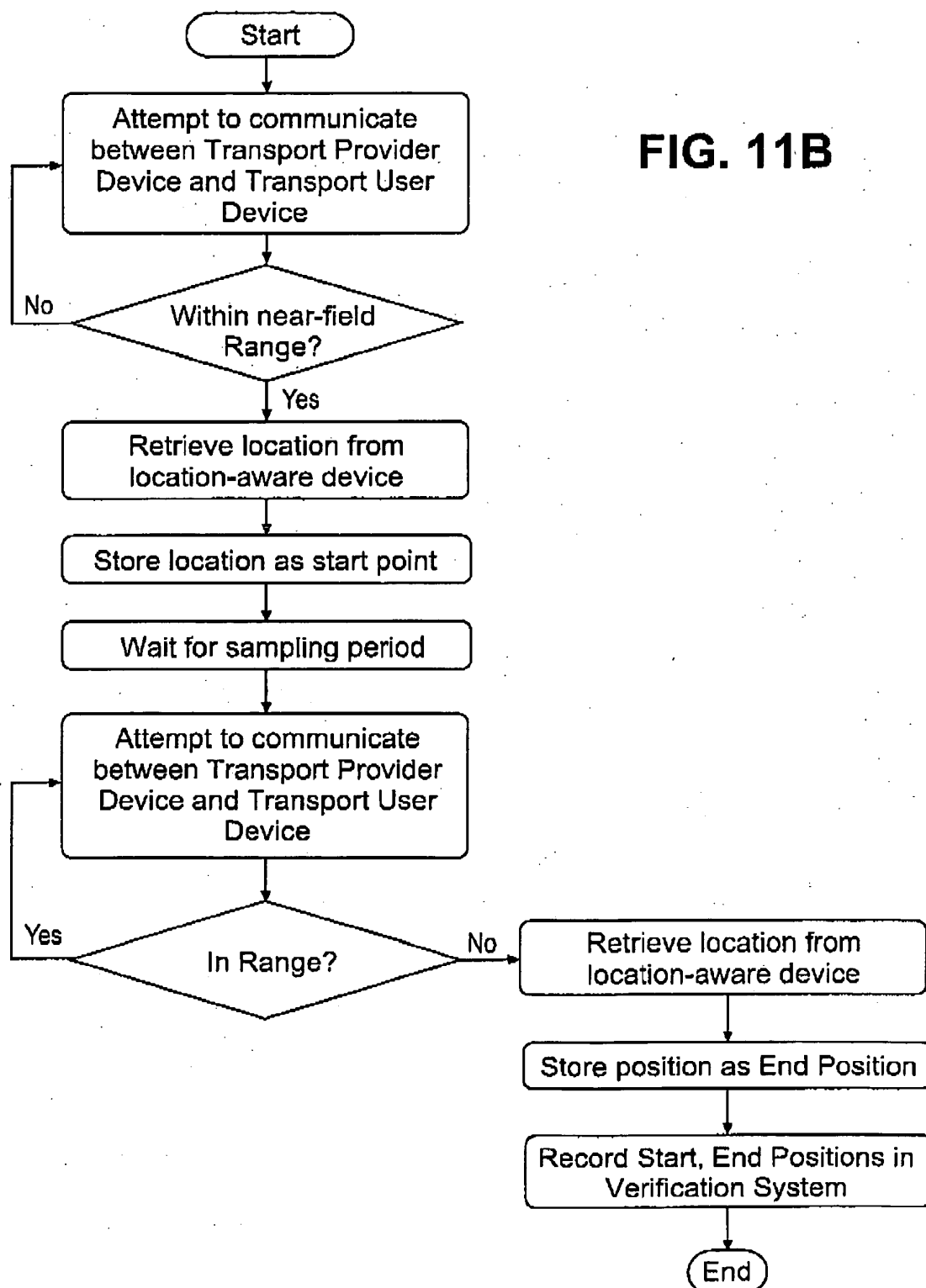
FIG. 11B

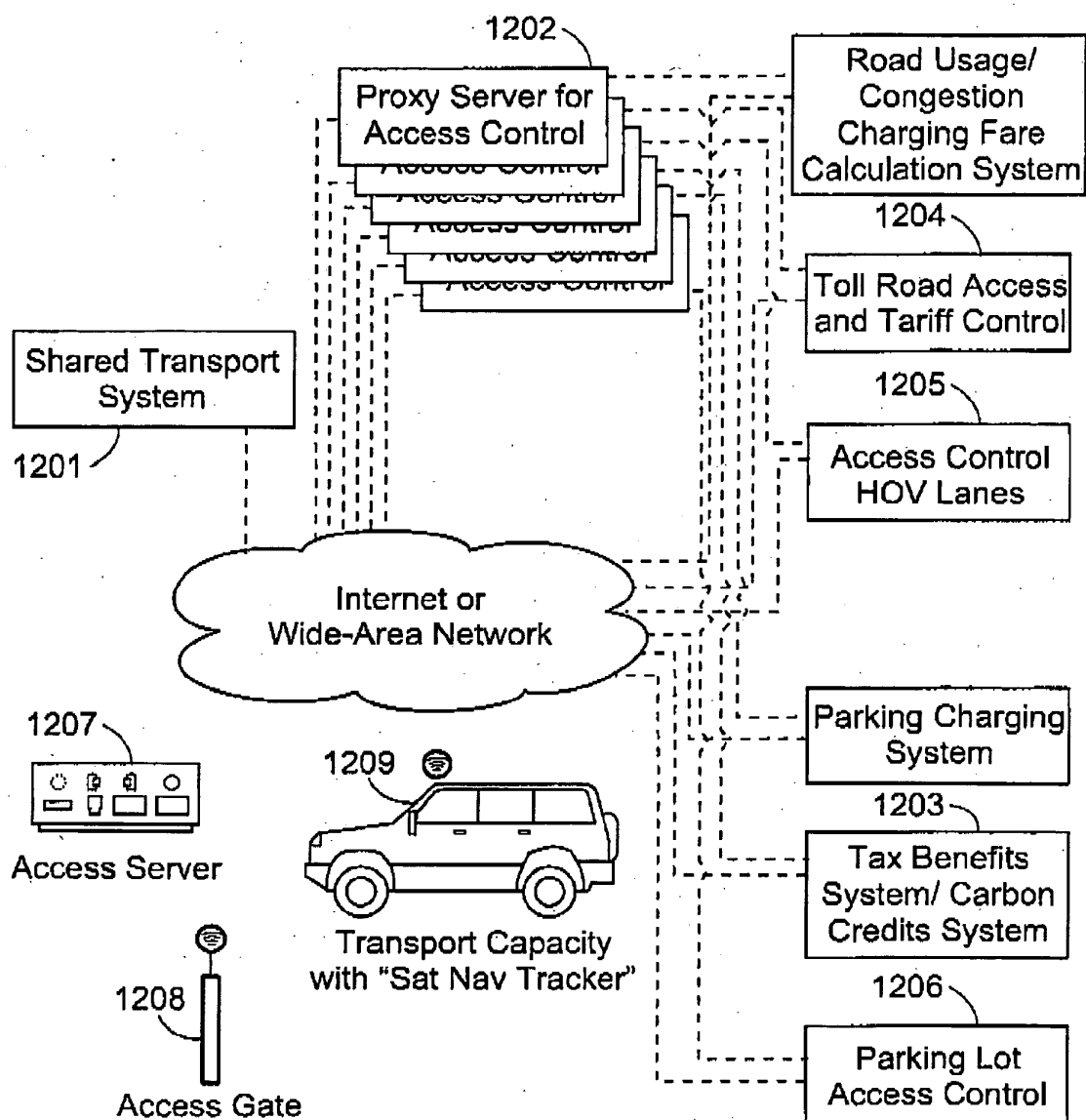
FIG. 12A

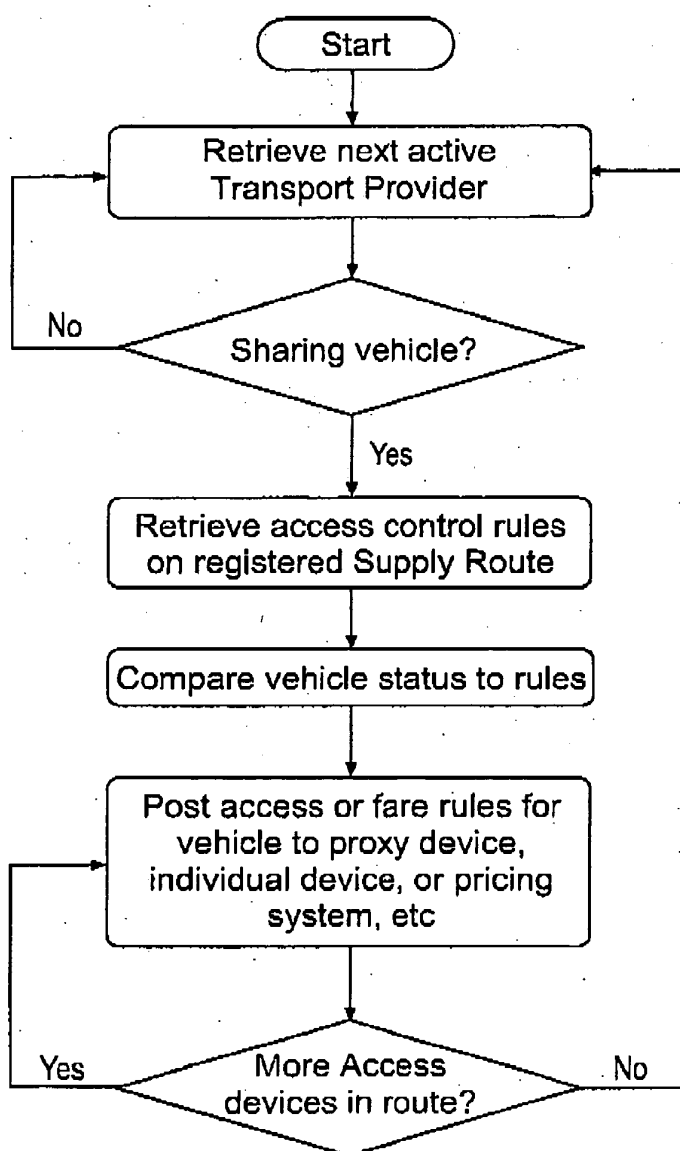
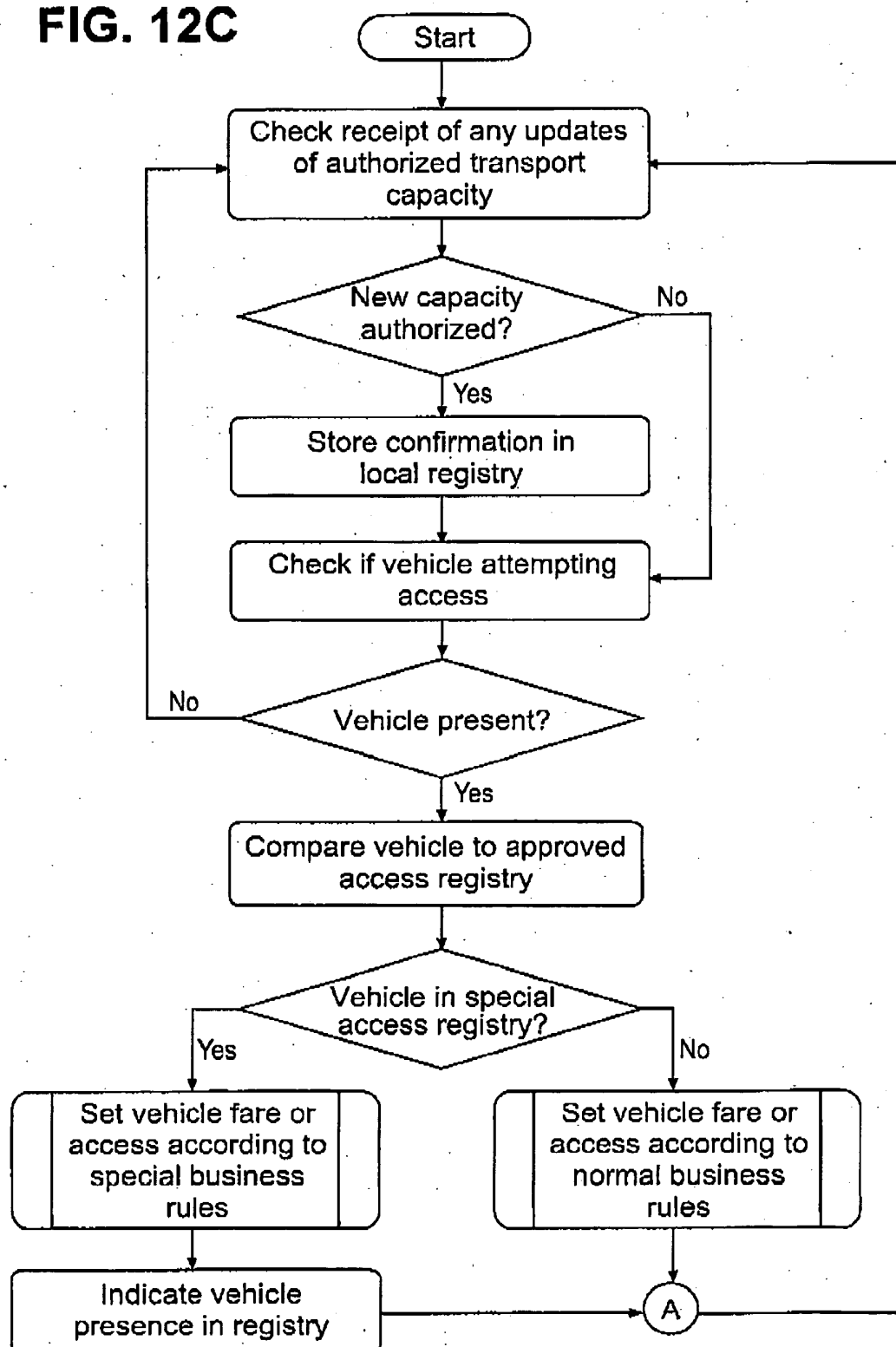
FIG. 12B

FIG. 12C

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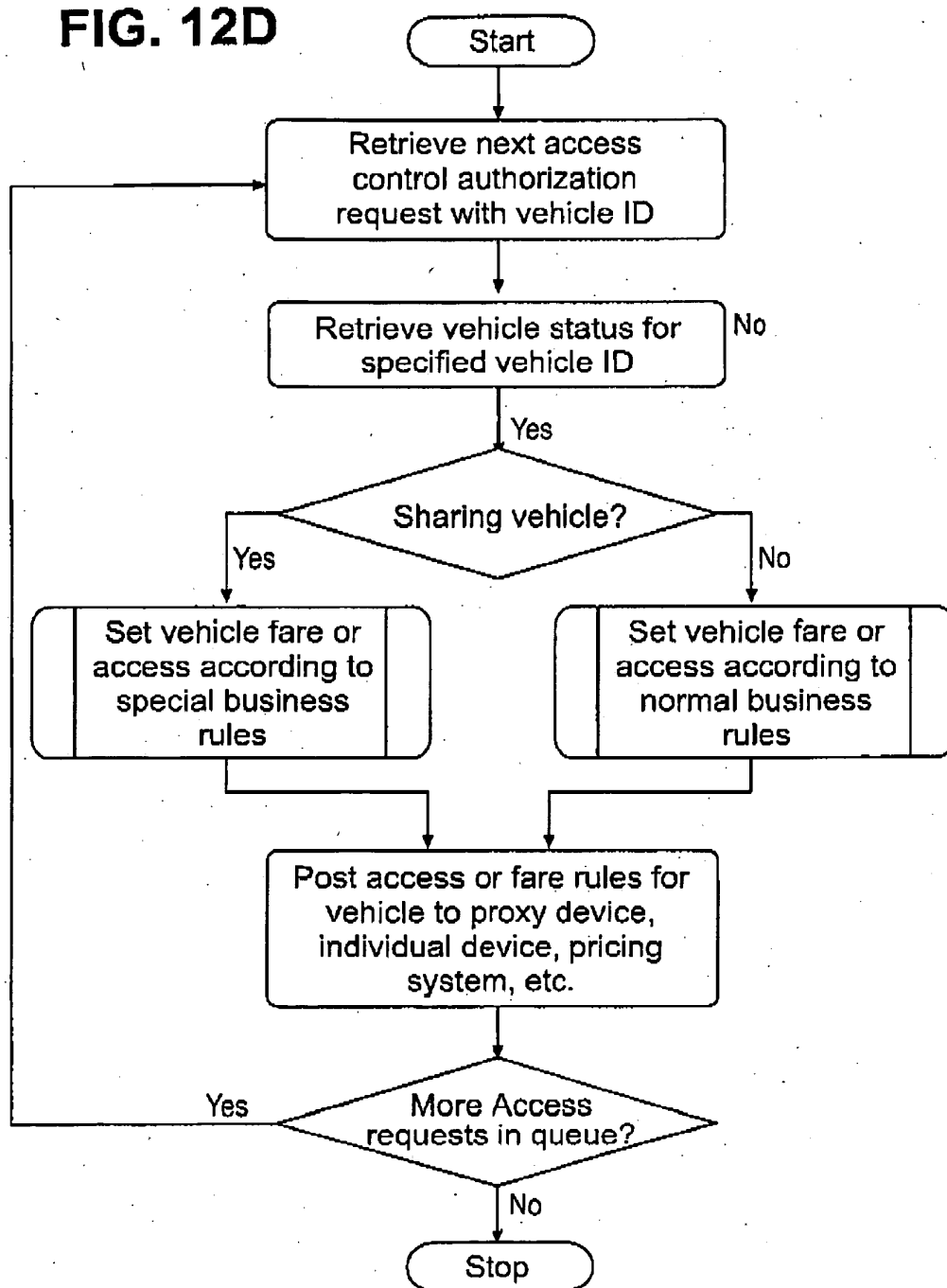
FIG. 12D

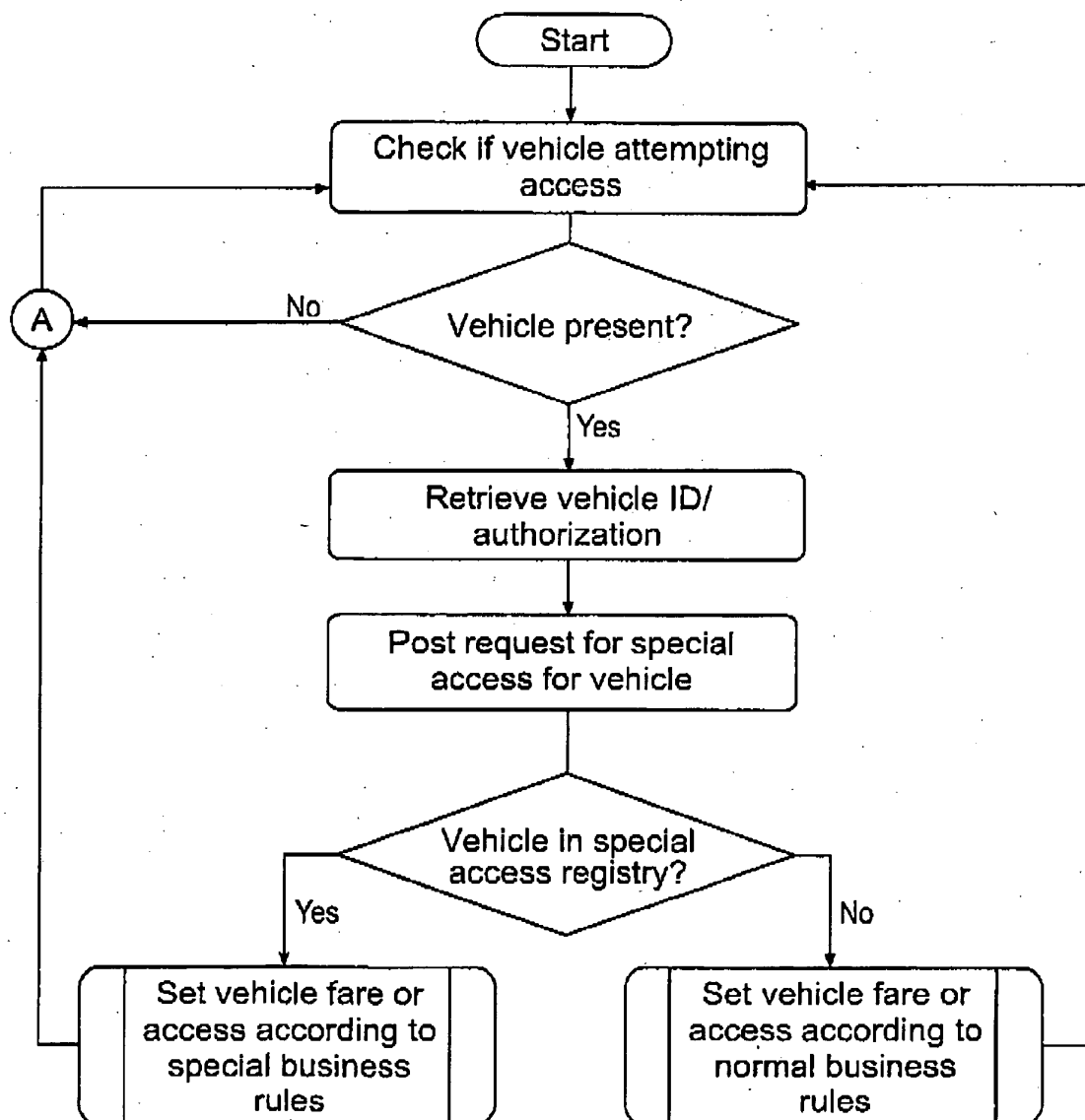
FIG. 12E

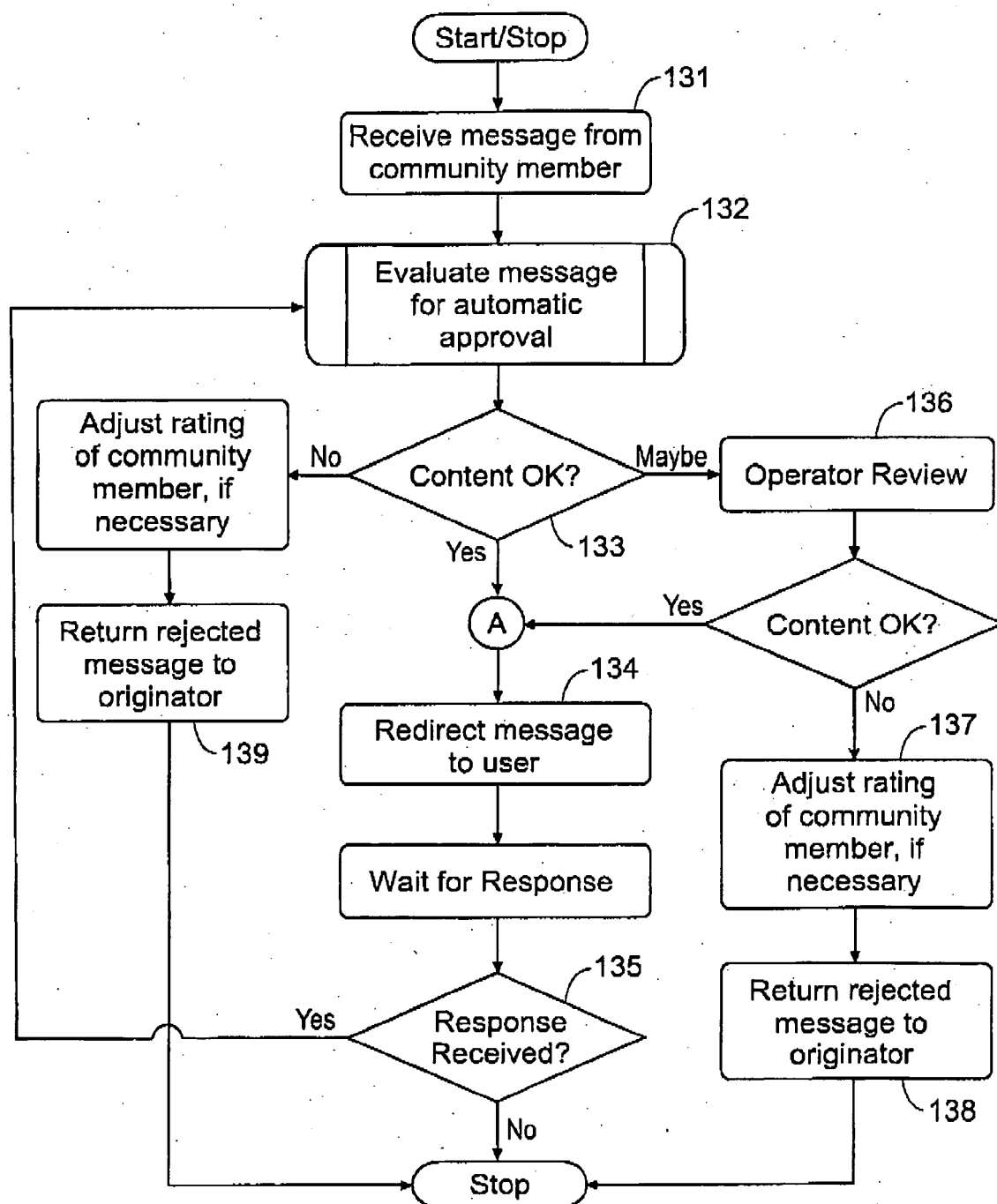
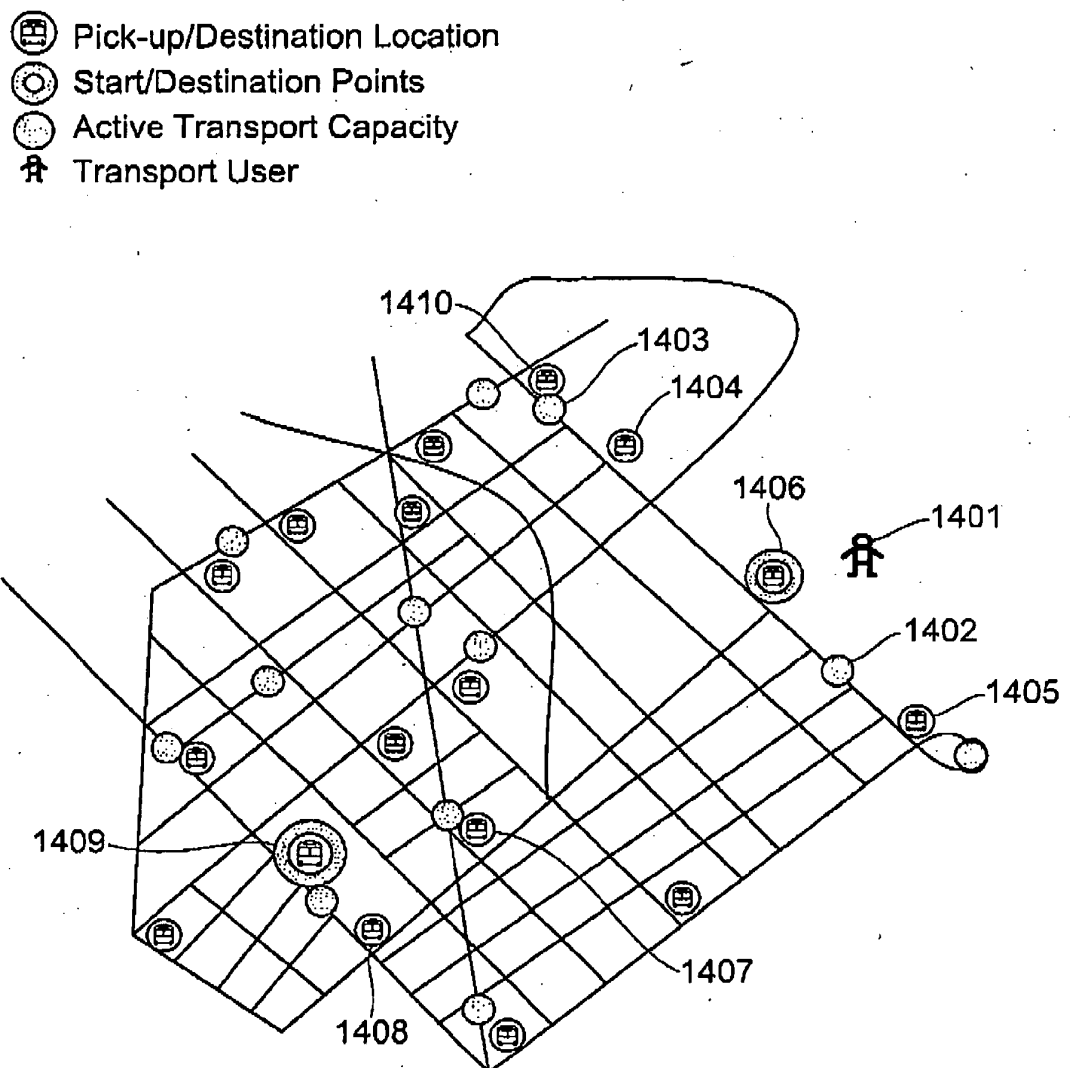
FIG. 13

FIG. 14A

SUBSTITUTE SHEET (RULE 26)

FIG. 14B

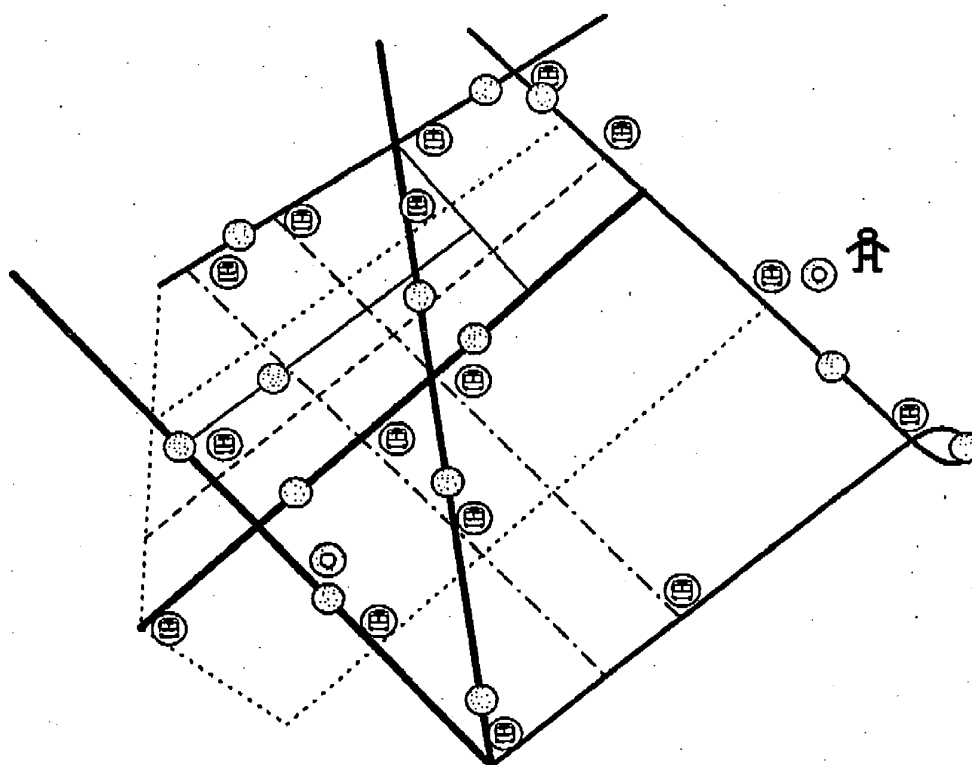


FIG. 14C

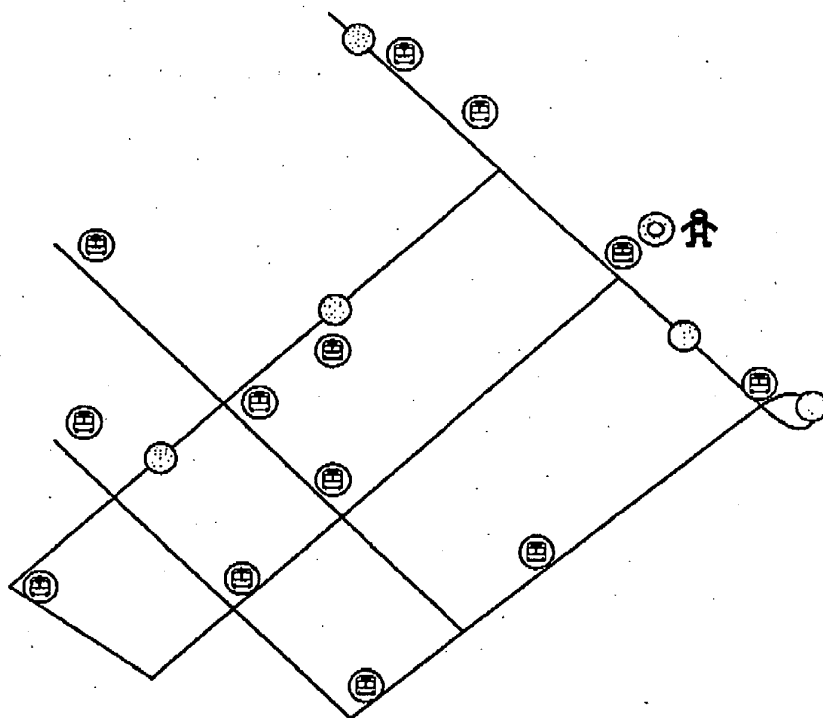
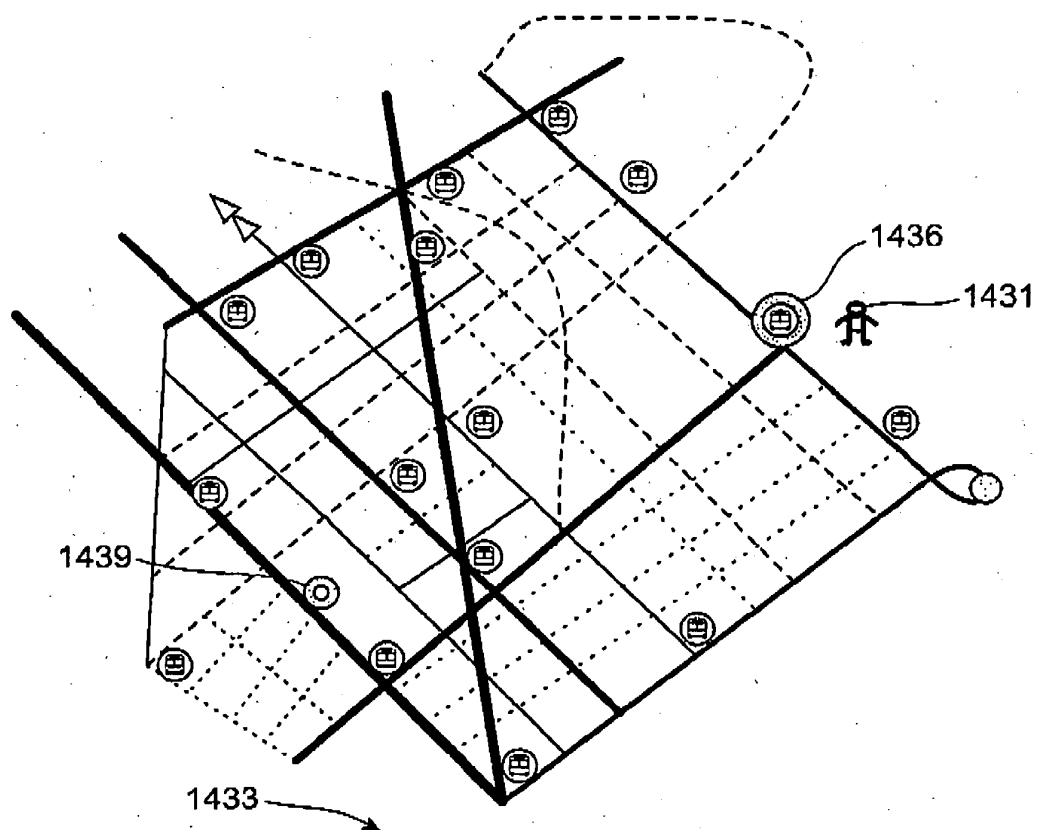


FIG. 14D

-  Pick-up/Destination Location
-  Start/Destination Points
-  Active Transport Capacity
-  Transport User
- Infrequent Service (15+ min wait)
- Infrequent Service (10 min wait)
- Frequent Service (5 min wait)
- Frequent Service (2 min wait)



Map display shows Saturday
predicted transport availability
3PM-6PM

FIG. 14E

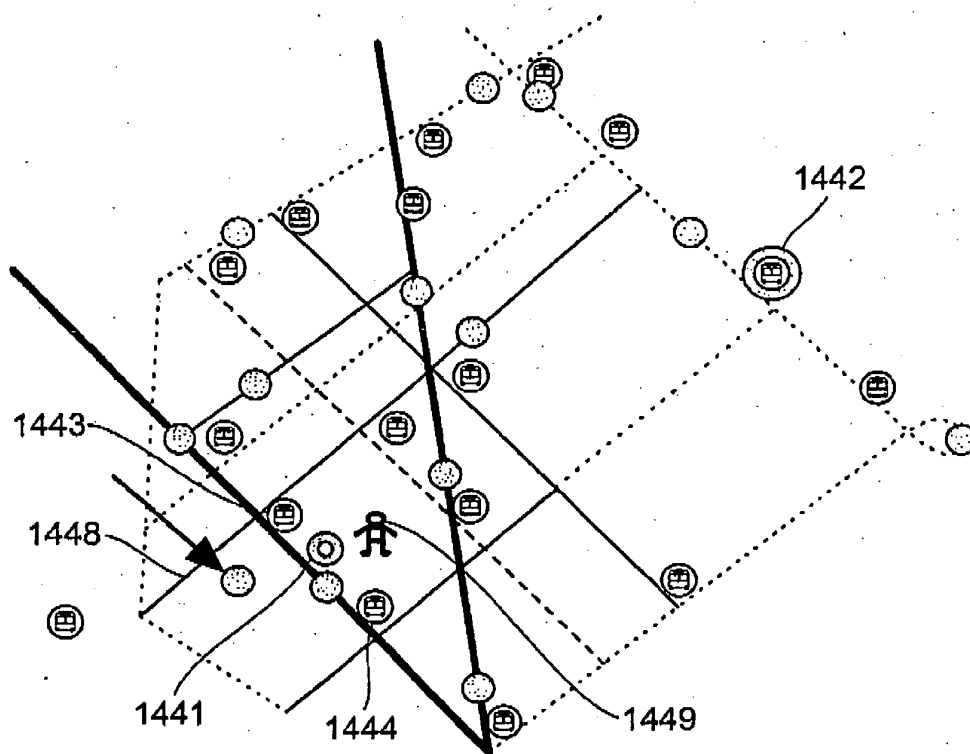


FIG. 14F

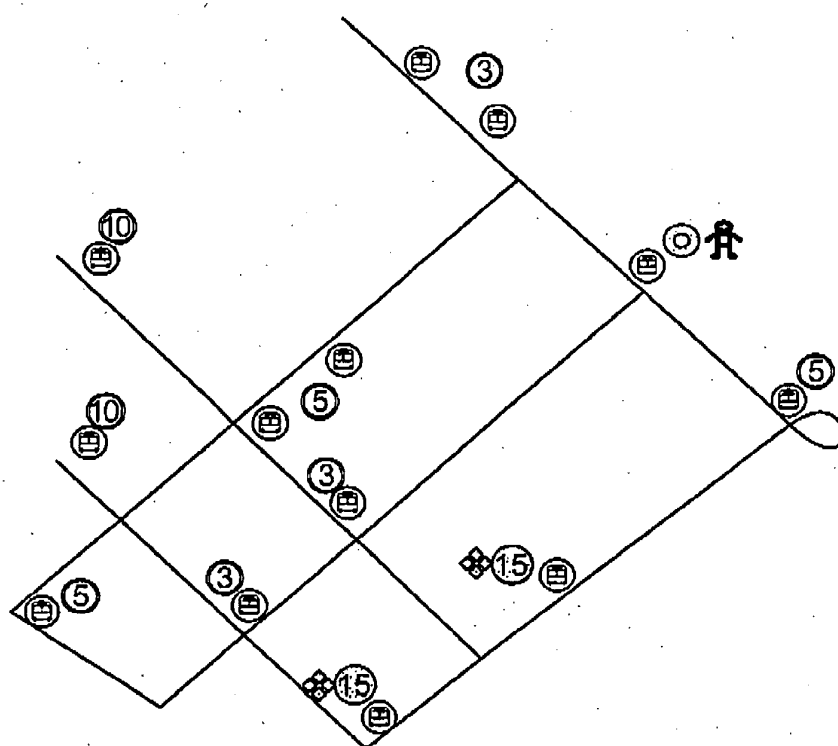


FIG. 14G

Start Point: 2142 14th Ave; 1471
 Destination: 200 Broadway, Troy 1472
 1475

Time of Day	Departure Location	Availability
5:00am-6:30am	13 th St	⑮ minutes
	15 th St	no service
6:30am-7:30am	13 th St	⑤ minutes
	15 th St	⑩ minutes
7:30am-8:30am	13 th St	③ minutes
	15 th St	⑤ minutes
8:30am-10:00am 1473 1474	13 th St	⑤ minutes
	15 th St	⑤ minutes
10:00am-4:30pm	13 th St	⑩ minutes
	15 th St	⑮ minutes
4:30pm-7:30pm	13 th St	⑤ minutes
	15 th St	⑤ minutes
7:30pm-10:30pm	13 th St	⑤ minutes
	15 th St	⑮ minutes
10:30pm-2:30am	13 th St	⑮ minutes
	15 th St	① hour
2:30am-5:00am	13 th St	no service
	15 th St	no service

FIG. 14H

Start Point: 2142 14th Ave

Destination (via points)	Departure Location	Departure (estimated)
Troy City Center	13 th St	③ minutes
Rensselaer (State St, Watervliet)	15 th St	⑤ minutes
Cohoes (Green Island, Watervliet)	13 th St	(every ⑤ minutes)
Albany Street	13 th St	(every ⑮ minutes)
Broadway	15 th St	(every ③ minutes)

1481 1485 1483 1485 1482 1488 1486 1487

FIG. 14I

Start Point: Essex Fells, NJ
 Destination: 222 E 32nd St, New York
 Departure Time: Now (9:22am), Distance: 22 miles

Options	Departure / Arrival	Departure (estimated)	Cost	Arrival Time
Option 1: Shared Transport	Roseland Ave / 3rd Ave & 32nd	③ minutes	\$7.80	10:15 am
Option 1: Shared Transport + Path + Subway	Bloomfield Ave / Park Ave & 34th	(every ⑤ minutes)	\$6.50	10:38 am
Option 3: Bus + Shared Transport	Bloomfield Ave / 2nd Ave & 32nd	(every ① hour, next 9:35 am)	\$6.20	10:45 am

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International application number: PCT/US2008/001820

International filing date: 12 February 2008 (12.02.2008)

Document type: Certified copy of priority document

Document details: Country/Office: US
Number: 60/900,808
Filing date: 12 February 2007 (12.02.2007)

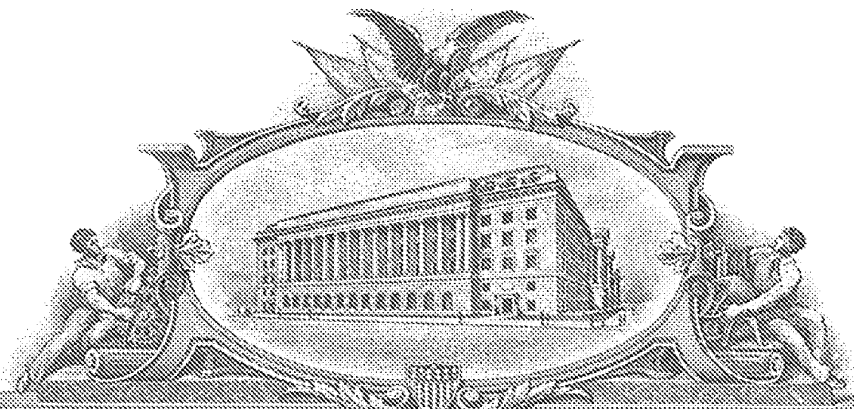
Date of receipt at the International Bureau: 27 March 2008 (27.03.2008)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)



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54823



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APPLICATION NUMBER: 60/900,808

FILING DATE: February 12, 2007

RELATED PCT APPLICATION NUMBER: PCT/US08/01820

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS US60/900,808



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16638 U.S. PTO

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60/900808
02/12/2007

PTO/SB/16 (07-06)

Approved for use through 01/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET - Page 1 of 2

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No. EV 496218161 US

INVENTOR(S)		
Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
Sean	O'Sullivan	Kinsale, County Cork, Ireland

Additional inventors are being named on the _____ separately numbered sheets attached hereto.

TITLE OF THE INVENTION (500 characters max):

Shared Transit System and Service Network

Direct all correspondence to: **CORRESPONDENCE ADDRESS**

☒ The address corresponding to Customer Number: 27192

OR

☒ Firm or Individual Name Carella, Byrne, Bain et al

Address 5 Becker Farm Road

City Roseland	State NJ	Zip 07068-1739
Country US	Telephone 973-994-1700	Email mhand@carellabyrne.com

ENCLOSED APPLICATION PARTS (check all that apply)

☐ Application Data Sheet. See 37 CFR 1.76	☐ CD(s), Number of CDs _____
☒ Drawing(s) Number of Sheets <u>9</u>	☐ Other (specify) _____
☒ Specification (e.g. description of the invention) Number of Pages <u>22</u>	

Fees Due: Filing Fee of \$200 (\$100 for small entity). If the specification and drawings exceed 100 sheets of paper, an application size fee is also due, which is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

METHOD OF PAYMENT OF THE FILING FEE AND APPLICATION SIZE FEE FOR THIS PROVISIONAL APPLICATION FOR PATENT

☒ Applicant claims small entity status. See 37 CFR 1.27.	100
☒ A check or money order is enclosed to cover the filing fee and application size fee (if applicable).	
☐ Payment by credit card. Form PTO-2038 is attached	
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PROVISIONAL APPLICATION COVER SHEET
Page 2 of 2

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SIGNATURE _____

Date February 12, 2007

TYPED or PRINTED NAME Francis C. Hand

REGISTRATION NO. 22,280
(if appropriate)

TELEPHONE 973-994-1700

Docket Number: 514810.1

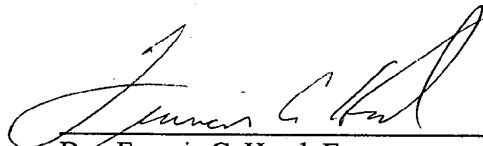
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By: Francis C. Hand, Esq.

310420

SHARED TRANSIT SYSTEM AND SERVICE NETWORK

This application is a Provisional patent Application.

This invention relates to a ground transportation network. More particularly, this invention relates to a ground transportation network matching individuals with transport capacity on a supply and demand basis.

Transport capacity, for example cars, often travel long distances with minimal load (i.e., SUVs on daily commutes with only the driver occupying the vehicle). Such capacity is disused because of a number of reasons, including (a) an occasional need for greater capacity causes consumers to buy excess transportation capacity, (b) variations in schedule and destinations traveled create non-matched transportation needs compared with other household members, (c) lack of knowledge of trusted users who could conveniently use this excess capacity, and (d) difficulty in providing an economic benefit to incentivize the driver to share their excess capacity. Meanwhile, the driver of a vehicle often has no choice but to use a personal transport vehicle (despite the high costs involved) because of lack of accessibility, inconvenient scheduling, or multiple interchanges required if they were to rely on public transport systems.

Proposals have been made, for example, in US Patent 6,697,730, to use a central assigning system and communications devices adapted to be associated with vehicles for transmitting information from the vehicles to the central assigning system, and for receiving information from the central assigning system. Such a system, if implemented, would represent advances over methods in common practice, however, it is believed the invention described herein makes such systems more practical and useful because of the following significant innovations and claims: methods to reduce

the workload/steps necessary on the driver and the rider to make this system less inconvenient; methods to improve the trustability of drivers and riders, increasing the likelihood people will use this system; a hardware device which would communicate visually to external riders; automatically determined destinations, increasing availability of shared transport vehicles; and an ad-hoc nature to the proposed system which enables casual use by registered users.

The inefficient use of transport capacity results in approximately 3-4 times as many cars on the road as would be necessary if capacity were only 50% occupied. This has the additional implications created by the excess consumption of fuel in potential environment problems (CO² pollution and global warming) as well as geopolitical problems (for example, many countries including the United States could be energy self-sufficient if they used their existing transportation capacity only 40% better (versus the 200+% better that could theoretically be achieved).

In cities such as Los Angeles, the transportation network is largely dysfunctional (i.e., the average worker spends 1.6 hours of their day in unproductive and costly commuting via personal car on congested highways). Additionally, such a consumer cannot rely on public transit because mass transit "doesn't take them from where they live to where they work".

Inadequate "feeder systems" for the public transit network mean that billions of dollars are spent creating subway and rail systems that are massively underused, in terms of persons transported per hour versus the potential capacity of these rail systems. The flexibility of highway and road networks, along with the critical mass of car penetration and the marketplace dynamic of urban real estate value, however, means

that wherever a highway is built, personal transport cars will soon fill it, creating further urban sprawl, with all the societal and ecological disadvantages that implies.

Personal transport cars are common, among other reasons, because (a) the lack of availability of mass transit networks to serve the home or destination of the driver, (b) the inconvenience of waiting a long or unknown period of time for public transit, (c) fear of traveling with strangers or fear in waiting for long periods at public transit points.

Many large cities have successfully implemented mass transit systems which are widely used by people from a wide variety of socio-economic backgrounds (i.e., London, New York, Madrid, Tokyo). While even these systems can be improved, these examples show that if a shared transit system exists with sufficient timeliness and advantages, it will be widely used. These cities provide transit systems because these systems reduce their cost for infrastructure (i.e., building ever-larger and more inefficient highways) and increases productivity for their citizens and the companies in their region.

So, cities have long sought to provide mass transit systems which take people from where they live to where they work and/or where they shop. However, since the popularization of highways in the 1950s in the US, cities have become increasingly suburban. Highway systems do not complement mass transit systems and, in fact, work against mass transit systems by enabling urban sprawl to the point where mass transit infrastructure is unsustainable (at the extremities of a city center, due to lack of population density) and unattractive (because of inconvenient intermodal interchange). As fewer people use mass transit, less routes are supportable, less area is reachable via mass transit, and thus more people need to rely on relatively costly and ecologically

damaging individual transport, resulting in the mass transit system itself imploding with a lack of critical mass, while personal transport systems simultaneously suffer through massive overcongestion.

Thus, a system is needed which enables regular highway traffic and privately owned personal transport systems to augment and enable public mass transit networks.

Briefly, the invention provides a network system that matches the supply and demand of transportation services by incorporating unused transportation capacity (i.e., empty seats) with a real-time allocation and matching service that enables individuals and goods to conveniently hire that capacity with attractive pricing, rapid responsiveness, better information availability and trusted security.

The network system incorporates telecommunications and computing technology to match the supply of excess transport capacity with the demand for personal transport. In areas where a critical mass of transport providers can be established, this system aims to provide pick-up and drop-off service to within a few hundred yards to the vast majority of locations in a covered area, with response/waiting times of 3-5 minutes under normal circumstances. In addition, different levels of service can be provided, including the provision of transport for goods, persons with special needs, and persons or goods within closed communities of transit providers.

The network system ("Shared Transit System") demonstrates how interconnecting personal communication devices and computer networks with personal and corporate shared transit vehicles can (1) provide revenue streams to drivers who share their vehicle, (2) provide security through the provision of trackability and identification of both drivers and Riders, (3) provide "feeder systems" for public transit

networks, (4) provide trusted networks of pre-approved providers to accommodate scheduled services for special needs cases, such as children or physically disabled persons, and (5) provide a variety of service levels for those who need more than just commuter style transport.

It is believed that an efficient use of the network system would mean that a significant fraction of those households with two or more cars would no longer require the additional car, and that a smaller portion of a national economy will be devoted to widening and expanding a country's highway networks.

The below "Shared Transit System" accomplishes this aim by enabling private transport vehicles to serve as an extension of the mass transit system. Where no mass transit is available, or is inefficient, private transport vehicles act as a public transport mechanism. Where mass transit is available and cost effective and timely, private transport vehicles act as a feeder network to the public transit system.

In situations such as a daily commute, easily predictable trends will flow from the data generated by this shared ride system, and will enable rapid and flexible route allocation that will enable public or private mass transit providers the capability to offer new transit services, such as bus routes, that are determined via stochastic measurement. A rapidly responsive and timely public transit network will result in increasing numbers of public transit riders and recreate the market parameters that are needed for mass transit systems to gain critical mass in ever changing and expanding markets.

Above was mentioned the issue of fear of traveling with strangers in public transit systems. The below system incorporates a security verifying and rating system to

provide that the strangers in shared transit systems are trustworthy. For example, (a) bad drivers (those with excess points or driving convictions) are not allowed to participate in the system, (b) drivers with continually risky behavior are identified through a real-time rating mechanism available to riders and the in-car computer measurement system, (c) drivers who do not pick up riders are rated for their proclivity for failing to do so, (d) riders are rated for unusual behavior through a rating mechanism available to drivers, and (e) riders who refuse rides or miss rides are rated for their proclivity for doing so.

Alongside the issue of trustable strangers is the issue of anonymity. Riders or drivers may be concerned about their safety if a stranger knows how to contact them via their phone. Thus, the below system incorporates a mechanism allowing riders and drivers to contact each other through their phones without knowing the other's phone number or full name, yet still allowing, for example, a driver to message a rider that a hat was left in the vehicle.

These and other objects and advantages of the invention will become more apparent from the following detailed description taken in conjunction with the accompanying drawings wherein:

Fig. 1 schematically illustrates a network system in accordance with the invention;

Fig. 2 provides a table of the transport capacity computing and communications components of the network system in accordance with the invention;

Fig. 3 provides a table of the rider technology components of the network system in accordance with the invention;

Fig. 4 graphically illustrates the multiple uses and operations of the network system in accordance with the invention;

Fig. 5 graphically represents the experience of a rider in using the network system in accordance with the invention;

Fig. 5a graphically representing that same experience of a rider as a flowchart;

Fig. 6 graphically represents the experience of a driver in using the network system in accordance with the invention;

Fig. 6a graphically representing that same experience of a driver as a flowchart.

Operation of network system; and

Fig. 7 graphically illustrates various components used with the invention.

Referring to Fig 1., a person 10 desiring transportation service ("Rider") has a personal communications device 11, optimally equipped with location information ("GPS Phone"), and uses this device 11, optimally equipped with a software layer with transport intelligence ("Rider Software Interface"), to signal a transportation marketplace network ("Shared Transit Marketplace") 12 with a demand interest for a particular start-point ("Pick-up Point") and endpoint ("Destination Point", and together, the "Demand Route"). The Rider 10 has previously registered with the Shared Transit Marketplace 12, providing whatever registration details are necessary to contact and verify the identification of the Rider 10.

Alternatively, the Rider 10' may employ a fixed communications device 11' in order to communicate with the Shared Transit Marketplace 12.

At the same time, all vehicles that wish to provide transportation services which are in transit ("Transport Capacity") have navigation devices, typically using GPS or

other location finding technology, with built-in or external data communication capability, typically using cellular phone data networks ("Sat Nav Trackers"), running a software layer with shared transit transport intelligence ("Driver Software Interface").

When a driver starts the vehicle ("Driver" 13), a Driver Software Interface automatically determines if the Driver 13 is engaged in a traditional route ("Daily Commute"), and registers the route of the Driver 13 ("Supply Route") with the Shared Transit Marketplace 12. Alternatively, if the Driver is not engaged in a traditional route, the driver is prompted for their destination, or possibly is shown a list of riders possibly headed in the same general (or likely) direction as the Driver, for the Driver to consider sharing, if the Driver's destination is not known.

The Shared Transit Marketplace 12, which is also accessible by any internet terminal, provides to the Rider 10 and to the Driver 13 information about Supply and Demand. Optimally, this marketplace 12 is automatically populated with Supply Routes of public transport (buses, trains, commuter bus lines), to provide the Rider 10 with a variety of service types and prices to choose from. Additionally, given the on-demand nature of rides and personal transport, stochastic models can populate the Supply Routes and Demand Routes, in order to enable the Rider 10 and Driver 13 to make better transport decisions. For example, a Rider 10 in a subdivision of 500 homes at 8:30am on a weekday may poll for a Demand Route and see that the only options available from his house to his destination, e.g., Dublin, are a bus that leaves in 90 minutes for €6 or a taxi that could be available in 10 minutes for €35. Given these options, the Rider 10 would possibly be forced to choose a taxi. However, if the stochastic model indicates that 60 cars depart from that subdivision for Dublin every

weekday morning between 8am and 9am, the Rider 10 could be provided the information that, with 90% certainty, a Supply Route would be available in 4 minutes for €4.50. (That is, the Driver of this car in that subdivision simply has not turned on his car yet, and would only be in the subdivision for 1 minute before leaving it for the highway. Therefore, the value of stochastic probable route offerings dramatically increases the quality of the information provided to a prospective Rider; and thus also increases the likelihood of Riders choosing to use Shared Transit in general).

The Driver 13 can pre-register a specific price for a given transit route, or could change their price on-the-fly for a route to reflect the supply and demand for that Route, and the class of service provided (for example, charging more for a Rider who has excess luggage, or for direct point-to-point service by taxi transport, or for inclusion of in-vehicle wireless Internet access in places where that service is available).

Normally, however, pricing for a route would be determined by per mile default rates, the number of seats occupied and other preset fixed and variable charges. While it is anticipated that some users of this system could use it for profit-making routes, it is thought that normally the user will simply be recovering some or most of their transport costs, and some applications may not use billing at all.

One of the possible means, and the most likely, of determining positioning for the Sat Nav Tracker devices and the GPS Phones is through the use of a GPS or Magellan satellite 14 as indicated in Fig. 1. Other means for determining position include the use of cell phone towers to determine location.

Use may also be made of the Internet as indicated in Fig. 1, as one of the means of communicating to and from users and drivers and from fixed kiosks to register trip requests.

The Rider 10, depending upon the mode preferred and the equipment available, can select a Pick-Up Point and Destination Point through a variety of functionally equivalent methods, including (1) calling a person or voice-response system via telephone whom they can tell verbally or through a DTMF IVR system; (2) using SMS via telephone with text indication of Demand Route (i.e., "Go Home", or "Go from 12 Marlboro St to Albany Airport"); (3) via an Internet web interface or dedicated kiosk; or (4) via a GPS Phone with an intelligent and data-driven software interface.

The Rider 10, upon submitting a Demand Route into the Shared Transit Marketplace 12, is presented with a sorted list of the transport options available, by class of service, type of vehicle, time until Transport Capacity arrives at start-point, estimated transit time to end-point, number of legs in the journey, and cost. In the event that the Rider 10 has a Rider Software Interface on their phone 11, the Rider 10 selects from the options available to them. A message is sent to the nearest appropriate Transport Capacity. The Driver 13 is automatically routed to the pick-up point, optimally through Sat Nav Tracker display unit with verbal instructions. A Driver Software Interface determines if the Driver 13 is complying with the pick-up request, optimally based off the vehicle's movement and a period of time for the Driver 13 to automatically accept or deny the request ("Reserved Capacity").

In the event that the Rider 10 does not have a Rider Software Interface, the Rider can receive/respond to a message of available capacity via the means most

conveniently appropriate to them (i.e., verbally, via text message, selecting at the Internet web site, and the like).

Confirmation is then sent to the Rider 10 via a message which optionally directs Rider to an alternate nearby optimal Pick-up Point in order to maximize transport efficiency. For example, if the Rider made a request on an infrequently used street, the Rider may be directed to walk a block or two to a Pick-up Point where Transport Capacity is available.

At any time up to the proximity alert warning period ("Three Minute Warning"), the Shared Transit Marketplace 12 will be working to optimize available capacity and services and will substitute Riders and Drivers, create multiple Riders at the same Pick-up Point to fill the Transport Capacity more efficiently, and the like. The Shared Transit Marketplace 12 will also monitor the Transport Capacity to see if any new capacity has become available which offers a superior service and/or a lower price option to the Rider 10 (for example, if capacity is introduced which reduces the number of transfers necessary).

At the time of the Three Minute Warning, a message is sent to the Driver Software Interface and the Rider(s) with the information pertinent to the pick-up destination and the Riders. The Driver Software Interface then guides the Driver, optimally through audible cues, directly to the Pick-up Point.

At the time when the Rider needs to be in queue ("One Minute Warning"), the Shared Transit Marketplace will optimally automatically confirm from the Rider's GPS Phone 11 that the Rider is positioned within a certain proximity to the Pick-up Point ("Reasonable Rider Proximity"). If the Rider is not within Reasonable Rider Proximity,

the Demand Route request is rescheduled and the Driver is informed that the Rider is not available ("Rider No Show").

At the One Minute Warning Time, a message would optimally be sent to indicate to the Rider to be on the lookout for the Transport Capacity, along with the specific color, model, picture and/or other identifying characteristics of the transport capacity that was arriving.

As illustrated in Fig. 7, a History for Rider transactions is logged by the Shared Transit Marketplace 12, and if a disproportionately high percentage of Rider Demand Route requests result in Rider No Shows (for example, more than 1 out of 10) ("Unreliable Rider"), then the Rider 10 is tested for Reasonable Rider Proximity at earlier times, such as the Three Minute Warning period, and the Driver 13 will not be notified to pick-up this class of Unreliable Rider, unless the Unreliable Rider is already at the Pick-up Point, until such time as Rider No Shows passes a standard as approved by the Shared Transit Marketplace.

Likewise, as illustrated in Fig. 7, a History for Driver transactions is logged by the Shared Transit Marketplace 12. If the Rider 10 is waiting at the Pick-up Point and for whatever reason the Driver 13 does not pick up the Rider 10 ("Driver No Show") and/or is consistently late in picking up Riders, the Driver 13 would be measured for timeliness and Driver No Show rating ("Unreliable Driver"). Such lateness should include reasonable adjustments for consistently gridlocked locations such as city centers, as would be indicated through stochastic measurement of other Driver performance at the same Pick-up Point. The Driver 13 would likewise be expected to measure up to a higher level of performance to overcome an earlier unreliability, or the Driver 13 would

be ranked lower ("Star Ratings"), matched less frequently, and/or possibly expelled from the Shared Transit Marketplace 12.

Although Riders/Drivers remain anonymous, system rankings are available, and Riders have the ability to only request Transport Capacity from Drivers with specified quality Star Ratings, and the like.

Transport Capacity optimally would have an external indicator ("Route ID Display"), optimally a bright display that is about the size and position of the passenger's side sun visor in a car, preferably mounted on the interior of the car, that optimally presents a visual confirmation of the route identification to the external Rider, so that as the Transport Capacity approaches, the Rider can begin approaching the Transport Capacity. While this Route ID is somewhat analogous to the function served by a Bus Route Information display, the Route ID Display has the following additional functions: Route ID Display can be visually distinctive as it approaches a Rider (analogous to the flashing lights of a School Bus as it stops to pick up children). As there could be hundreds of vehicles on the road that also provide Transport Capacity, this distinctive display serves the unique function of distinguishing the Dispatched Transport Capacity which has been matched to the Demand Route from other Transport Capacity which may be on the same road at the same time. In a low-tech, lower function incarnation, this would simply be a placard sticker with a fixed ID number.

As the Transport Capacity comes within a readable distance ("20 meter display"), the Route ID Display would show the particular Demand Route information and/or other Identification information (Personalized Route ID Information), for example, the

Nickname(s) of the Rider(s) being picked up, the Destination Point(s) of the Demand Route(s), and the like.

As Transport Capacity approaches the Pick-up Point, the Driver would position the vehicle at the Pick-up Point, and optimally the Driver would be presented with a picture of the Rider(s) and the identification name of each Rider ("Nickname"). If the Rider does not match their picture, the Driver would choose to refuse the shared ride, and would submit, through the Driver Software Interface, the reason for denying the ride. (At this point, an operator of the Shared Transport Marketplace 12 would attempt to contact the Rider through the information provided with their registration details to see if there was a human error or to see if the Rider's GPS Phone had been stolen, in order to disable future Shared Transit Services).

Upon a match-up of Rider and Driver, Rider would enter the Transport Capacity vehicle ("In Process Journey"). The Shared Transit Marketplace 12 would then optimally verify, through the location information in the Sat Nav Tracker and in the GPS Phone, that the Rider and Driver were indeed at the same location. If the Driver 13 left the Pick-up Point area without picking up the Rider 10 (the Shared Transit Marketplace 12 could know this due to the divergence in location information between the GPS Phone 11 and the Sat Nav Tracker), the Shared Transit Marketplace 12 would send messages to the Driver 13 and Rider 10 verifying that this was their intent; for example, if the Rider 10 had suddenly changed their mind, perhaps to go back to their house to get their wallet. However, if the Demand Route was still needed, the Rider 10 and Driver 13 would be queried on their next action; for example, if the Rider wished to re-submit their Demand Route request, etc. In that case, the Rider's request would receive higher

prioritization in the event there is a queue of Riders at the same location, so that the Rider would not have to return to the end of the queue.

When the Driver 13 approached the Rider Destination, and possibly at points along the way, the Rider 10 and Driver 13 would be polled for their location information to verify that the ride was progressing. Processing and communications could be done either locally (via near-field communications inside the Transport Capacity vehicle using software in Driver Software Interface and Rider Software Interface, via communications technologies such as Bluetooth, 802.11, RFID or their equivalents) or via network polling to Sat Nav Tracker or GPS Phone, or a combination thereof.

An alternative method of verification of Ride Sharing would be to use the establishment of near-field communications as the primary consideration for determining start point of ride sharing experience, and use the breaking of this near-field communications between the Sat Nav Tracker and the GPS Phone (in cases other than power-off or reset of devices) to establish the verified termination point of the journey.

Important aspects of the above system that were not mentioned in the above narrative: Trusted Drivers and Trusted Riders are a large part of the viability of any Shared Transit System. In order to improve on the quality of this trust, and to provide security assurance to Riders and Drivers, certain behaviors would prompt alert conditions, especially those related to security or safety. For example, when a Demand Route is established which results in an In-Process Journey which is terminated before or at a different point than the established Destination Point, this information is logged and can further be used to generate, for example, automated phone calls to verify the intent of the Rider & Driver, including pass codes ("Favorite Color") which would be

established upon user registration. If a Rider or Driver was unable to verify their Favorite Color, human intervention and responses and queries (from Network Operators, optimally, at a Network Operations Center (15), as shown in Figure 1) could escalate the situation response as appropriate.

The network system may also be provided with the following capabilities.

Real-time Self-correcting network redundancy elimination:

System feedback to a driver that another public vehicle or shared transit vehicle is available within set criteria (with destination < 1/4 mile of his, with 0/1 transfers, with max of 3 minute wait). If interested, the driver would receive the location/directions to a car park that is in-route.

Period benefit cost/time analysis:

System log periodically (weekly/monthly, for example) compares transit network availability with actual usage data from an in-car navigational unit and provides a trip-by-trip summary of which trips would have benefited through use of the Shared Transit Marketplace, what the cost/time savings would have been if the user had dropped their car at a Park & Ride; also, what the EARNINGS would have been if the user had picked up available fares (plus/minus 5 minutes); also, generic trip data about the average speed, journey time, CO₂ generated and gas consumed.

Additionally, network capacity demand can be used to calculate any possible public subsidy benefit that can be awarded to potential drivers in exchange for their availability on their normal transit routes.

Identity Verification system:

Personal communications device shows the picture and name identification of the driver responding to pickup request.

Identity Verification system:

Service Provider (Driver) display shows the picture of the Rider 10 (service requester in case of cargo or concierge) requesting pickup service.

Verified Found Lost items:

If a Driver 13 identifies lost items, the network can generate real-time message (SMS or e-mail for example) identifying lost luggage and inviting Rider to call; if no return call, driver returns any found items to any service depot, which bags, labels, barcodes and scans any items returned, sends a message to Rider using any available means (e-mail, SMS, voice message).

Verified Lost Items:

If a Rider identifies a missing item, the network can generate real-time message (SMS or e-mail for example) asking the Driver to check and inviting the Driver to call for immediate return; if delayed realization or no return call, dispatcher calls driver and requests for verification of lost items and to return such lost items to service depot. Rider is notified of Driver's response.

Friends & Family Transit network.

The Network System allows users to tag drivers as "friends and family" post ride, over the web in displays of private network drivers, or through e-mail opt-in. Additionally, communities of users can be identified, such as parents of students at a given school, or students, faculty and staff of a university.

These "friends & family" designations would become part of the criteria used to rank available drivers and riders, where the rider or driver has a preference. Similarly, a rider or driver can tag the other as "not again", which will rank these alternatives lower or out of the system.

Scheduled rides confirmation:

For rides which are pre-scheduled, software on the user device or through the network software will offer periodic warnings and require confirmation from a Rider 15 minutes in advance of pickup, then again five minutes before pickup. The Rider has the option to delay or cancel pickup. The Driver is not routed off course or dispatch information sent until and unless rider confirms such pre-scheduled intent.

User also notified 30 seconds before pickup, with picture or description of vehicle:

The Vehicle 16 has a display system, visible from the outside of the vehicle, which indicates the destination code and Rider they are picking up.

The invention thus provides a network system that has the following advantages which have benefits to the area of public transport:

A. A matching system for transportation capacity with transportation demand. The System maintains a matrix of journey time and cost estimates for the most common nodes (one node for each 1,000 people population, essentially), for a country the size of Ireland, about 4,000 nodes, essentially. Next available capacity between each of these nodes is listed (up to first 50).

B. A passive monitoring system for generation of usage/demand data for point-to-point routing of participating vehicles. System looks for overlaps of capacity and seeks to eliminate redundant capacity (within certain distance criteria, transfers criteria

and timing criteria) by suggesting route changes. Also, this data reporting and analysis can be used to suggest the generation of new routes, or on-the-fly routes, for public transport when enough demand capacity exists to create transport routes which bypass crowded city centers or, minimally, can skip stops on an existing route (generating express routes by selecting appropriate Riders to get on the transport capacity).

C. A passive monitoring system for generation of traffic flow data; combined with a central information repository, gives real time network for traffic flow throughout a metropolitan area

D. A system to generate available route capacity, timing on heavily trafficked routes. Stochastically generated, statistically significant effective capacity schedule.

E. A system to process traffic patterns over time to determine where bottlenecks would benefit most from HOV lanes or other rapid transit

F. A system to generate demand for excess capacity: automated and periodic e-mails to users to inform them of cost, availability, scheduling and timesavings of shared transit solution.

G. A system for generating verifiable shared transit status of vehicles

H. An accounting & trading system to track the carbon savings of shared transit network for use in resale of carbon credits to carbon polluters

I. An accounting system for generating verifiable shared transit status of vehicles, to enable tax credits and pre-tax benefits of car payments, as well as providing statistics for any possible mass transit subsidy benefits.

J. A routing system for generating revenue for on demand, on-the-fly shared transit vehicles.

K. A codification system for determination of minimal transit points for maximum market reach.

L. A system for matching dispatch of appropriate-sized vehicle capacity with just-in-time transit market demand.

M. A trust system for managing networks of Drivers with varying trust characteristics

N. A self-correcting trust system for feedback of Rider response to Driver performance

O. A self-correcting trust system for managing Driver preferences of various Riders

P. A professional transit network revenue/load maximization system through dynamic allocation of vehicle size and frequency

Q. A notification of real-time alternative transit to Driver - system contacts a Driver periodically to let them know of superior transportation options (express train, other shared transit vehicle, and the like).

R. A refinement of Shared Transit Marketplace to include not only actual available routes but also additional typical transport availability in that day-part and that season based on stochastic models (to improve the user experience and help their decision making).

S. A route ID Display device, positioning and utility

T. A modification of the above system to allow it to be used to transport goods and merchandise by replacing the Rider with a Shipping and Delivery function, but otherwise using a similar Shared Transit Marketplace.

U. The Driver can also be driving a bus (whether a private or public transport service), a taxi, and the like.

Referring to Fig. 2, the transport capacity computing and communications components of the network system include components for (1) location and direction, many of which can supplement the locational accuracy where GPS technology is not functional or is less desired (for example, underground transport forms would be more likely to use fixed position "markers" to determine the location of the transport capacity, and in the same underground transport situation, the GPS Phone would ideally be equipped with 802.11b technology and a reference database of positional location of underground wireless 802.11b broadcasting devices in order to determine location and facilitate data communications); (2) Far-field communications list some of the communications methods used to facilitate interaction with the Shared Transport Marketplace; (3) Near-field communications detail methods would could be used to communicate between Rider and Driver computing/communication devices (preferred in order to reduce data congestion and airtime charges); (4) supply routes include those information sources and database of commonly used and widely known location names that will feed the Shared Transport Marketplace with available and potentially available transport capacity from the Driver and public transport sources; and (5) Demand route, which includes several possible methods of requesting a route by a Rider. The devices and inputs used by each of these five components are as listed.

Referring to Fig. 3, the rider technology components of the network system include components for (1) Location, that is, several methods for determining the exact position of the Rider for communication to the Shared Transport Marketplace; (2)

Location transmission, that is, the interface that the Rider uses to transmit his Demand Request; (3) Computing Component, that is, the device that the Rider uses to transmit his Demand Request; (4) Internet, that is, either the broad Internet or a limited Intranet which enables the data transmissions between the Shared Transport Marketplace and the Rider; and (5) Demand Route, which includes many of the databases and the pricing and membership models which enable a given Rider to take advantage of a variety of possible types of Transport Capacity. In addition, the devices and inputs used by each of these five components are as listed.

Referring to Fig. 4, the multiple uses and operations of the network system are shown graphically and include components for (1) Supply Side Routes, which include the databases of providers of shared transport services, (2) Demand Side Routes, which include a subset of possible methods for a Rider to request a Route, (3) Data Communications Methods, which specify the variety of methods which could be used to communicate between the Rider, Driver, and the network system.

Referring to Fig. 5, the experiences of a rider in using the network system is shown graphically and are believed to be self-explanatory. The experiences may be stored in memory and printed out. The accompanying flowchart, Fig 5a., shows the typical rider experience in a graphical manner.

Referring to Fig. 6, the experiences of a Driver in using the network system is shown graphically and are believed to be self-explanatory. The experiences may be stored in memory and printed out. The accompanying flowchart, Fig. 6a, shows a typical driver experience in a graphical manner.

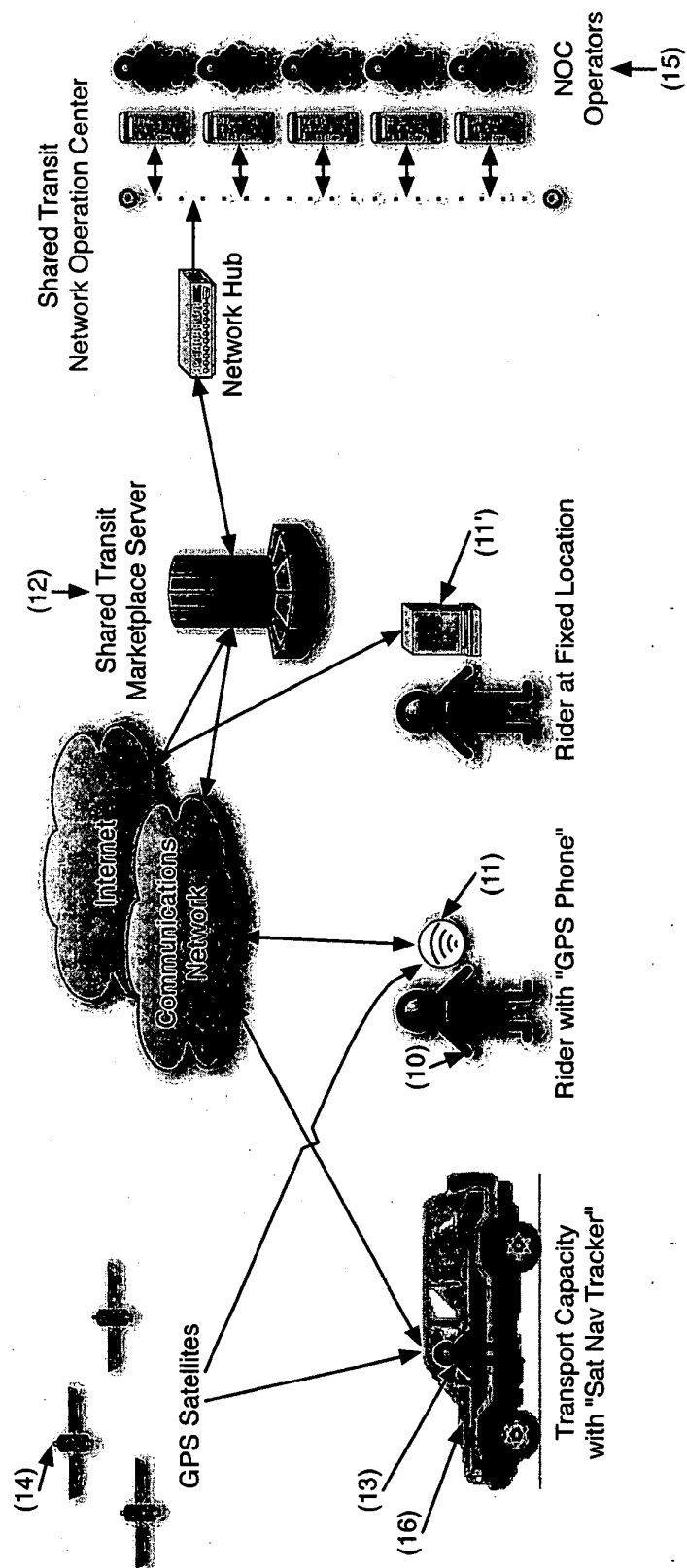
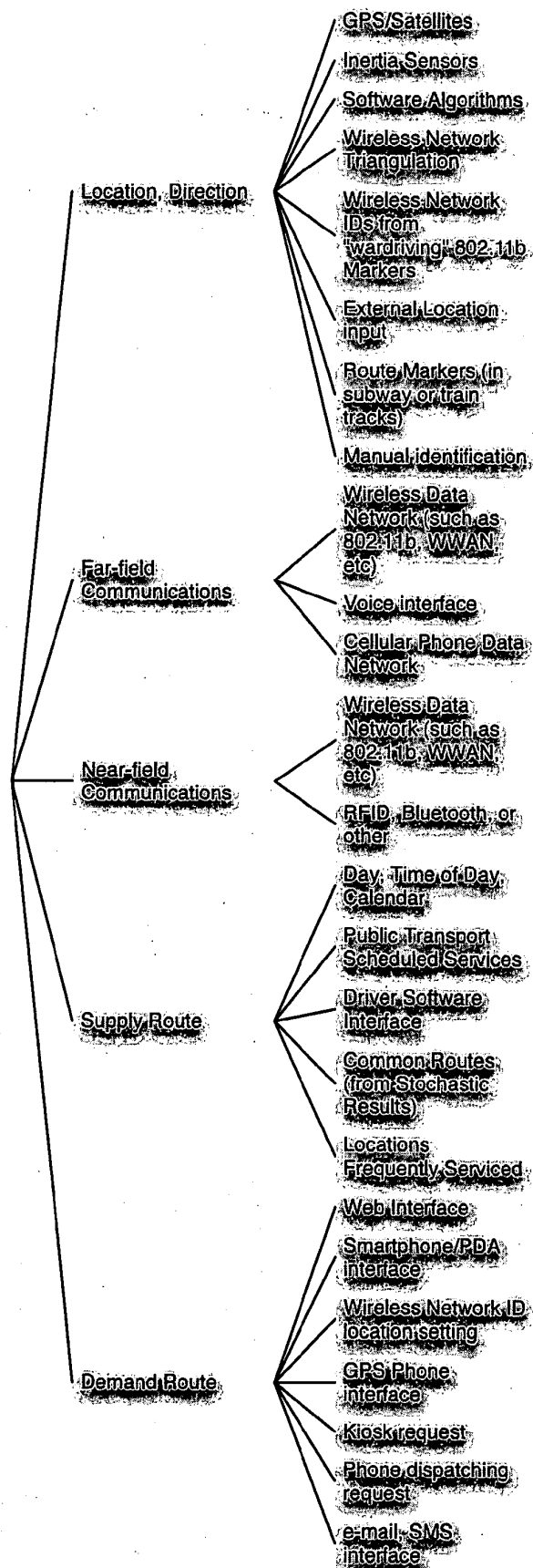


Figure 1. Far field communications, typical configuration.

Figure 2. Transport Capacity Computing and Communications Components



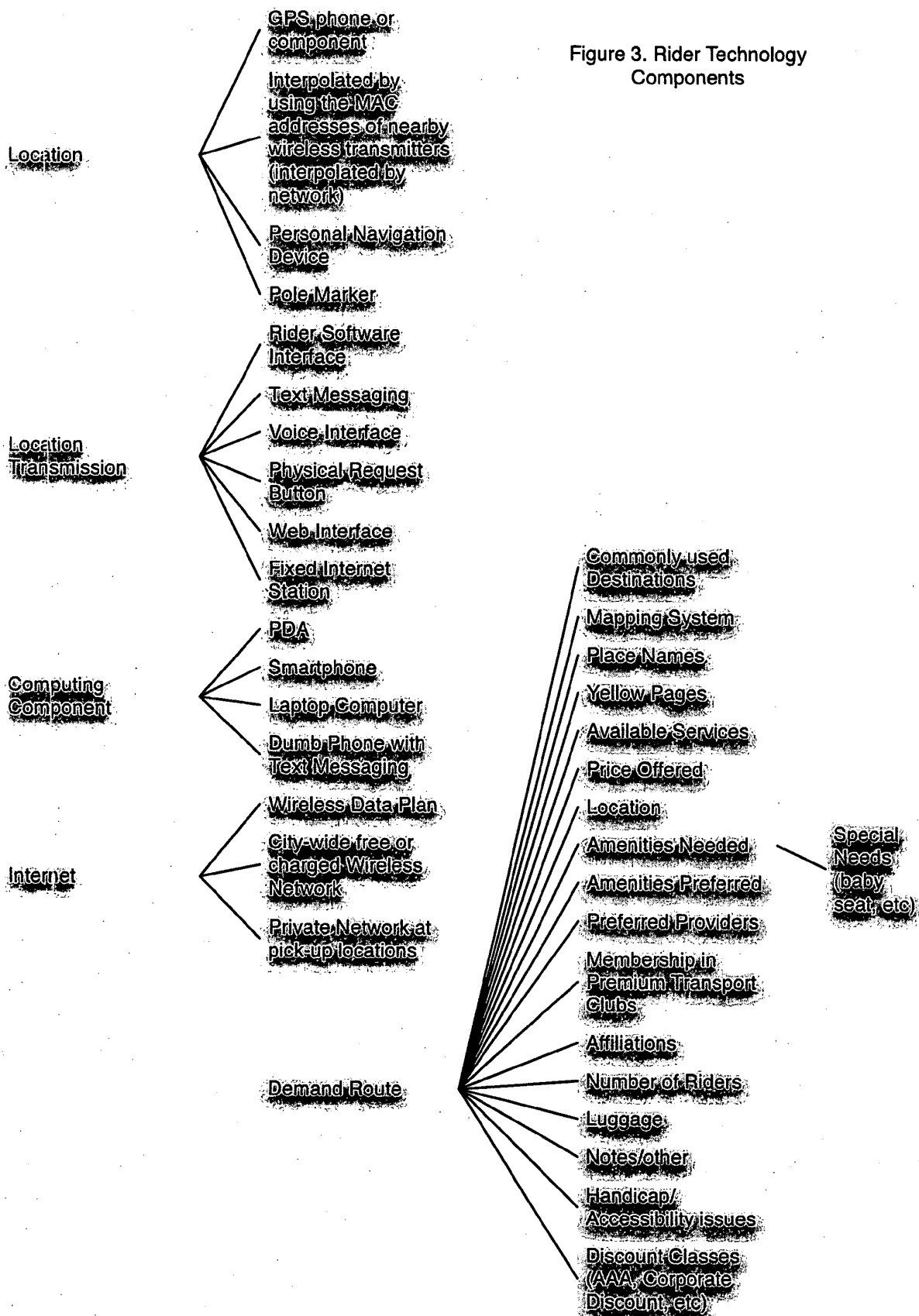


Figure 4. Shared Transit Marketplace

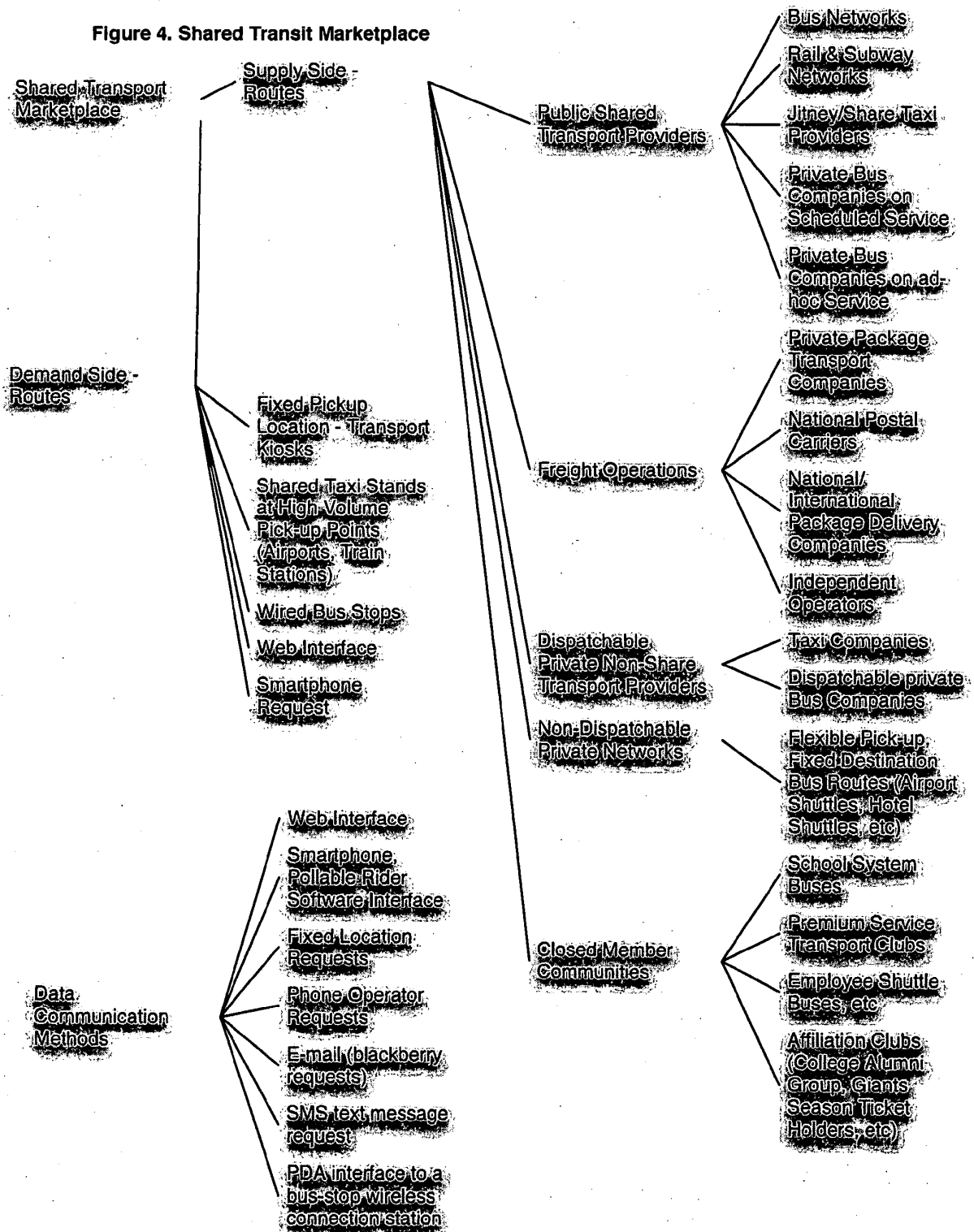


Figure 5. Rider Experience

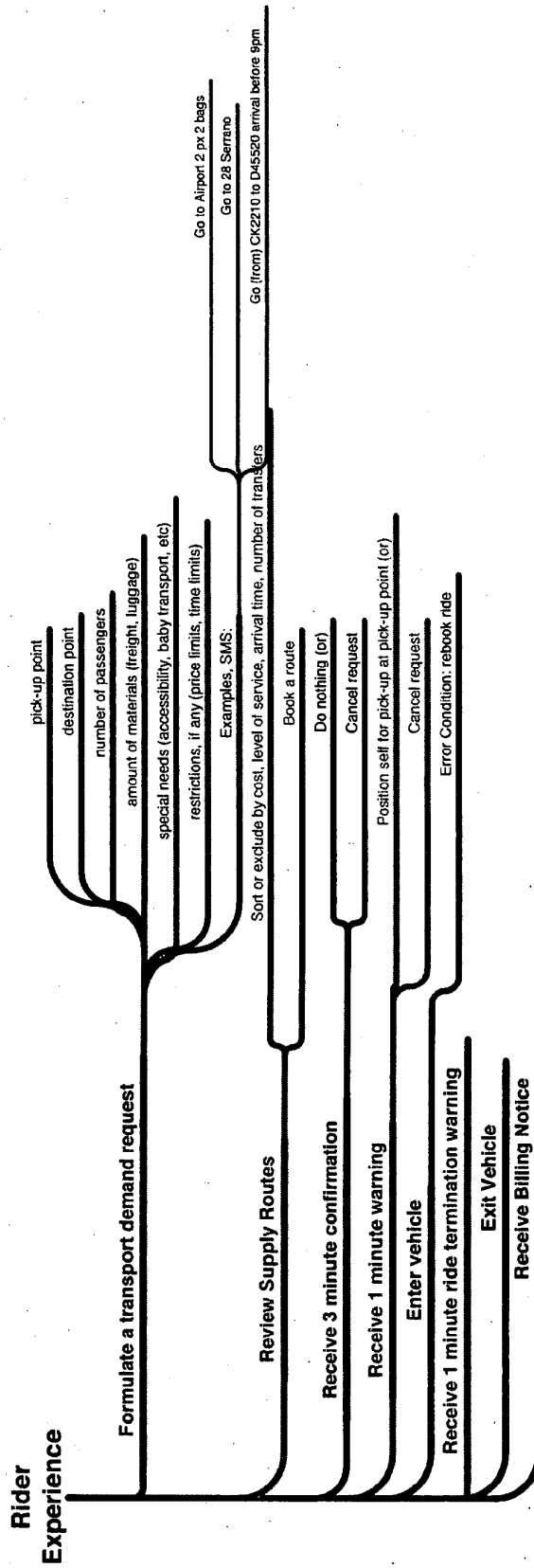


Figure 5a.
Typical Rider
Experience

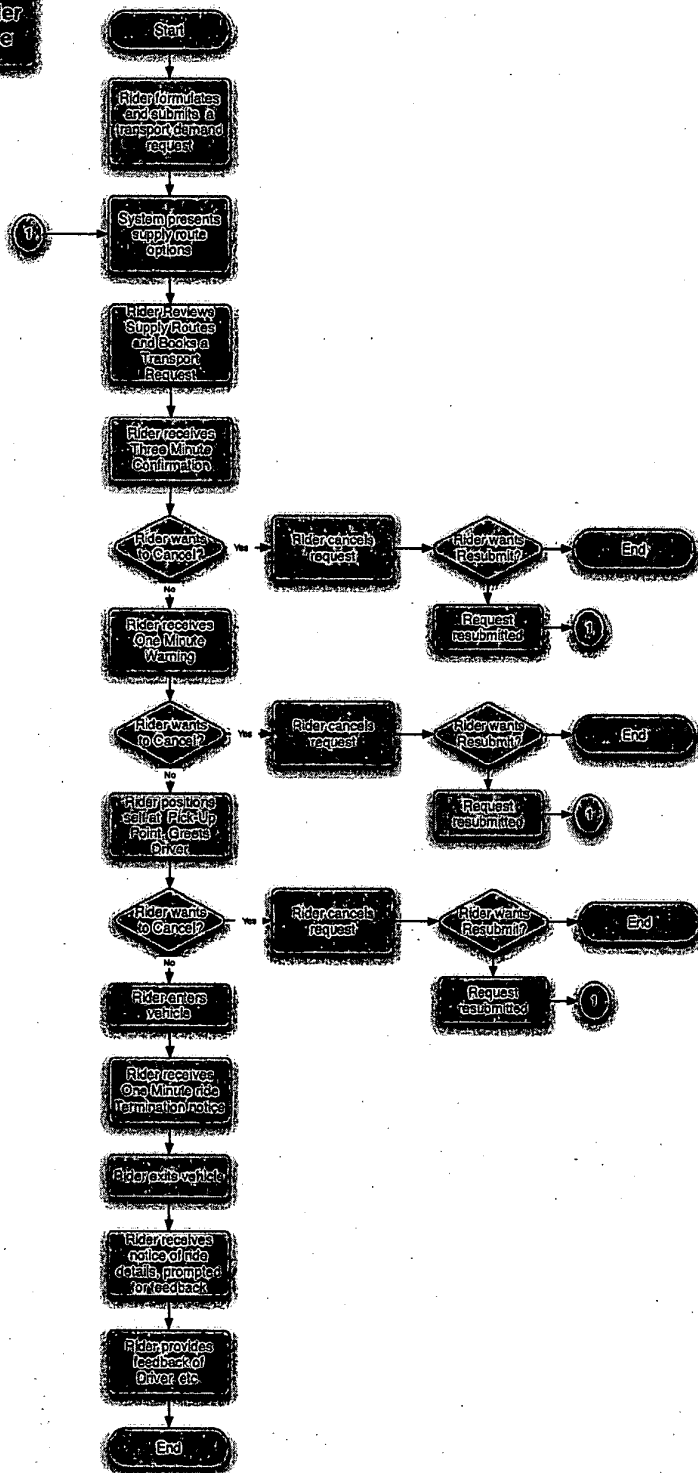


Figure 6. Driver Experience

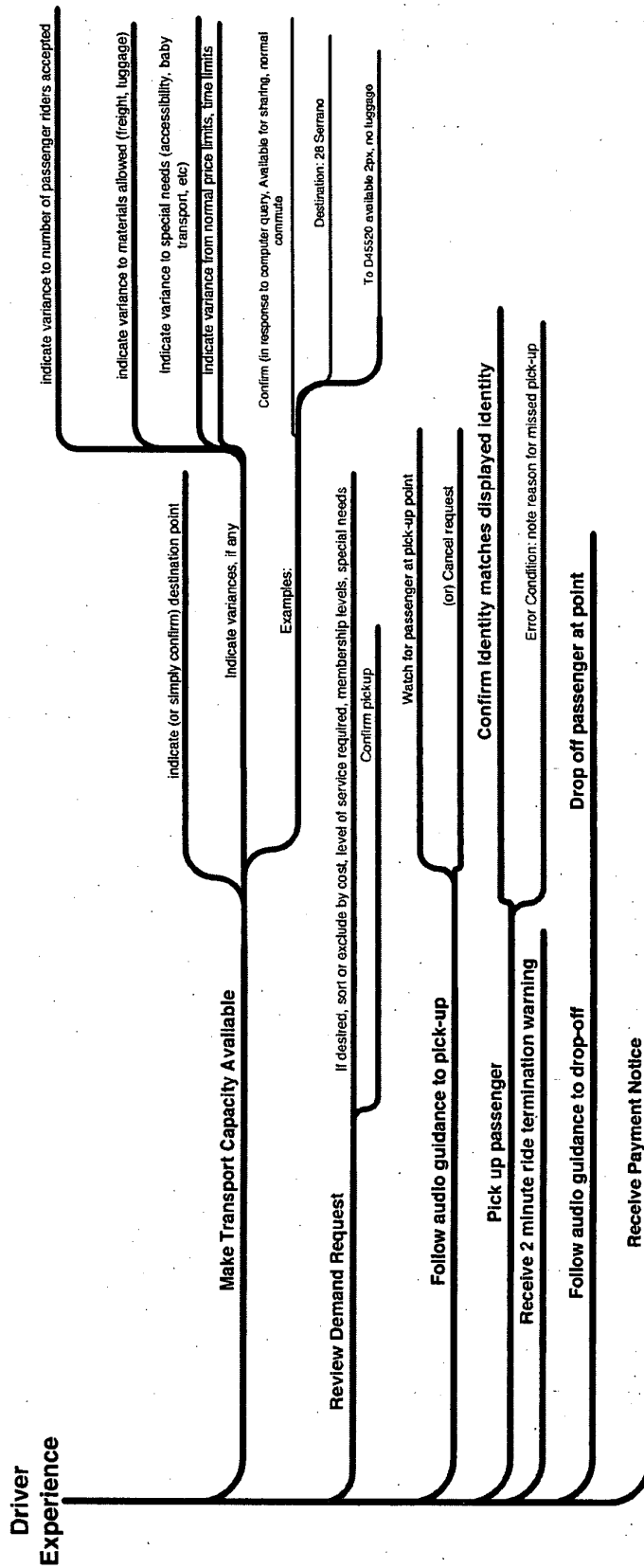
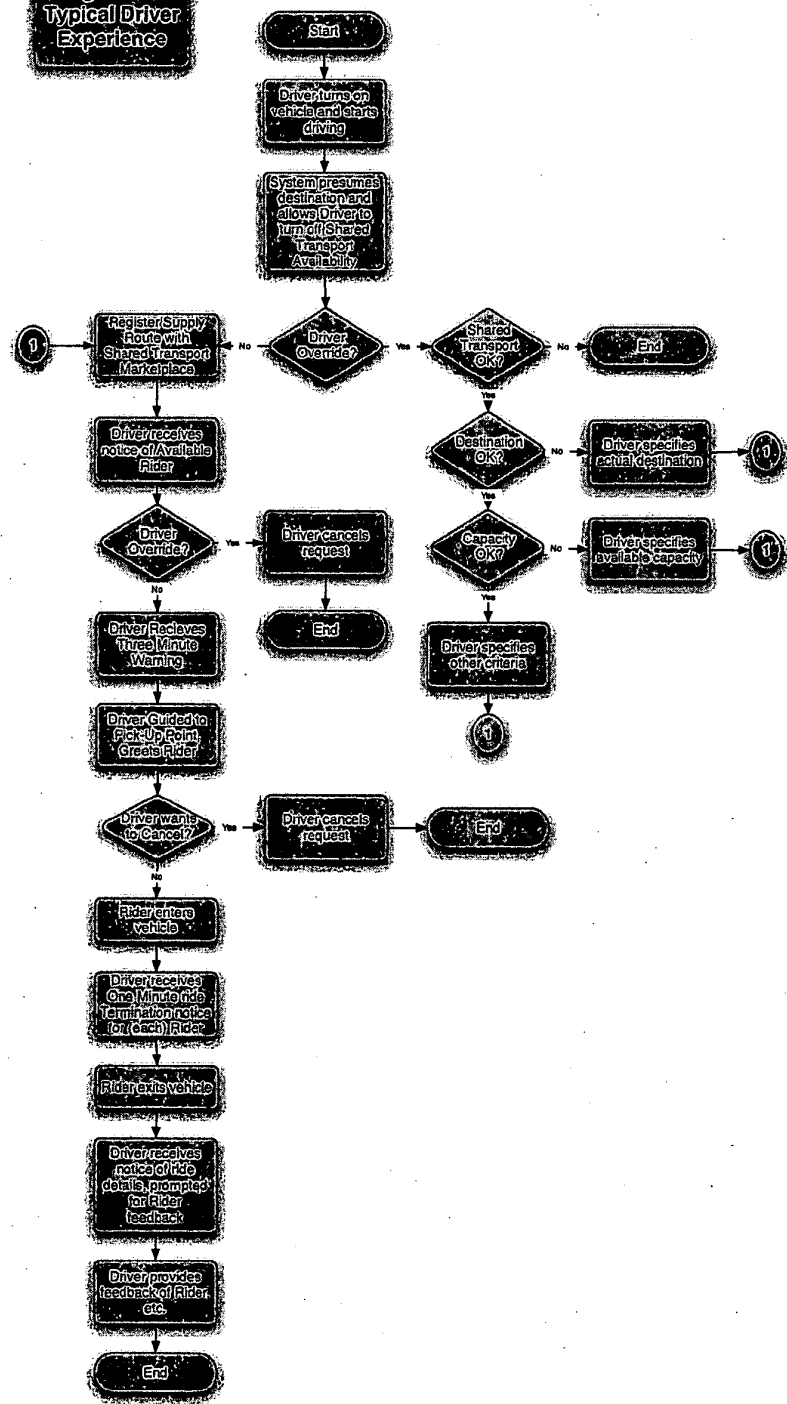
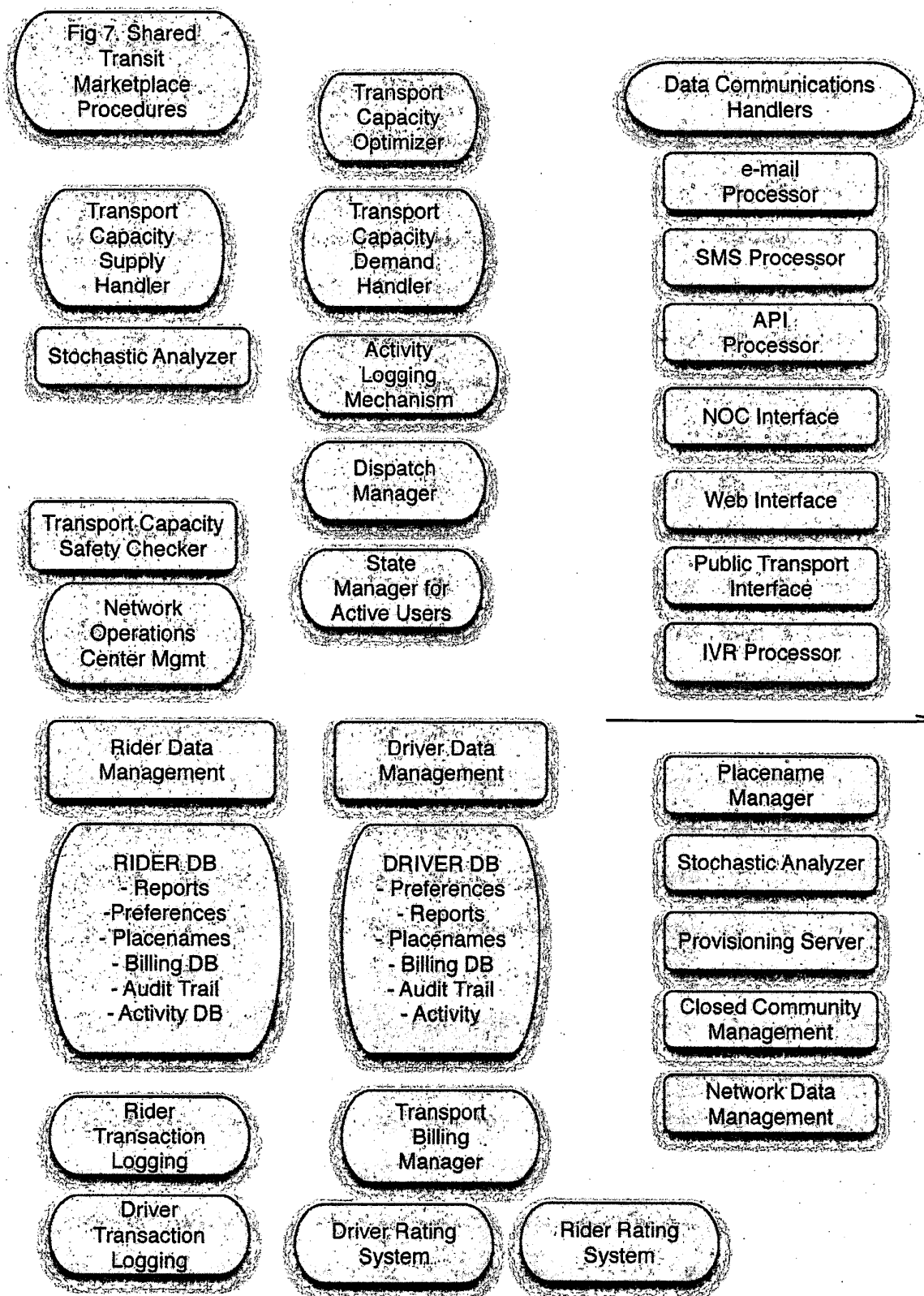


**Figure 6a:
Typical Driver
Experience**





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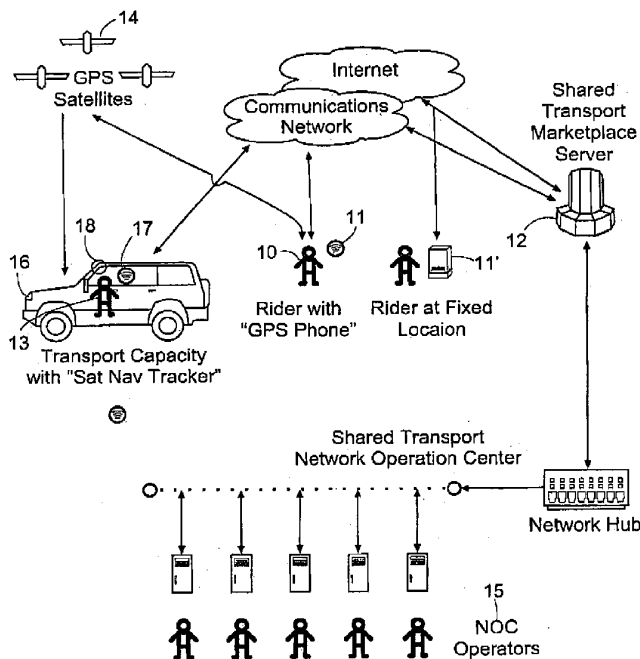
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(54) Title: SHARED TRANSPORT SYSTEM AND SERVICE NETWORK

FIG. 1



(57) Abstract: The network system matches the supply and demand of transportation services by incorporating unused transportation capacity (i.e., empty seats) with a real-time allocation and matching service that enables individuals and goods to conveniently hire that capacity with attractive pricing, rapid responsiveness, better information availability and trusted security. The network system provides an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles, an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of individuals and a central processing capability to effect a match of the transport capacity of at least one transport vehicle with the transport demand of at least one individual.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/01820

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G06Q 10/00 (2008.04) USPC - 705/6 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) USPC: 705/6 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: 180/271; 700/1, 90; 705/1,6,7,8,13 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Electronic Databases Searched: USPTO WEST (PGPUB,USPAT,USOCR,EPAB,JPAB); GOOGLE Patents; DIALOG PRO Search Terms Used: matching carpool/rideshare vehicles/provider + individual/customer/passenger/occupant/rider/driver profiles, spare/empty/unused transport/seat capacity, global positioning (GPS), wireless connectivity, etc.		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/0158483 A1 (LECOUTURIER) 12 August 2004 (12.08.2004)	1-3, 5-6, 8-16
---	Abstract, Para [0002]-[0146]	---
Y		4, 7
Y	US 2004/0049424 A1 (MURRAY et al.) 11 March 2004 (11.03.2004)	4, 7
	Abstract, Para [0004]-[0027], [0046]-[0147]	
A	US 7,080,019 B1 (HURZELER) 18 July 2006 (18.07.2006)	1-16
	Entire Document	
A	US 2006/0259353 A1 (GUTMANN) 16 November 2006 (16.11.2006)	1-16
	Entire Document	
A, P	US 2007/0052586 A1 (HORSTEMEYER) 08 March 2007 (08.03.2007)	1-16
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Date of the actual completion of the international search 04 August 2008 (04.08.2008)		Date of mailing of the international search report 15 AUG 2008
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

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this communication:**

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Date
26.06.09

Reference	Application No./Patent No. 08725447.0 - 1225 PCT/US2008001820
Applicant/Proprietor O'Sullivan, Sean	

Entry into the European phase before the European Patent Office

The following information describes the procedural steps required for entry into the European phase before the European Patent Office (EPO). You are advised to read it carefully because failure to take the necessary action in due time can lead to a loss of rights.

1. The above mentioned international patent application has been given the **European application No. 08725447.0**.
2. Applicants **without a residence or their principal place of business** in an EPC Contracting State may themselves initiate European processing of their international applications, provided they do so before expiry of the 31st month from the priority date.

During the European phase before the EPO as designated or elected Office, however, such applicants **must** be represented by a professional representative (Art. 133(2) and Art. 134(1) and (8) EPC).

Where, at the expiry of the time period laid down in Rule 163(5) EPC, the requirements of Article 133(2) EPC have not been complied with, the European patent application will be **refused**, pursuant to Rule 163(6) EPC.

Please note that a professional representative authorised to act before the EPO and who acted for the applicant during the international phase does not automatically become the representative for the European phase. Applicants are therefore strongly advised to appoint in good time any representative they wish to initiate the European phase for them; otherwise the EPO has to send all communications directly to the applicant.

3. Applicants **with a residence or their principal place of business** in an EPC Contracting State are not obliged to appoint for the European phase a professional representative authorised to act before the EPO. However, in view of the complexity of the procedure it is recommended that they do so.
4. Applicants and professional representatives are also strongly advised to initiate the European phase using **EPO Form 1200**. It is available free of charge from the EPO or via the EPO website at <http://www.epo.org>. Similarly, it can be or generated with the epoline® Online Filing Software, obtainable free of charge from the EPO (<http://www.epoline.org>) The use of the form is not compulsory.

5. Where the EPO acts as designated or elected Office (Art. 22(1) and (3) and 39(1) PCT), to enter the European phase before the EPO, the **following acts** must be performed by the applicant within **31 months** from the date of filing of the international application or (where applicable) the earliest priority date:

- a) Supply a translation of the international application into an EPO official language, if the International Bureau did not publish the application in such language (Art. 22(1) PCT and R. 159(1)(a) EPC);
- b) Specify the application documents, as originally filed or as amended, on which the European grant procedure is to be based (R. 159(1)(c) EPC);
- c) Pay the filing fee and, where applicable, the additional fee for a European patent application comprising more than 35 pages (R. 159(1)(c) EPC, Art. 2, items 1, 1a Rules relating to Fees);
- d) Pay the search fee where a supplementary European search report has to be drawn up (R. 159(1)(e) EPC);
- e) Pay the designation fee if the time limit laid down in Rule 39(1) EPC (i.e. six months after publication of the international search report) has expired before the 31-month period pursuant to Rule 159(1) EPC (R. 159(1)(d) EPC);
- f) File the written request for examination and pay the examination fee if the time limit laid down in Rule 70(1) EPC has expired before the 31-month period pursuant to Rule 159(1) EPC (R. 159(1)(f) EPC);
- g) Pay the renewal fee in respect of the third year, if the fee has fallen due (see Rule 51(1) EPC) before expiry of the 31-month period pursuant to Rule 159(1) EPC (R. 159(1)(g) EPC);
- h) File, where applicable, the certificate of exhibition referred to in Article 55(2) and Rule 25 EPC (R. 159(1)(h) EPC);
- i) Pay the claims fees for the sixteenth and each subsequent claim when the application documents on which the European grant procedure is to be based comprise more than fifteen claims (R. 162(1) EPC). For applications entering the European phase on or after 1 April 2009, a higher amount is payable for the 51st and each subsequent claim (Decision of the Administrative Council of 14 December 2007 amending the Rules relating to Fees, OJ EPO 2008, 10).

If either the translation of the international application or the request for examination is not filed in time, or if the filing fee, the additional fee, the search fee, the designation fee or the examination fee is not paid in due time, the application shall be deemed to be withdrawn (R. 160(1) EPC).

6. Payment of fees

The amounts of fees are set out in the Schedule of fees and expenses, which is published from time to time as a supplement to the Official Journal of the EPO. Applicants should always check the fee amounts applying at the time of payment.

Payments can be validly made by any person. Permissible methods of payment are laid down in Article 5 RFees. Please note that payment cannot be made by cheque sent to the EPO.

For information on the calculation of the additional fee for applications comprising more than 35 pages, see Notice from the European Patent Office dated 26 January 2009 concerning the 2009 fee structure, OJ EPO 2/2009, 118, and Guidelines for Examination in the EPO, April 2009, A-III, 13.2. For an overview of search and examination fees, see Notice from the European Patent Office of 11 February 2008 (OJ EPO 2008, 130).

The above and further fee-related information is available on the EPO website (<http://www.epo.org>).

-
7. If the applicant had appointed a representative during the application's international phase, the present Form will be sent to the representative, asking him to inform the applicant accordingly.

All subsequent communications will be sent to the applicant, or - if the EPO is informed of his appointment in time - to the applicant's European representative.

8. For more details about time limits and procedural acts before the EPO as designated or elected Office, see the EPO brochure "How to get a European patent", Guide for applicants - Part 2, PCT procedure before the EPO - "Euro-PCT".

This brochure, the list of professional representatives before the EPO as well as Form 1200 are available on the Internet under <http://www.epo.org>.

Receiving Section



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 514810.2	FOR FURTHER ACTION	See item 4 below
International application No. PCT/US2008/001820	International filing date (<i>day/month/year</i>) 12 February 2008 (12.02.2008)	Priority date (<i>day/month/year</i>) 12 February 2007 (12.02.2007)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant O'SULLIVAN, Sean		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> .1(a).																								
2.	This REPORT consists of a total of 5 sheets, including this cover sheet. In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	This report contains indications relating to the following items: <table style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;">☒</td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;">☒</td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	☒	Box No. I	Basis of the report	☐	Box No. II	Priority	☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	☐	Box No. IV	Lack of unity of invention	☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	☐	Box No. VI	Certain documents cited	☐	Box No. VII	Certain defects in the international application	☐	Box No. VIII	Certain observations on the international application
☒	Box No. I	Basis of the report																							
☐	Box No. II	Priority																							
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability																							
☐	Box No. IV	Lack of unity of invention																							
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																							
☐	Box No. VI	Certain documents cited																							
☐	Box No. VII	Certain defects in the international application																							
☐	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

	Date of issuance of this report 19 August 2009 (19.08.2009)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Beate Giffo-Schmitt
Facsimile No. +41 22 338 82 70	e-mail: pt03.pct@wipo.int

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
FRANCIS C. HAND
CARELLA, BYRNE, BAIN ET AL
5 BECKER FARM ROAD
ROSELAND, NJ 07068-1739

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year)

15 AUG 2008

Applicant's or agent's file reference
514810.2

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/US 08/01820

International filing date (day/month/year)

12 February 2008 (12.02.2008)

Priority date (day/month/year)

12 February 2007 (12.02.2007)

International Patent Classification (IPC) or both national classification and IPC

IPC(8) - G06Q 10/00 (2008.04)

USPC - 705/6

Applicant O'SULLIVAN, SEAN

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-3201

Date of completion of this opinion

04 August 2008 (04.08.2008)

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 08/01820

Box No. 1 Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed.
 - ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:
 - a. type of material
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing
 - ☐ contained in the international application as filed
 - ☐ filed together with the international application in electronic form
 - ☐ furnished subsequently to this Authority for the purposes of search
4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US 08/01820

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																							
1. Statement <table style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="width: 30%; vertical-align: top;">Novelty (N)</td> <td style="width: 15%;">Claims</td> <td style="width: 40%; border-bottom: 1px solid black;">4. 7</td> <td style="width: 15%; text-align: right;">YES</td> </tr> <tr> <td>Claims</td> <td style="border-bottom: 1px solid black;">1-3, 5-6, 8-16</td> <td style="text-align: right;">NO</td> </tr> <tr> <td rowspan="2" style="vertical-align: top;">Inventive step (IS)</td> <td>Claims</td> <td style="border-bottom: 1px solid black;">NONE</td> <td style="text-align: right;">YES</td> </tr> <tr> <td>Claims</td> <td style="border-bottom: 1px solid black;">1-16</td> <td style="text-align: right;">NO</td> </tr> <tr> <td rowspan="2" style="vertical-align: top;">Industrial applicability (IA)</td> <td>Claims</td> <td style="border-bottom: 1px solid black;">1-16</td> <td style="text-align: right;">YES</td> </tr> <tr> <td>Claims</td> <td style="border-bottom: 1px solid black;">NONE</td> <td style="text-align: right;">NO</td> </tr> </table>				Novelty (N)	Claims	4. 7	YES	Claims	1-3, 5-6, 8-16	NO	Inventive step (IS)	Claims	NONE	YES	Claims	1-16	NO	Industrial applicability (IA)	Claims	1-16	YES	Claims	NONE	NO
Novelty (N)	Claims	4. 7	YES																					
	Claims	1-3, 5-6, 8-16	NO																					
Inventive step (IS)	Claims	NONE	YES																					
	Claims	1-16	NO																					
Industrial applicability (IA)	Claims	1-16	YES																					
	Claims	NONE	NO																					
2. Citations and explanations: Claims 1-3, 5-6 and 8-16 lack novelty under PCT Article 33(2) as being anticipated by US 2004/0158483 A1 to LECOUTURIER. In regard to claim 1, Lecouturier discloses a method of sharing transportation (para [0078]-[0080]), providing an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles (para [0083], [0090]), providing an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of individuals (para [0079]-[0080], [0085], [0129]-[0131]), and providing a central processing capability to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one individual in said electronic registry of demand (para [0086]). In regard to claim 2, Lecouturier discloses indication of transport demand includes start and destination locations (para [0085]-[0086] [0111]). In regard to claim 3, Lecouturier discloses indication of transport demand includes at least one of needed capacity of seats, baby seats and wheelchair access (para [0090], [0106], [0139]). In regard to claim 5, Lecouturier discloses the step of providing automated communication between a matched transport vehicle and individual (para [0131]-[0137]). In regard to claim 6, Lecouturier discloses the step of directing a matched transport vehicle to a geographic location of the matched individual (para [0089], [0131], [0135]-[0137]). In regard to claim 8, Lecouturier discloses the step of tracking the pickup and delivery of the matched individual by the matched transport vehicle (para [0129]-[0139]). In regard to claim 9, Lecouturier discloses the step of automatically reallocating and rescheduling a missed pick-up of a matched individual to another matched transport vehicle in said registry of capacity (para [0085], [0090], [0104]-[0114], [0139]). In regard to claim 10, Lecouturier discloses the step of automatically determining the distance between said matched transport vehicle and said matched individual (para [0114], [0118]-[0119]). In regard to claim 11, Lecouturier discloses a ground transportation network (para [0078]-[0080]), an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles (para [0083], [0090]), an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of individuals (para [0079]-[0080], [0085], [0129]-[0131]), and a central processing capability to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one individual in said electronic registry of demand (para [0086]). In regard to claim 12, Lecouturier discloses a plurality of wireless data communicators, each said communicator being disposed in a respective transport vehicle for delivering information to said electronic registry of capacity indicative of the spare transport capacity and location of said respective transport vehicle (para [0023], [0088]-[0090], [0104]-[0108]). In regard to claim 13, Lecouturier discloses a plurality of means for delivering information to said electronic registry of demand indicative of the transport demands of a plurality of individuals (para [0085]-[0086]). In regard to claim 14, Lecouturier discloses a network operations center for effecting at least one of bringing service irregularities to the attention of operations personnel, alerting operations personnel to a missed pick-up, providing automated escalation of response of a transport vehicle, continuously tracking a transportation vehicle and booking a request for service (para [0126], [0134]-[0139]). [continued supplemental box]																								

Form PCT/ISA/237 (Box No. V) (April 2007)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 08/01820

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

[supplemental box V.2: Reasoned Statement]

In regard to claim 15, Lecouturier discloses secondary registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles in at least one of a public and private transportation network (para [0126], [0134]-[0139]) and said central processing capability further effects a match of said transport capacity of at least one transport vehicle in said secondary registry of capacity with said transport demand of said at least one individual in said electronic registry of demand (para [0086]).

In regard to claim 16, Lecouturier discloses means for tracking usage of the network by transport vehicles and individuals (para [0080]-[0090]).

Claims 4 and 7 lack an inventive step under PCT Article 33(3) as being obvious over LECOUTURIER as detailed prior, in view of US 2004/0049424 A1 to MURRAY et al. (hereinafter Murray).

In regard to claim 4, while Lecouturier discloses the invention of Claim 1, Lecouturier does not expressly disclose indication of transport demand includes requirements for a transport provider to be of at least one of a predetermined level of experience, gender, or membership in a predetermined community.

However, Murray expressly discloses indication of transport demand includes requirements for a transport provider to be of at least one of a predetermined level of experience, gender, or membership in a predetermined community (para [0139]).

It would have been obvious to one skilled in the art to modify the transportation rideshare match effecting system and method set forth by Lecouturier with the transportation rideshare match effecting system and methods utilizing drivers and riders profiles in order to more efficiently match drivers and riders participating in a ridesharing arrangement by aligning persons interests, preferences, and specifications (Lecouturier, para [0003]-[0004], [0047], Murray para [0012]-[0013], [0084]-[0087], [0136]-[0141]).

In regard to claim 7, while Lecouturier discloses the invention substantially as claimed, Lecouturier does not expressly disclose the step of providing identifying characteristics of a matched transport vehicle to the matched individual and identifying characteristics of a matched individual to the matched transport vehicle.

However, Murray expressly discloses the step of providing identifying characteristics of a matched transport vehicle to the matched individual and identifying characteristics of a matched individual to the matched transport vehicle (para [0084]-[0087], [0136]-[0141]).

It would have been obvious to one skilled in the art to modify the transportation rideshare match effecting system and method set forth by Lecouturier with the transportation rideshare match effecting system and methods utilizing drivers and riders profiles in order to more efficiently match drivers and riders participating in a ridesharing arrangement by aligning persons interests, preferences, and specifications (Lecouturier, para [0003]-[0004], [0047], Murray para [0012]-[0013], [0084]-[0087], [0136]-[0141]).

Claims 1-16 have industrial applicability as defined by PCT Article 33(4) because the subject matter claimed can be made or used in industry.



1 General authorisation

General authorisation No.
(For official use only)

Please forward the original direct to the EPO, Legal Division (Dir. 5.2.4) in Munich.
Please read the attached notes before completing the form.

2 I (We)

O'SULLIVAN, Sean
~~Gliff House,~~ LONG QUAY HOUSE
~~Compass Hill,~~ PEARSE STREET
Kinsale,
County Cork,
Ireland

Full name
and address
of authorisor(s)

3 do hereby authorise

WELDON, Michael J.
Professional Representative
John A O'Brien & Associates
Third Floor, Duncairn House,
14 Carysfort Avenue, Blackrock,
County Dublin, Ireland.

Full name
and address
of authorisee:
professional representative,
legal practitioner, employee,
association of representatives.
Please specify

4 to represent me (us) in all proceedings established by the European Patent Convention and to act for me (us) in all patent transactions,



This authorisation includes the power to receive payments on my (our) behalf.



This authorisation shall also apply to the same extent to any proceedings established by the Patent Cooperation Treaty.

5



Sub-authorisation may be given.



Additional representatives indicated on supplementary sheet.

6



Please return a copy, supplemented by the general authorisation number, to the authorisor.

Cork

Place

Sean O'Sullivan

Name (printed)

14 August 2009

Date

Position within the company

Sean O'Sullivan

Signature*

- * The form must bear the personal signature(s) of the authorisor(s). In the case of legal persons, the signature must be that of the person empowered to sign on behalf of the company. If possible, please sign in blue.



Payment of fees and costs

Zur Kasse

European Patent Office
Directorate Cash and Accounts
D-80298 München
Fax: (+49-89) 2399-2528

Please complete using a typewriter or a word processor

01	Name of payer	John A O'Brien & Associates	Payer's reference	AVEG01/C/EP
	Address	Third Floor, Duncairn House, 14 Carysfort Avenue, Blackrock, Co. Dublin, Ireland	Mode of payment	Bank/Giro Office
			☐ Bank/Giro transfer ¹	
			☐ Enclosed Cheque No.	
			☒ Debit from deposit account with the EPO is requested ²	Deposit account No. 28060011

03	Patent application / Patent No. (A separate form is required for each application)	03
EP	08725447.0	PCT US2008/001820

New European Patent Application entitled: SHARED TRANSPORT SYSTEM AND SERVICE NETWORK

	Code		Currency ³	Amount
04	001	Filing fee	EUR	180.00
05	002	Search fee		
06	005	Designation fee(s) ⁴	EUR	500.00
07	015	Claims fee(s) (Rule 31(1) EPC)	EUR	400.00
08	055	Additional copy		
09	006	Examination fee	EUR	1252.00
10	007	Fee for grant including fee for printing (up to 35 pages)		
11	008	Additional fee for printing (more than 35 pages)	EUR	744.00
12	033	Renewal fee for the 3rd year		
13	034	Renewal fee for the 4th year		
14	035	Renewal fee for the 5th year		
15		Extension fee(s) for ⁵ :		
16				
17				
18				
19				
20				
21				
22		Total	EUR	3,076.00

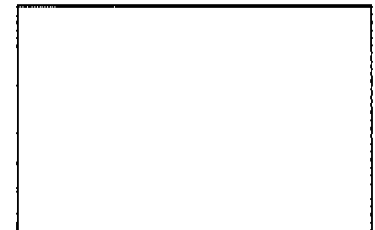
Signature	Place, Date Dublin, September 10, 2009
-----------	---

EPO Form 1010 07.00 web.pdf Explanations 1 - 5 see overleaf.



Nur für amtlichen Gebrauch / For official use only / Cadre réservé à l'administration

An das Europäische Patentamt
To the European Patent Office
A l'Office européen des brevets



Tag des Eingangs / Date of receipt / Date de réception

Eintritt in die europäische Phase (EPA als Bestimmungsamt oder ausgewähltes Amt)

Entry into the European phase (EPO as designated or elected Office)

Entrée dans la phase européenne (l'OEB agissant en qualité d'office désigné ou élu)

Europäische Anmeldenummer oder, falls nicht bekannt, PCT-Aktenzeichen oder PCT-Veröffentlichungsnummer

European application number or, if not known, PCT application or PCT publication number

Numéro de la demande de brevet européen ou, à défaut, numéro de dépôt PCT ou de publication PCT

EP08725447.0

Zeichen des Anmelders oder Vertreters (max. 15 Positionen)

Applicant's or representative's reference (max. 15 keystrokes)

Référence du demandeur ou du mandataire (15 caractères ou espaces au maximum)

AVEG01/C/EP

1.

Anmelder

Applicant

Demandeur



Die Angaben über den (die) Anmelder sind in der internationalen Veröffentlichung enthalten oder vom Internationalen Büro nach der internationalen Veröffentlichung vermerkt worden.

Indications concerning the applicant(s) are contained in the international publication or recorded by the International Bureau after the international publication.

Les indications concernant le(s) demandeur(s) figurent dans la publication internationale ou ont été enregistrées par le Bureau international après la publication internationale.



Änderungen, die das Internationale Büro noch nicht vermerkt hat, sind auf einem Zusatzblatt angegeben.

Changes which have not yet been recorded by the International Bureau are set out on an additional sheet.

Les changements qui n'ont pas encore été enregistrés par le Bureau international sont indiqués sur une feuille additionnelle.



Fehlende Angaben über den oder die Anmelder sind auf einem Zusatzblatt angegeben.

Indications missing for the applicant(s) are given on an additional sheet.

Les indications manquantes concernant un ou plusieurs demandeurs sont mentionnées sur une feuille additionnelle.

Zustellanschrift
(siehe Merkblatt II, 1)

Address for correspondence
(see Notes II, 1)

Adresse pour la correspondance
(voir notice II, 1)

Zeichen des Anmelders / Applicant's reference / Référence du demandeur

AVEG01/C/EP

1

1a**Change of Address of Applicant**

The applicant's address has changed, as indicated in the enclosed Power of Attorney to:

Mr. Seán O'Sullivan,
Long Quay House,
Pearse Street,
Kinsale,
County Cork,
Ireland.

1a

2.	Vertreter	Representative	Mandataire
	Name und Geschäftsanschrift (Nur einen Vertreter oder den Namen des Zusammenschlusses angeben, der in das Europäische Patentregister einzutragen ist und an den zugestellt wird)	Name and address of place of business (Name only one representative or association of representatives, to be listed in the Register of European Patents and to whom communications are to be notified)	Nom et adresse professionnelle (N'indiquer qu'un seul mandataire ou le nom du groupement de mandataires qui sera inscrit au Registre européen des brevets et auquel les significations seront faites)
	Michael J. Weldon, John A. O'Brien & Associates Third Floor, Duncairn House, 14 Carysfort Avenue, Blackrock, County Dublin, Ireland		
	Telefon / Telephone / Téléphone +353 1 288 3877	Fax / Télécopie +353 1 288 3878	
	☒ Weitere(r) Vertreter auf Zusatzblatt	Additional representative(s) on additional sheet	Autre(s) mandataire(s) sur feuille supplémentaire
3.	Vollmacht	Authorisation	Pouvoir
	☐ Vollmacht ist beigelegt.	Authorisation is attached.	Un pouvoir est joint.
	☐ Allgemeine Vollmacht ist registriert unter Nr.:	General authorisation is registered under No.:	Un pouvoir général est enregistré sous le n° :
	☒ Allgemeine Vollmacht ist eingereicht, aber noch nicht registriert.	A general authorisation has been filed, but not yet registered.	Un pouvoir général a été déposé, mais n'est pas encore enregistré.
	☐ Die beim EPA als PCT-Anmeldeamt eingereichte Vollmacht schließt ausdrücklich die europäische Phase ein.	The authorisation filed with the EPO as PCT receiving Office expressly includes the European phase.	Le pouvoir déposé à l'OEB agissant en qualité d'office récepteur au titre du PCT inclut expressément la phase européenne.
4.	Prüfungsantrag	Request for examination	Requête en examen
4.1	☒ Hiermit wird die Prüfung der Anmeldung gemäß Artikel 94 EPÜ beantragt. Die Prüfungsgebühr wird (wurde) entrichtet.	Examination of the application under Article 94 EPC is hereby requested. The examination fee is being (has been, will be) paid.	Il est demandé par la présente que soit examinée la demande de brevet conformément à l'article 94 CBE. Il est (a été, sera) procédé au paiement de la taxe d'examen.
	Prüfungsantrag in einer zugelassenen Nichtamtssprache (siehe Merkblatt III, 19.2):	Request for examination in an admissible non-EPO language (see Notes III, 19.2):	Requête en examen dans une langue non officielle autorisée (voir notice III, 19.2) :
	Iarrtar leis seo scrúdu an iarratais de bhun Airteagal 94		
4.2	☐ Der Anmelder verzichtet auf die Aufforderung nach Regel 70 (2) EPÜ, zu erklären, ob die Anmeldung aufrechterhalten wird.	The applicant waives his right to be asked under Rule 70(2) EPC whether he wishes to proceed further with the application.	Le demandeur renonce à être invité, conformément à la règle 70(2) CBE, à déclarer s'il souhaite maintenir sa demande.
5.	Abschriften	Copies	Copies
	☐ Zusätzliche Abschriften der im ergänzenden europäischen Recherchenbericht angeführten Schriftstücke werden beantragt.	Additional copies of the documents cited in the supplementary European search report are requested.	Prière de fournir des copies supplémentaires des documents cités dans le rapport complémentaire de recherche européenne.
	Anzahl der zusätzlichen Sätze von Abschriften	Number of additional sets of copies	Nombre de jeux supplémentaires de copies

 Zeichen des Anmelders / Applicant's
 reference / Référence du demandeur

AVEG01/C/EP

2a**Additional representative(s)****Name(s):**

O'BRIEN, John, A

MURNAGHAN, Sarah

Address of place of business:

John A O'Brien & Associates

Third Floor

Duncairn House

14 Carysfort Avenue

Blackrock

County Dublin

Ireland

Telephone:

+ 353 1 2883877

Fax:

+ 353 1 2883878

6. **Für das Verfahren vor dem EPA und die Berechnung der Zusatzgebühr bestimmte Unterlagen** **Documents intended for proceedings before the EPO and for calculating the additional fee** **Pièces destinées à la procédure devant l'OEB et au calcul de la taxe additionnelle**
- 6.1 Dem Verfahren vor dem EPA als **Bestimmungsamt** (PCT I) sind folgende Unterlagen zugrunde zu legen: Proceedings before the EPO as **designated Office** (PCT I) are to be based on the following documents: La procédure devant l'OEB agissant en qualité d'**office désigné** (PCT I) doit se fonder sur les pièces suivantes :
- ☒ die vom Internationalen Büro veröffentlichten **Anmeldungsunterlagen** (mit allen Ansprüchen, Beschreibung und Zeichnungen), gegebenenfalls mit den geänderten Ansprüchen nach Artikel 19 PCT the **application documents published** by the International Bureau (with all claims, description and drawings), where applicable with amended claims under Article 19 PCT les **pièces de la demande publiées** par le Bureau international (avec toutes les revendications, la description et les dessins), éventuellement avec les revendications modifiées conformément à l'article 19 PCT
- ☒ soweit sie nicht ersetzt werden durch die beigefügten Änderungen. unless replaced by the **amendments** enclosed. dans la mesure où elles ne sont pas remplacées par les **modifications** jointes.
- ☐ Siehe Angaben in der Tabelle auf Seite 7. See indications given in table on page 7. Voir les indications figurant au tableau de la page 7.
- 6.2 Dem Verfahren vor dem EPA als **ausgewähltem Amt** (PCT II) sind folgende Unterlagen zugrunde zu legen: Proceedings before the EPO as **elected Office** (PCT II) are to be based on the following documents: La procédure devant l'OEB agissant en qualité d'**office élu** (PCT II) doit se fonder sur les pièces suivantes :
- ☒ die dem Internationalen vorläufigen Prüfungsbericht zugrunde gelegten **Unterlagen**, einschließlich etwaiger Anlagen the documents on which the **international preliminary examination report** is based, including any annexes les **pièces sur lesquelles se fonde le rapport d'examen préliminaire** international, y compris ses annexes éventuelles
- ☐ soweit sie nicht ersetzt werden durch die beigefügten Änderungen. unless replaced by the **amendments** enclosed. dans la mesure où elles ne sont pas remplacées par les **modifications** jointes.
- ☐ Siehe Angaben in der Tabelle auf Seite 7. See indications given in table on page 7. Voir les indications figurant au tableau de la page 7.
- ☒ Sind dem EPA als mit der internationalen vorläufigen Prüfung beauftragter Behörde **Versuchsberichte** zugegangen, dürfen diese dem Verfahren vor dem EPA zugrunde gelegt werden. If the EPO as International Preliminary Examining Authority has received **test reports**, these may be used as the basis of proceedings before the EPO. Si l'OEB, agissant en qualité d'administration chargée de l'examen préliminaire international, a reçu des **rapports d'essais**, ceux-ci peuvent être utilisés comme base dans la procédure devant l'OEB.
7. **Übersetzungen** **Translations** **Traductions**
- Beigefügt sind die nachfolgend angekreuzten Übersetzungen in einer der Amtssprachen des EPA (Deutsch, Englisch, Französisch): Translations in one of the official languages of the EPO (English, French, German) are enclosed as crossed below: Vous trouverez, ci-joint, les traductions cochées ci-après dans l'une des langues officielles de l'OEB (allemand, anglais, français) :
- a) Im Verfahren vor dem EPA als **Bestimmungsamt** oder **ausgewähltem Amt** (PCT I + II): (a) In proceedings before the EPO as **designated or elected Office** (PCT I + II): a) Dans la procédure devant l'OEB agissant en qualité d'**office désigné ou élu** (PCT I + II) :
- 7.1 ☐ Übersetzung der internationalen **Anmeldung** in der ursprünglich eingereichten Fassung (Beschreibung, Ansprüche, etwaige Textbestandteile in den Zeichnungen), der veröffentlichten Zusammenfassung und etwaiger Angaben über biologisches Material nach Regel 13bis.3 und 13bis.4 PCT Translation of the **international application** (description, claims, any text in the drawings) as originally filed, of the abstract as published and of any indication under Rule 13bis.3 and 13bis.4 PCT regarding biological material Traduction de la **demande internationale** telle que déposée initialement (description, revendications, textes figurant éventuellement dans les dessins), de l'abrégé publié et de toutes indications visées aux règles 13bis.3 et 13bis.4 PCT concernant le matériel biologique
- 7.2 ☐ Übersetzung der **prioritätsbegründenden Anmeldung(en)** (nur nach Aufforderung durch das EPA, Regel 53 (3) EPÜ) Translation of the **priority application(s)** (to be filed only at the EPO's request, Rule 53(3) EPC) Traduction de la (des) **demande(s) dont la priorité est revendiquée** (à produire seulement sur invitation de l'OEB, règle 53(3) CBE)
- 7.3 ☐ Es wird hiermit erklärt, dass die internationale Anmeldung in ihrer ursprünglich eingereichten Fassung eine vollständige Übersetzung der früheren Anmeldung ist (Regel 53 (3) EPÜ). It is hereby declared that the international application as originally filed is a complete translation of the previous application (Rule 53(3) EPC). Il est déclaré par la présente que la demande internationale telle que déposée initialement est une traduction intégrale de la demande antérieure (règle 53(3) CBE).

Zeichen des Anmelders / Applicant's reference / Référence du demandeur

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- b) Zusätzlich im Verfahren vor dem EPA als Bestimmungsamt (PCT I):** **(b) In addition, in proceedings before the EPO as designated Office (PCT I):** **b) De plus, dans la procédure devant l'OEB agissant en qualité d'office désigné (PCT I) :**
- 7.4 ☐ Übersetzung der nach Artikel 19 PCT **geänderten Ansprüche** nebst Erklärung, falls diese dem Verfahren vor dem EPA zugrunde gelegt werden sollen (siehe Feld 6). Translation of amended claims and any statement under Article 19 PCT, if the claims as amended are to form the basis for the proceedings before the EPO (see Section 6). Traduction des revendications modifiées et de la déclaration faite conformément à l'article 19 PCT, si la procédure devant l'OEB doit être fondée sur les revendications modifiées (voir la rubrique 6).
- c) Zusätzlich im Verfahren vor dem EPA als ausgewähltem Amt (PCT II):** **(c) In addition, in proceedings before the EPO as elected Office (PCT II):** **c) De plus, dans la procédure devant l'OEB agissant en qualité d'office élu (PCT II) :**
- 7.5 ☐ Übersetzung der Anlagen zum internationalen vorläufigen Prüfungsbericht Translation of any annexes to the international preliminary examination report Traduction des annexes du rapport d'examen préliminaire international
- 8. Biologisches Material** **Biological material** **Matière biologique**
- ☐ Die Erfindung verwendet und/oder bezieht sich auf biologisches Material, das nach Regel 31 EPÜ hinterlegt worden ist. The invention uses and/or relates to biological material deposited under Rule 31 EPC. L'invention utilise et/ou concerne de la matière biologique déposée conformément à la règle 31 CBE.
- ☐ Die Angaben nach Regel 31 (1) c) EPÜ (falls noch nicht bekannt, die Hinterlegungsstelle und das (die) vom Hinterleger zugeteilte(n) Bezugszeichen [Nummer, Symbole usw.]) sind in der internationalen Veröffentlichung oder in der gemäß Feld 7 eingereichten Übersetzung enthalten auf Seite(n)/Zelle(n): The particulars referred to in Rule 31(1)(c) EPC (if not yet known, the depository institution and the identification reference(s) [number, symbols, etc.] of the depositor) are given in the international publication or in the translation submitted under Section 7 on page(s)/line(s): Les indications visées à la règle 31(1)(c) CBE (si elles ne sont pas encore connues, l'autorité de dépôt et la (les) référence(s) d'identification [numéro ou symboles etc.] du déposant) figurent dans la publication internationale ou dans la traduction produite conformément à la rubrique 7 à la/aux page(s)/ligne(s) :
-
- Die Empfangsbescheinigung(en) der Hinterlegungsstelle** **The receipt(s) of deposit issued by the depository institution** **Le(s) récépissé(s) de dépôt délivré(s) par l'autorité de dépôt**
- ☐ ist (sind) beigelegt. is (are) enclosed. est (sont) joint(s).
- ☐ wird (werden) nachgereicht. will be filed later. sera (seront) produit(s) ultérieurement.
- ☐ Verzicht auf die Verpflichtung des Antragstellers nach Regel 33 (2) EPÜ auf gesondertem Schriftstück Waiver of the right to an undertaking from the requester pursuant to Rule 33(2) EPC attached Renoncation, sur document distinct, à l'engagement du requérant au titre de la règle 33(2) CBE
- 9. Nucleotid- und Aminosäuresequenzen** **Nucleotide and amino acid sequences** **Séquences de nucléotides et d'acides aminés**
- 9.1 ☐ Die nach den Regeln 5.2 und 13ter PCT sowie den Regeln 30 und 163 (3) EPÜ erforderlichen Unterlagen liegen dem EPA bereits vor. The items pursuant to Rules 5.2 and 13ter PCT, Rules 30 and 163(3) EPC are already with the EPO. Les pièces requises conformément aux règles 5.2 et 13ter PCT et aux règles 30 et 163(3) CBE ont déjà été déposées auprès de l'OEB.
- 9.2 ☐ Das Sequenzprotokoll wird anliegend auf Papier nachgereicht. The sequence listing is furnished herewith on paper. Le listage de séquences sur papier est produit ci-joint.
- 9.3 ☐ Der vorgeschriebene elektronische Datenträger ist beigelegt. The prescribed electronic data carrier is enclosed. Le support électronique de données prescrit est joint.
- ☐ Die auf dem elektronischen Datenträger gespeicherte Information stimmt mit dem auf Papier eingereichten Sequenzprotokoll überein. The information recorded on the electronic data carrier is identical to the sequence listing filed on paper. L'information figurant sur le support électronique de données est identique à celle que contient le listage de séquences déposé sur papier.
- 9.4 ☐ Das Sequenzprotokoll geht nicht über den Inhalt der Anmeldung in der ursprünglich eingereichten Fassung hinaus. The sequence listing does not include matter which goes beyond the content of the application as filed. Le listage de séquences ne contient pas d'éléments s'étendant au-delà du contenu de la demande telle qu'elle a été déposée.

Zeichen des Anmelders / Applicant's
reference / Référence du demandeur

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10.	Benennung von Vertragsstaaten	Designation of contracting states	Désignation d'Etats contractants
	Alle Vertragsstaaten ¹ , die dem EPÜ bei Einreichung der internationalen Patentanmeldung angehören, gelten als benannt (siehe Artikel 79 (1) EPÜ), soweit sie in der internationalen Anmeldung bestimmt sind ² .	All the contracting states ¹ party to the EPC at the time of filing of the international patent application and designated in the international application are deemed to be designated ² (see Article 79(1) EPC).	Tous les Etats contractants ¹ qui sont parties à la CBE lors du dépôt de la demande de brevet internationale et sont désignés dans la demande internationale sont réputés désignés ² (voir article 79(1) CBE).
11.	Erstreckung des europäischen Patents	Extension of the European patent	Extension des effets du brevet européen
	Diese Anmeldung gilt als Antrag, die europäische Patentanmeldung und das darauf erteilte europäische Patent auf alle in der internationalen Anmeldung bestimmten Nichtvertragsstaaten des EPÜ zu erstrecken, mit denen am Tag der Einreichung der internationalen Anmeldung Erstreckungsabkommen in Kraft sind ³ . Der Antrag gilt jedoch als zurückgenommen, wenn die Erstreckungsgebühr nicht fristgerecht entrichtet wird.	This application is deemed to be a request to extend the European patent application and the European patent granted in respect of it to all non-contracting states to the EPC designated in the international application and with which extension agreements are in force on the date on which the international application is filed ³ . However, the request is deemed withdrawn if the extension fee is not paid within the prescribed time limit.	La présente demande est réputée constituer une requête en extension des effets de la demande de brevet européen et du brevet européen délivré sur la base de cette demande à tous les Etats non parties à la CBE qui sont désignés dans la demande internationale et avec lesquels des accords d'extension sont en vigueur à la date du dépôt de la demande internationale ³ . Cette requête est toutefois réputée retirée si la taxe d'extension n'est pas acquittée en temps utile.
	Es ist beabsichtigt, diese Gebühr(en) für folgende Staaten zu entrichten:	It is intended to pay the fee(s) for the following state(s):	Il est envisagé de payer la(les) taxe(s) d'extension pour les Etats suivants :
	Hinweis: Im automatischen Abbuchungsverfahren werden nur für die hier angekreuzten Staaten Erstreckungsgebühren abgebucht, sofern dem EPA nicht vor Ablauf der Zahlungsfrist ein anderslautender Auftrag zugeht.	Note: Under the automatic debiting procedure, extension fees will only be debited for states indicated here, unless the EPO is instructed otherwise before expiry of the period for payment.	Veuillez noter que dans le cadre de la procédure de prélèvement automatique des taxes d'extension, le compte est débité du montant dû seulement pour les Etats cochés ici, sauf instruction contraire reçue avant l'expiration du délai de paiement.
☐	AL Albanien	Albania	Albanie
☐	BA Bosnien und Herzegowina	Bosnia and Herzegovina	Bosnie-Herzégovine
☐	HR Kroatien	Croatia	Croatie
☐	MK Ehemalige jugoslawische Republik Mazedonien	Former Yugoslav Republic of Macedonia	Ex-République yougoslave de Macédoine
☐	RS Serbien	Serbia	Serbie
☐			

4

12.	Automatischer Abbuchungsauftrag (Nur möglich für Inhaber von beim EPA geführten laufenden Konten)	Automatic debit order (for EPO deposit account holders only)	Ordre de prélèvement automatique (possibilité offerte uniquement aux titulaires de comptes courants ouverts auprès de l'OEB)
☐	Das EPA wird hiermit ermächtigt, fällige Gebühren und Auslagen nach Maßgabe der Vorschriften über das automatische Abbuchungsverfahren vom unten stehenden laufenden Konto abzubuchen.	The EPO is hereby authorised, under the Arrangements for the automatic debiting procedure, to debit from the deposit account below any fees and costs falling due.	Par la présente, il est demandé à l'OEB de prélever du compte courant ci-dessous les taxes et frais venant à échéance, conformément à la réglementation relative à la procédure de prélèvement automatique.
	Nummer und Kontoinhaber	Number and account holder	Numéro et titulaire du compte
13.	☒ Etwaige Rückzahlungen sollen auf das unten stehende beim EPA geführte laufende Konto erfolgen	Any refunds should be made to the EPO deposit account below	Les remboursements éventuels doivent être effectués sur le compte courant ci-dessous ouvert auprès de l'OEB
	Nummer und Kontoinhaber	Number and account holder	Numéro et titulaire du compte
	28060011 John A. O'Brien & Associates		
14.	Ort / Datum	Place / Date	Lieu / Date
	Dublin / September 10, 2009		
	Unterschrift(en) des (der) Anmelder(s) oder Vertreter	Signature(s) of applicant(s) or representative	Signature(s) du (des) demandeur(s) ou du mandataire
	Name(n) des (der) Unterzeichneter bitte in Druckschrift wiederholen und bei juristischen Personen auch die Stellung des (der) Unterzeichneten innerhalb der Gesellschaft angeben.	Under signature please print name and, in the case of legal persons, position within the company.	Prière d'indiquer en caractères d'imprime- rie le ou les noms des signataires ainsi que, s'il s'agit d'une personne morale, la position occupée au sein de celle-ci par le ou les signataires.
	 Michael J. Weldon		
	Für Angestellte (Art. 133 (3) EPÜ) mit allgemeiner Vollmacht Nr.:	For employees (Art. 133(3) EPC) with general authorisation No.:	Pour les employés (art. 133(3) CBE) disposant d'un pouvoir général n° :

**Tabelle zu Feld 6
des Formblatts 1200.3**

Gemäß der Mitteilung des Europäischen Patentamts vom 26. Januar 2009 über die Gebührenstruktur 2009 (ABl. EPA 2009, 118 und Richtlinien für die Prüfung im EPA, April 2009, A-III, 13.2) wird die Zusatzgebühr (Art. 2 Nr. 1a Gebührenordnung) für die Seiten dieser europäischen Patentanmeldung wie folgt berechnet:

**Table for section 6
of Form 1200.3**

In accordance with the Notice from the European Patent Office dated 26 January 2009 concerning the 2009 fee structure (OJ EPO 2009, 118, and Guidelines for Examination in the EPO, April 2009, A-III, 13.2), the amount of the additional fee (Art. 2, item 1a, Rules relating to Fees) for the pages of this European patent application is calculated as follows:

**Tableau afférent
à la rubrique 6
du formulaire 1200.3**

Conformément au Communiqué de l'Office européen des brevets en date du 26 janvier 2009, relatif à la structure des taxes 2009 (JO OEB 2009, 118 et Directives relatives à l'examen pratiqué à l'OEB, avril 2009, A-III, 13.2), le montant de la taxe additionnelle (article 2, point 1bis du règlement relatif aux taxes) due pour les pages de la présente demande de brevet européen est calculé comme suit :

Für das Verfahren vor dem EPA (R. 159 (1) b) EPÜ) und die Berechnung der Zusatzgebühr (Art. 2 Nr. 1a GebO) bestimmte Unterlagen:⁶ / Documents intended for proceedings before the EPO (R. 159(1)(b) EPC) and for calculating the additional fee (Art. 2, item 1a, RFees):⁶ /
Pièces destinées à la procédure devant l'OEB (règle 159(1)b) CBE) et au calcul de la taxe additionnelle (art. 2, point 1bis RRT):⁶

		Seite(n) von ... bis ... ⁶ Page(s) from ... to ... ⁶ Page(s) ... à ... ⁶	Anzahl der Seiten ⁷ Number of pages ⁷ Nombre de pages ⁷
Veröffentlichte Fassung der internationalen Anmeldung (einschließlich etwaiger geänderter Ansprüche nach Art. 19 PCT) / International application as published (inclusive any amended claims Art. 19 PCT) / Demande internationale telle que publiée (y compris des éventuelles revendications modifiées en vertu de l'art. 19 PCT)	Beschreibung / description / description	1 to 60	60
	Ansprüche / claims / revendications		
	Zeichnungen / drawings / dessins	1/32 to 32/32	32
	Zusammenfassung / abstract / abrégé		1
Gesondert veröffentlichte geänderte Ansprüche nach Art. 19 PCT / Amended claims Art. 19 PCT, where published separately / Revendications modifiées en vertu de l'art. 19 PCT, si elles ont été publiées séparément			
Änderungen nach Art. 34 PCT / Amendments Art. 34 PCT / Modifications en vertu de l'art. 34 PCT	Beschreibung / description / description		
	Ansprüche / claims / revendications	61 to 64	4
	Zeichnungen / drawings / dessins		
Beim Eintritt in die europäische Phase eingereichte Änderungen / Amendments filed on entry into European phase / Modifications présentées lors de l'entrée dans la phase européenne	Beschreibung / description / description		
	Ansprüche / claims / revendications		
	Zeichnungen / drawings / dessins		
Anzahl der Seiten insgesamt / Total number of pages / Nombre total de pages			97
Gebührenfreie Seiten (Art. 2 Nr. 1a GebO) / Fee-exempt pages (Art. 2, item 1a, RFees) / Pages exemptes de taxes (art. 2, point 1bis RRT)			- 35
Anzahl der gebührenpflichtigen Seiten / Number of pages to be paid for / Nombre de pages soumises au paiement de la taxe			62
(x 12 EUR pro Seite) / (x EUR 12 per page) / (x 12 euros par page)			
Zu entrichtender Gesamtbetrag Total amount payable Montant total exigible en euros		EUR 744.00	

EPA/EPO/OEB 1200.7 04.09

 Zeichen des Anmelders / Applicant's
reference / Référence du demandeur

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Fußnoten

- 1 Stand bei Drucklegung:
35 Vertragsstaaten, und zwar:
AT Österreich, **BE** Belgien, **BG** Bulgarien,
CH / LI Schweiz und Liechtenstein, **CY** Zypern,
CZ Tschechische Republik, **DE** Deutschland,
DK Dänemark, **EE** Estland, **ES** Spanien,
FI Finnland, **FR** Frankreich, **GB** Vereinigtes
Königreich, **GR** Griechenland, **HR** Kroatien,
HU Ungarn, **IE** Irland, **IS** Island, **IT** Italien,
LT Litauen, **LU** Luxemburg, **LV** Lettland,
MC Monaco, **MK** ehemalige jugoslawische
Republik Mazedonien, **MT** Malta, **NL** Niederlande,
NO Norwegen, **PL** Polen, **PT** Portugal,
RO Rumänien, **SE** Schweden, **SI** Slowenien,
SK Slowakische Republik, **TR** Türkei
- 2 Für folgende Staaten nur möglich, falls in der internationalen Anmeldung am oder nach dem folgenden Tag bestimmt: Polen 1. März 2004, Island 1. November 2004, Litauen 1. Dezember 2004, Lettland 1. Juli 2005, Malta 1. März 2007, Norwegen 1. Januar 2008, Kroatien 1. Januar 2008, ehemalige jugoslawische Republik Mazedonien 1. Januar 2009.
- 3 Nur möglich, falls der Staat in der internationalen Anmeldung bestimmt und die internationale Anmeldung eingereicht wurde, während das Erstreckungsabkommen mit dem betreffenden Staat in Kraft war, d. h. für Albanien ab 1. Februar 1996, für Bosnien und Herzegowina ab 1. Dezember 2004, für Litauen vom 5. Juli 1994 bis 30. November 2004, für Lettland vom 1. Mai 1995 bis 30. Juni 2005, für Kroatien vom 1. April 2004 bis 31. Dezember 2007, für die ehemalige jugoslawische Republik Mazedonien vom 1. November 1997 bis 31. Dezember 2008.
- Die vom 1. November 2004 bis 3. Juni 2006 eingereichten internationalen Anmeldungen, mit denen bei ihrer Einreichung Schutz in YU – Staatenunion Serbien und Montenegro – begehrt wurde, können auf das Territorium der heutigen Republik Serbien (RS) erstreckt werden. Dies gilt auch für die ab dem 4. Juni 2006 eingereichten internationalen Anmeldungen, in denen RS bestimmt ist.
- Zur Wirkung solcher Anmeldungen in der heutigen Republik Montenegro (ME) siehe die montenegrinische „Regulation on Providing the Application of Intellectual Property Rights“ vom 20. September 2007, veröffentlicht in der Gesetzessammlung der Republik Montenegro Nr. 61/07 am 12. Oktober 2007 und in Kraft seit 20. Oktober 2007.
- 4 Platz für Staaten, mit denen Erstreckungsabkommen nach Drucklegung dieses Formblatts in Kraft treten und die in der internationalen Anmeldung bestimmt waren.
- 5 Der Berechnung der Zusatzgebühr werden die Seiten der Anmeldeunterlagen zugrunde gelegt, die zum Zeitpunkt der (teilweisen) Zahlung oder, wenn keine Zahlung geleistet wurde, bei Ablauf von 31 Monaten in der Akte enthalten sind, es sei denn, dass Änderungssseiten klar dahin gehend gekennzeichnet sind, dass sie Seiten früher eingereichter Dokumente ersetzen. Die Seiten des Formblatts 1200 sowie 35 Seiten sind gebührenfrei.

Footnotes

- When this form was printed, there were 35 contracting states, namely:
AT Austria, **BE** Belgium, **BG** Bulgaria,
CH / LI Switzerland and Liechtenstein,
CY Cyprus, **CZ** Czech Republic, **DE** Germany,
DK Denmark, **EE** Estonia, **ES** Spain, **FI** Finland,
FR France, **GB** United Kingdom, **GR** Greece,
HR Croatia, **HU** Hungary, **IE** Ireland, **IS** Iceland,
IT Italy, **LT** Lithuania, **LU** Luxembourg, **LV** Latvia,
MC Monaco, **MK** former Yugoslav Republic of Macedonia, **MT** Malta, **NL** Netherlands,
NO Norway, **PL** Poland, **PT** Portugal,
RO Romania, **SE** Sweden, **SI** Slovenia,
SK Slovak Republic, **TR** Turkey
- Possible for the following states only if they are designated in the international application on or after the date specified: Poland 1 March 2004, Iceland 1 November 2004, Lithuania 1 December 2004, Latvia 1 July 2005, Malta 1 March 2007, Norway 1 January 2008, Croatia 1 January 2008, former Yugoslav Republic of Macedonia 1 January 2009.
- Possible only if the state was designated in an international application filed while the extension agreement with the state concerned was in force: Albania from 1 February 1996, Bosnia and Herzegovina from 1 December 2004, Lithuania from 5 July 1994 to 30 November 2004, Latvia from 1 May 1995 to 30 June 2005, Croatia from 1 April 2004 to 31 December 2007, the former Yugoslav Republic of Macedonia from 1 November 1997 to 31 December 2008.
- International applications filed from 1 November 2004 to 3 June 2006 with a view to obtaining protection in YU – the State Union of Serbia and Montenegro – can be extended to the territory of what is now the Republic of Serbia (RS). The same applies to international applications filed as from 4 June 2006 and designating RS.
- As regards the effect of such applications in what is now the Republic of Montenegro (ME), see the Regulation of 20 September 2007 on Providing the Application of Intellectual Property Rights, published in the Republic of Montenegro's Official Gazette No. 61/07 on 12 October 2007 and in force since 20 October 2007.
- Space for states with which extension agreements enter into force after this form has been printed and which were designated in the international application.
- Pages of the application documents which are on file at the date of (partial) payment or, where no payment has been made, at expiry of 31 months, are taken into account for the calculation of the additional fee, unless pages of amendments have been clearly indicated as replacing previously filed document pages. The pages of Form 1200 and 35 pages are fee-exempt.

Notes de bas de page

- Situation à la date d'impression :
35 Etats contractants, à savoir :
AT Autriche, **BE** Belgique, **BG** Bulgarie,
CH / LI Suisse et Liechtenstein, **CY** Chypre,
CZ République tchèque, **DE** Allemagne,
DK Danemark, **EE** Estonie, **ES** Espagne,
FI Finlande, **FR** France, **GB** Royaume-Uni,
GR Grèce, **HR** Croatie, **HU** Hongrie, **IE** Irlande,
IS Islande, **IT** Italie, **LT** Lituanie, **LU** Luxembourg,
LV Lettonie, **MC** Monaco, **MK** ex-République yougoslave de Macédoine, **MT** Malte, **NL** Pays-Bas, **NO** Norvège, **PL** Pologne, **PT** Portugal,
RO Roumanie, **SE** Suède, **SI** Slovénie,
SK République slovaque, **TR** Turquie
- Possible pour les Etats suivants uniquement s'ils ont été désignés dans la demande internationale à partir des dates suivantes : 1^{er} mars 2004 pour la Pologne, 1^{er} novembre 2004 pour l'Islande, 1^{er} décembre 2004 pour la Lituanie, 1^{er} juillet 2005 pour la Lettonie, 1^{er} mars 2007 pour Malte, 1^{er} janvier 2008 pour la Norvège, 1^{er} janvier 2008 pour la Croatie et 1^{er} janvier 2009 pour l'ex-République yougoslave de Macédoine.
- Possible uniquement si l'Etat a été désigné dans la demande internationale et que la demande internationale ait été déposée pendant la période où l'accord d'extension était en vigueur avec l'Etat concerné, c'est-à-dire à partir du 1^{er} février 1996 pour l'Albanie, à partir du 1^{er} décembre 2004 pour la Bosnie-Herzégovine, du 5 juillet 1994 au 30 novembre 2004 pour la Lituanie, du 1^{er} mai 1995 au 30 juin 2005 pour la Lettonie, du 1^{er} avril 2004 au 31 décembre 2007 pour la Croatie, du 1^{er} novembre 1997 au 31 décembre 2008 pour l'ex-République yougoslave de Macédoine.
- Il est possible d'étendre au territoire de l'actuelle République de Serbie (RS) les effets produits par les demandes internationales qui ont été déposées entre le 1^{er} novembre 2004 et le 3 juin 2006 et dans lesquelles il était demandé d'obtenir une protection dans la Communauté d'Etats Serbo-et-Monténégro (YU). Il en va de même pour les demandes internationales déposées à compter du 4 juin 2006 et qui désignent RS.
- Concernant les effets produits par ces demandes à l'actuelle République du Monténégro (ME), cf. le « Regulation on Providing the Application of Intellectual Property Rights » monténégrin en date du 20 septembre 2007, publié le 12 octobre 2007 dans le recueil de lois n° 61/07 de la République du Monténégro et en vigueur depuis le 20 octobre 2007.
- Prévu pour des Etats à l'égard desquels des accords d'extension entreront en vigueur après l'impression du présent formulaire et qui ont été désignés dans la demande internationale.
- Les pages des pièces de la demande qui figurent dans le dossier à la date du paiement (partiel) ou, si aucun paiement n'a été effectué, à l'expiration du délai de 31 mois sont prises en considération pour le calcul de la taxe additionnelle, à moins que des pages de modification n'aient été clairement signalées comme remplaçant des pages relatives à des pièces produites antérieurement. Les pages du formulaire 1200, ainsi que 35 pages sont exclues de la taxe.

Zeichen des Anmelders / Applicant's
reference / Référence du demandeur

AVEG01/C/EP

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Our Ref: AVEG01/C/EP
Your Ref: 08725447.0

September 10, 2009

Re: Entry into European Regional Phase, EP08725447.0 (PCT/US2008/001820)
"Shared Transport System and Service Network"
O'SULLIVAN, SEAN

Dear Sirs,

For the above matter we enclose the following:

1. A complete Form 1200.
2. The front page of the PCT application as published on August 21, 2008 under number WO2008/100489
3. Authorisation
4. A Form 1010 regarding payment of fees and costs from our deposit account. (A copy is enclosed. The original was sent today to the Cash and Accounts Department in Munich)
5. Claims for the European Regional Phase. We hereby request that the proceedings before the EPO be based on the enclosed set of claims. We also enclose a copy with the amendments tracked. The amendment to and/or deletion of the claims and specification should not be interpreted as abandonment of the claims or any subject matter and is without prejudice to re-instatement of those claims and subject matter or to the filing of a divisional patent application for the claims and subject matter.

Yours faithfully,



MICHAEL WELDON
PROFESSIONAL REPRESENTATIVE

- 61 -

Amended Claims

1. A method, performed by a ground transportation network (11, 12), of sharing transportation, the method comprising the steps of

providing (723) an electronic registry of capacity containing an indication of spare transport capacity and location of a plurality of transport vehicles,

establishing a network of nodes (803-806) which are pick-up or drop-off points;

providing (723) an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users; and

a matching engine (701) effecting a match of said transport capacity of at least one transport vehicle (16-18) in said electronic registry of capacity with said transport demand of at least one transport user (13) in said electronic registry of demand for transport between at least two of said nodes (803-806).
2. A method as claimed in claim 1, comprising the further steps of:

abstracting geographic representation of a transport vehicle journey to nodes (803-806) of said network by calculating places where a transport vehicle's (16-18) journey intersects nodes of said network and representing the journey in the format of a set of nodes, and

the matching engine (701) continually gathering data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.
3. A method as claimed in claims 1 or 2, wherein the step of establishing the network of nodes (803-806) is determined from existing databases (712) of stops for bus networks or are created by an in-vehicle system (17-18).
4. A method as claimed in any preceding claim, wherein the geographic representation is received from a GPS unit (17-18).

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5. A method as claimed in any preceding claim, wherein the network represents travel times between nodes using journeys when organized as a stream of nodes (803-806).
6. A method as claimed in any preceding claim, wherein the network develops a stochastic model from measuring volume of journeys between a plurality of nodes, in which volume of spare transport capacity is continually monitored by wireless communication with location-aware transport vehicles (16-18).
7. A method as claimed in any preceding claim, wherein the network uses gathered data to display (1481-1487) real time transport capacity between the nodes.
8. A method as claimed in claim 7, wherein the network logically represents a driver's journey on a route with intermediate nodes, with activity at each node and a variation of timing as expected by the network for that time of day.
9. A method as claimed in any preceding claim, wherein the network performs continuous coordinated proximity monitoring (1001-1006) to verify the identity of a transport user and a transport provider vehicle, by a network system communicating with a transport user device and with a transport provider device.
10. A method as claimed in claim 8, wherein the network system polls (1005) the devices to determine their positions, calculates differences between their positions, and if said differences are outside of an acceptable error determining that the user journey has ended.
11. A method as claimed in claims 9 or 10, wherein the devices communicate (1004) with each other using a near-field communication means, and the system determines that a journey has ended if the devices are outside of a range.
12. A method as claimed in any preceding claim, wherein the network (1209) determines a vehicle status according to access control rules, said status indicating authentication of a vehicle (1209), to allow restricted or favourably charged access to road or parking resources depending on rules for each type of use.

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13. A method as claimed in any preceding claim, wherein the network generates transport user displays (1401-1410) of real time transport information according to the stored capacity and to real time vehicle monitoring.
14. A method as claimed in claim 13, wherein said information is in the form of a departure board (1481-1488).
15. A method as claimed in any preceding claim, wherein the network registers transport capacity automatically according to movement of a vehicle which indicates its direction and destination.
16. A method as claimed in any preceding claim, wherein a vehicle acts as a traffic probe, reporting on throughput and delays in traffic.
17. A ground transportation network comprising:
 - an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles,
 - a network of nodes (803-806) which are pick-up or drop-off points;
 - means for gathering data concerning traffic between said nodes;
 - an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users; and
 - a matching engine (701) adapted to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one transport user in said electronic registry of demand;and wherein:

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the network comprises means for abstracting geographic representation of a transport vehicle position to nodes of said network by calculating places where a transport vehicle's journey intersects nodes of said network and representing the journey in the format of a set of nodes, and

the matching engine (701) is adapted to continually gather data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.

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Amended Claims

1. A method, performed by a ground transportation network (11, 12), {original claim 11} of sharing transportation, the method comprising the steps of

5 providing (723) an electronic registry of capacity containing an indication of ~~the~~ spare transport capacity and location of a plurality of transport vehicles,

10 establishing a network of nodes (803-806) which are pick-up or drop-off points: {page 29}

providing (723) an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users ~~individuals~~; and

15 ~~providing a central processing capability to a matching engine (701) effecting a match of said transport capacity of at least one transport vehicle (16-18) in said electronic registry of capacity with said transport demand of at least one individual transport user (13) in said electronic registry of demand for transport between at least two of said nodes (803-806).~~{page 30}

- 20 2. A method as claimed in claim 1, comprising the further steps of:

25 abstracting geographic representation of a transport vehicle journey to nodes (803-806) of said network by calculating places where a transport vehicle's (16-18) journey intersects nodes of said network and representing the journey in the format of a set of nodes, and {pages 29, 30}, and

30 the matching engine (701) continually gathering data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.{pages 10 & 32, Figs. 8a and 8b}

- 62 -

3. A method as claimed in claims 1 or 2, wherein the step of establishing the network of nodes (803-806) is determined from existing databases (712) of stops for bus networks or are created by an in-vehicle system (17-18). {pages 29 & 30}
- 5 4. A method as claimed in any preceding claim, wherein the geographic representation is received from a GPS unit (17-18). {page 29}
5. A method as claimed in any preceding claim, wherein the network represents travel times between nodes using journeys when organized as a stream of nodes (803-806). {page 30}
- 10 6. A method as claimed in any preceding claim, wherein the network develops a stochastic model from measuring volume of journeys between a plurality of nodes, in which volume of spare transport capacity is continually monitored by wireless communication with location-aware transport vehicles (16-18). {pages 56 28, 30}
- 15 7. A method as claimed in any preceding claim, wherein the network uses gathered data to display (1481-1487) real time transport capacity between the nodes. {page 34}
- 20 8. A method as claimed in claim 7, wherein the network logically represents a driver's journey on a route with intermediate nodes, with activity at each node and a variation of timing as expected by the network for that time of day. {page 10, Fig. 8B}
- 25 9. A method as claimed in any preceding claim, wherein the network performs continuous co-ordinated proximity monitoring (1001-1006) to verify the identity of a transport user and a transport provider vehicle, by a network system communicating with a transport user device and with a transport provider device. {pages 45, 59, and Fig. 10A, Fig. 10B}
- 30 10. A method as claimed in claim 8, wherein the network system polls (1005) the devices to determine their positions, calculates differences between their positions, and if said differences are outside of an acceptable error determining that the user journey has ended. { Fig. 10B, original claim 10, pages 45, 56 59, Fig. 10A, }
11. A method as claimed in claims 9 or 10, wherein the devices communicate (1004) with each other using a near-field communication means, and the system determines that a

- 63 -

journey has ended if the devices are outside of a range. {Fig. 11B, pages 45, 46, original claim 10}

5 12. A method as claimed in any preceding claim, wherein the network (1209) determines a vehicle status according to access control rules, said status indicating authentication of a vehicle (1209), to allow restricted or favorably charged access to road or parking resources depending on rules for each type of use. {Figs. 12A to 12E, page 41}

10 13. A method as claimed in any preceding claim, wherein the network generates transport user displays (1401-1410) of real time transport information according to the stored capacity and to real time vehicle monitoring. (page 39, Figs. 14A to 14I)

15 14. A method as claimed in claim 13, wherein said information is in the form of a departure board (1481-1488). {page 39, Fig. 14G, H}

15 15. A method as claimed in any preceding claim, wherein the network registers transport capacity automatically according to movement of a vehicle which indicates its direction and destination. {pages 54, 55}

20 16. A method as claimed in any preceding claim, wherein a vehicle acts as a traffic probe, reporting on throughput and delays in traffic. {page 32}

25 17. A ground transportation network comprising:
 an electronic registry of capacity containing an indication of the spare transport capacity
 and location of a plurality of transport vehicles,

a network of nodes (803-806) which are pick-up or drop-off points;

means for gathering data concerning traffic between said nodes;

30 an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users individuals; and

- 64 -

a ~~central processing capability matching engine (701)~~ adapted to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one ~~individual transport user~~ in said electronic registry of demand.

5

and wherein:

10

the network comprises means for abstracting geographic representation of a transport vehicle position to nodes of said network by calculating places where a transport vehicle's journey intersects nodes of said network and representing the journey in the format of a set of nodes, and {pages 29, 30}

15

the matching engine (701) is adapted to continually gather data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity. {page 32}

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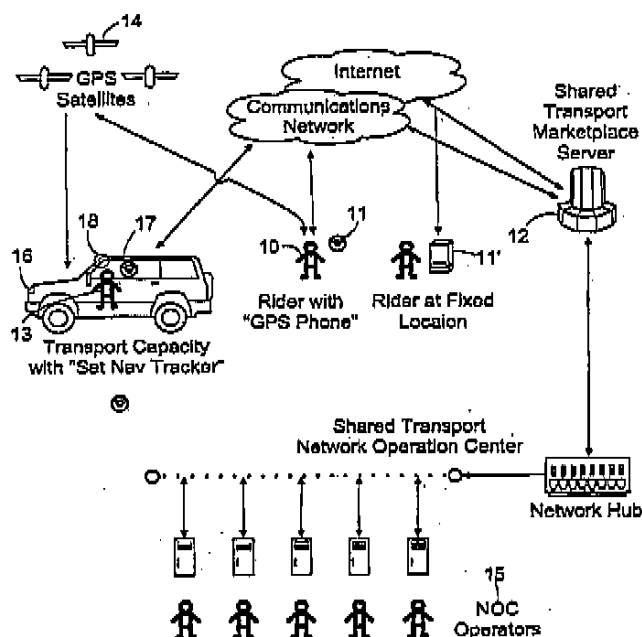
(72) Inventor: O'SULLIVAN, Sean [US/IE]; Cliff House,
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(54) Title: SHARED TRANSPORT SYSTEM AND SERVICE NETWORK

FIG. 1



(57) Abstract: The network system matches the supply and demand of transportation services by incorporating unused transportation capacity (i.e., empty seats) with a real-time allocation and matching service that enables individuals and goods to conveniently hire that capacity with attractive pricing, rapid responsiveness, better information availability and trusted security. The network system provides an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles, an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of individuals and a central processing capability to effect a match of the transport capacity of at least one transport vehicle with the transport demand of at least one individual.

WO 2008/100489 A2

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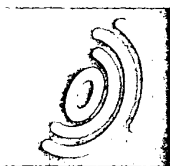
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~~Compass Hill,~~ PEARSE STREET
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WELDON, Michael J.
Professional Representative
John A O'Brien & Associates
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14 Carysfort Avenue, Blackrock,
County Dublin, Ireland.

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New European Patent Application entitled: **SHARED TRANSPORT SYSTEM AND SERVICE NETWORK**

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06	005	Designation fee(s) ⁴	EUR	500.00
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Name des (der) Unterzeichneten bitte in Druckschrift wiederholen. Bei juristischen Personen bitte die Stellung des (der) Unterzeichneten innerhalb der Gesellschaft in Druckschrift angeben. / Please print name(s) under signature(s). In the case of legal persons, the position of the signatory within the company should also be printed. / Le ou les noms des signataires doivent être indiqués en caractères d'imprimerie. S'il s'agit d'une personne morale, la position occupée au sein de celle-ci par le ou les signataires doit également être indiquée en caractères d'imprimerie.

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Der Eingang der oben angegebenen Unterlagen wird bestätigt, falls im Feld „Bemerkungen des EPA“ nichts anderes vermerkt ist. Datum und Ort des Eingangs sind aus dem Eingangsstempel bzw. der Perforation dieser Empfangsbescheinigung ersichtlich (M + Datum = Einreichungsort München; H + Datum = Einreichungsort Den Haag; Datum + B = Einreichungsort Berlin). / Unless otherwise indicated under "Comments by EPO", receipt of the items indicated is acknowledged on the date and at the place shown by the receipt stamp or perforation on this receipt (M + date = received in Munich; H + date = received in The Hague; date + B = received in Berlin). / La réception des pièces susmentionnées est confirmée, sauf mention contraire sous "Remarques de l'OEB". La date et le lieu de réception sont indiqués par le cachet de réception ou la perforation du présent accusé de réception (M + date = pièces reçues à Munich; H + date = pièces reçues à La Haye; date + B = pièces reçues à Berlin).

Original für EPA (Akte) | Original for EPO (file) | Original OEB



Begleitschreiben für nachgereichte Unterlagen (3-fach)
Letter accompanying subsequently filed items (in 3 copies)
Lettre d'accompagnement relative à des pièces produites ultérieurement (en 3 exemplaires)

EPO - DG 1

15. 09. 2009

Einsender / Sender / Expéditeur (bitte ausfüllen / please complete / veuillez compléter) :

John A. O'Brien & Associates
Third Floor, Duncairn House
14 Carysfort Avenue, Blackrock
County Dublin, Ireland

80298 Munich
Germany
Tel. +49(0)89 2399-0 I Fax -4465

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2280 HV Rijswijk
Netherlands
Tel. +31(0)70 340-2040 I Fax -3016

10958 Berlin
Germany
Tel. +49(0)30 25901-0 I Fax -840

Die unten bezeichnete(n) Unterlage(n) wird (werden) nachgereicht zu folgender Patentanmeldung/folgendem Patent:
The item(s) indicated below is (are) subsequently filed for the following application/patent:
La (Les) pièce(s) désignée(s) ci-après est (sont) produite(s) ultérieurement pour la demande (le brevet) suivant(e) :

Anmeldenummer/Application No./N° de la demande
(Nur ein Aktenzeichen pro Formblatt) / (Only one file number per form) /
(Un numéro de dossier par formulaire seulement)

EP08725447.0

Zeichen des Anmelders / Applicant's reference /
Référence du demandeur
(max. 15 Positionen / max. 15 spaces / 15 caractères au maximum)

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Bezeichnung der Unterlagen/Description of items/Description des pièces	Bemerkungen des EPA Comments by EPO Remarques de l'OEB
1. Letter	
2.	
3.	
4.	
5.	

Nachgereichte Unterlagen können auch online eingereicht werden; siehe www.epoline.org
Items may also be filed subsequently online; please see www.epoline.org
Les pièces produites ultérieurement peuvent être aussi déposées en ligne; voir www.epoline.org

Ort / Place / Lieu

Dublin

Datum / Date

September 10, 2009

Unterschrift(en) des (der) Anmelder(s) oder Vertreter(s) : / Signature(s) of applicant(s) or representative(s) : /
Signature(s) du (des) demandeur(s) ou du (des) mandataire(s) :

[Signature]

Name des (der) Unterzeichneten bitte in Druckschrift wiederholen. Bei juristischen Personen bitte die Stellung des (der) Unterzeichneten innerhalb der Gesellschaft in Druckschrift angeben. / Please print name(s) under signature(s). In the case of legal persons, the position of the signatory within the company should also be printed. / Le ou les noms des signataires doivent être indiqués en caractères d'imprimerie. S'il s'agit d'une personne morale, la position occupée au sein de celle-ci par le ou les signataires doit également être indiquée en caractères d'imprimerie.

Empfangsbescheinigung / Acknowledgement of receipt / Accusé de réception

Der Eingang der oben angegebenen Unterlagen wird bestätigt, falls im Feld „Bemerkungen des EPA“ nichts anderes vermerkt ist. Datum und Ort des Eingangs sind aus dem Eingangsstempel bzw. der Perforation dieser Empfangsbescheinigung ersichtlich (M + Datum = Einreichungsort München; H + Datum = Einreichungsort Den Haag; Datum + B = Einreichungsort Berlin). / Unless otherwise indicated under "Comments by EPO", receipt of the items indicated is acknowledged on the date and at the place shown by the receipt stamp or perforation on this receipt (M + date = received in Munich; H + date = received in The Hague; date + B = received in Berlin). / La réception des pièces susmentionnées est confirmée, sauf mention contraire sous "Remarques de l'OEB". La date et le lieu de réception sont indiqués par le cachet de réception ou la perforation du présent accusé de réception (M + date = pièces reçues à Munich; H + date = pièces reçues à La Haye; date + B = pièces reçues à Berlin).

Original für EPA (Akte) | Original for EPO (file) | Original OEB

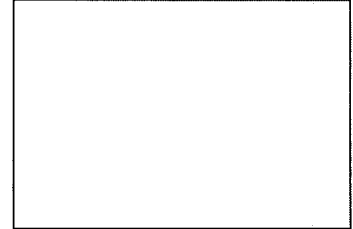
15. 09. 2009



(81)

Nur für amtlichen Gebrauch / For official use only / Cadre réservé à l'administration

An das Europäische Patentamt
To the European Patent Office
A l'Office européen des brevets



Tag des Eingangs / Date of receipt / Date de réception

Eintritt in die europäische Phase (EPA als Bestimmungsamt oder ausgewähltes Amt)

Entry into the European phase (EPO as designated or elected Office)

Entrée dans la phase européenne (l'OEB agissant en qualité d'office désigné ou élu)

Europäische Anmeldenummer oder, falls nicht bekannt, PCT-Aktenzeichen oder PCT-Veröffentlichungsnummer

European application number or, if not known, PCT application or PCT publication number

Numéro de la demande de brevet européen ou, à défaut, numéro de dépôt PCT ou de publication PCT

EP08725447.0

Zeichen des Anmelders oder Vertreters (max. 15 Positionen)

Applicant's or representative's reference (max. 15 keystrokes)

Référence du demandeur ou du mandataire (15 caractères ou espaces au maximum)

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1.

Anmelder**Applicant****Demandeur**

Die Angaben über den (die) Anmelder sind in der internationalen Veröffentlichung enthalten oder vom Internationalen Büro nach der internationalen Veröffentlichung vermerkt worden.

Indications concerning the applicant(s) are contained in the international publication or recorded by the International Bureau after the international publication.

Les indications concernant le(s) demandeur(s) figurent dans la publication internationale ou ont été enregistrées par le Bureau international après la publication internationale.



Änderungen, die das Internationale Büro noch nicht vermerkt hat, sind auf einem Zusatzblatt angegeben.

Changes which have not yet been recorded by the International Bureau are set out on an additional sheet.

Les changements qui n'ont pas encore été enregistrés par le Bureau international sont indiqués sur une feuille additionnelle.



Fehlende Angaben über den oder die Anmelder sind auf einem Zusatzblatt angegeben.

Indications missing for the applicant(s) are given on an additional sheet.

Les indications manquantes concernant un ou plusieurs demandeurs sont mentionnées sur une feuille additionnelle.

Zustellschrift
(siehe Merkblatt II, 1)

Address for correspondence
(see Notes II, 1)

Adresse pour la correspondance
(voir notice II, 1)

Zeichen des Anmelders / Applicant's reference / Référence du demandeur

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1

2.

Vertreter

Representative

Mandataire

Name und Geschäftsanschrift

(Nur einen Vertreter oder den Namen des Zusammenschlusses angeben, der in das Europäische Patentregister einzutragen ist und an den zugestellt wird)

Name and address of place of business

(Name **only one** representative or association of representatives, to be listed in the Register of European Patents and to whom communications are to be notified)

Nom et adresse professionnelle

(N'indiquer **qu'un seul** mandataire ou le nom du groupement de mandataires qui sera inscrit au Registre européen des brevets et auquel les significations seront faites)

Michael J. Weldon,

John A. O'Brien & Associates

Third Floor, Duncairn House, 14 Carysfort Avenue, Blackrock, County Dublin, Ireland

Telefon / Telephone / Téléphone

+353 1 288 3877

Fax / Télécopie

+353 1 288 3878



Weitere(r) Vertreter
auf Zusatzblatt

Additional representative(s)
on additional sheet

Autre(s) mandataire(s)
sur feuille supplémentaire

3.

Vollmacht

Authorisation

Pouvoir



Vollmacht ist beigelegt.

Authorisation is attached.

Un pouvoir est joint.



Allgemeine Vollmacht ist registriert
unter Nr.:

General authorisation is registered
under No.:

Un pouvoir général est enregistré
sous le n°:



Allgemeine Vollmacht ist eingereicht,
aber noch nicht registriert.

A general authorisation has been filed,
but not yet registered.

Un pouvoir général a été déposé,
mais n'est pas encore enregistré.



Die beim EPA als PCT-Anmeldeamt
eingereichte Vollmacht schließt aus-
drücklich die europäische Phase ein.

The authorisation filed with the EPO as
PCT receiving Office expressly includes
the European phase.

Le pouvoir déposé à l'OEB agissant en
qualité d'office récepteur au titre du PCT
inclut expressément la phase européenne.

4.

Prüfungsantrag

Request for examination

Requête en examen

4.1



Hiermit wird die Prüfung der Anmeldung
gemäß Artikel 94 EPÜ beantragt. Die
Prüfungsgebühr wird (wurde) entrichtet.

Examination of the application under
Article 94 EPC is hereby requested.
The examination fee is being (has been,
will be) paid.

Il est demandé par la présente que soit
examinée la demande de brevet conformé-
ment à l'article 94 CBE. Il est (a été, sera)
procédé au paiement de la taxe d'examen.

Prüfungsantrag in einer zugelassenen
Nichtamtssprache
(siehe Merkblatt III, 19.2):

Request for examination in an admissible
non-EPO language
(see Notes III, 19.2):

Requête en examen dans une langue
non officielle autorisée
(voir notice III, 19.2):

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4.2



Der Anmelder verzichtet auf die
Aufforderung nach Regel 70 (2) EPÜ,
zu erklären, ob die Anmeldung aufrecht-
erhalten wird.

The applicant waives his right to be asked
under Rule 70(2) EPC whether he wishes
to proceed further with the application.

Le demandeur renonce à être invité, confor-
mément à la règle 70(2) CBE, à déclarer
s'il souhaite maintenir sa demande.

5.

Abschriften

Copies

Copies



Zusätzliche Abschriften der im
ergänzenden europäischen Recherchen-
bericht angeführten Schriftstücke werden
beantragt.

Additional copies of the documents cited in
the supplementary European search report
are requested.

Prière de fournir des copies
supplémentaires des documents cités dans
le rapport complémentaire de recherche
européenne.

Anzahl der **zusätzlichen** Sätze von
Abschriften

Number of **additional** sets of copies

Nombre de jeux **supplémentaires**
de copies

Zeichen des Anmelders / Applicant's
reference / Référence du demandeur

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6. **Für das Verfahren vor dem EPA und die Berechnung der Zusatzgebühr bestimmte Unterlagen** **Documents intended for proceedings before the EPO and for calculating the additional fee** **Pièces destinées à la procédure devant l'OEB et au calcul de la taxe additionnelle**
- 6.1 Dem Verfahren vor dem EPA als **Bestimmungsamt** (PCT I) sind folgende Unterlagen zugrunde zu legen: Proceedings before the EPO as **designated Office** (PCT I) are to be based on the following documents: La procédure devant l'OEB agissant en qualité d'**office désigné** (PCT I) doit se fonder sur les pièces suivantes :
- ☒ die vom Internationalen Büro **veröffentlichten Anmeldungsunterlagen** (mit allen Ansprüchen, Beschreibung und Zeichnungen), gegebenenfalls mit den geänderten Ansprüchen nach Artikel 19 PCT the **application documents published** by the International Bureau (with all claims, description and drawings), where applicable with amended claims under Article 19 PCT les **pièces de la demande publiées** par le Bureau international (avec toutes les revendications, la description et les dessins), éventuellement avec les revendications modifiées conformément à l'article 19 PCT
- ☒ soweit sie nicht ersetzt werden durch die beigefügten **Änderungen**. unless replaced by the **amendments** enclosed. dans la mesure où elles ne sont pas remplacées par les **modifications** jointes.
- ☐ Siehe Angaben in der Tabelle auf Seite 7. See indications given in table on page 7. Voir les indications figurant au tableau de la page 7.
- 6.2 Dem Verfahren vor dem EPA als **ausgewähltem Amt** (PCT II) sind folgende Unterlagen zugrunde zu legen: Proceedings before the EPO as **elected Office** (PCT II) are to be based on the following documents: La procédure devant l'OEB agissant en qualité d'**office élu** (PCT II) doit se fonder sur les pièces suivantes :
- ☒ die dem **internationalen vorläufigen Prüfungsbericht** zugrunde gelegten Unterlagen, einschließlich etwaiger Anlagen the **documents on which the international preliminary examination report is based**, including any annexes les **pièces sur lesquelles se fonde le rapport d'examen préliminaire international**, y compris ses annexes éventuelles
- ☐ soweit sie nicht ersetzt werden durch die beigefügten **Änderungen**. unless replaced by the **amendments** enclosed. dans la mesure où elles ne sont pas remplacées par les **modifications** jointes.
- ☐ Siehe Angaben in der Tabelle auf Seite 7. See indications given in table on page 7. Voir les indications figurant au tableau de la page 7.
- ☒ Sind dem EPA als mit der internationalen vorläufigen Prüfung beauftragter Behörde **Versuchsberichte** zugegangen, dürfen diese dem Verfahren vor dem EPA zugrunde gelegt werden. If the EPO as International Preliminary Examining Authority has received **test reports**, these may be used as the basis of proceedings before the EPO. Si l'OEB, agissant en qualité d'administration chargée de l'examen préliminaire international, a reçu des **rapports d'essais**, ceux-ci peuvent être utilisés comme base dans la procédure devant l'OEB.
7. **Übersetzungen** **Translations** **Traductions**
- Beigefügt sind die nachfolgend angekreuzten Übersetzungen in einer der Amtssprachen des EPA (Deutsch, Englisch, Französisch): Translations in one of the official languages of the EPO (English, French, German) are enclosed as crossed below: Vous trouverez, ci-joint, les traductions cochées ci-après dans l'une des langues officielles de l'OEB (allemand, anglais, français) :
- a) Im Verfahren vor dem EPA als **Bestimmungsamt oder ausgewähltem Amt** (PCT I + II): (a) In proceedings before the EPO as **designated or elected Office** (PCT I + II): a) Dans la procédure devant l'OEB agissant en qualité d'**office désigné ou élu** (PCT I + II) :
- 7.1 ☐ Übersetzung der **internationalen Anmeldung in der ursprünglich eingereichten Fassung** (Beschreibung, Ansprüche, etwaige Textbestandteile in den Zeichnungen), der veröffentlichten Zusammenfassung und etwaiger Angaben über biologisches Material nach Regel 13bis.3 und 13bis.4 PCT Translation of the **international application** (description, claims, any text in the drawings) **as originally filed**, of the abstract as published and of any indication under Rule 13bis.3 and 13bis.4 PCT regarding biological material Traduction de la **demande internationale telle que déposée initialement** (description, revendications, textes figurant éventuellement dans les dessins), de l'abrégé publié et de toutes indications visées aux règles 13bis.3 et 13bis.4 PCT concernant le matériel biologique
- 7.2 ☐ Übersetzung der **prioritätsbegründenden Anmeldung(en)** (nur nach Aufforderung durch das EPA, Regel 53 (3) EPÜ) Translation of the **priority application(s)** (to be filed only at the EPO's request, Rule 53(3) EPC) Traduction de la (des) **demande(s) dont la priorité est revendiquée** (à produire seulement sur invitation de l'OEB, règle 53(3) CBE)
- 7.3 ☐ Es wird hiermit erklärt, dass die internationale Anmeldung in ihrer ursprünglich eingereichten Fassung eine vollständige Übersetzung der früheren Anmeldung ist (Regel 53 (3) EPÜ). It is hereby declared that the international application as originally filed is a complete translation of the previous application (Rule 53(3) EPC). Il est déclaré par la présente que la demande internationale telle que déposée initialement est une traduction intégrale de la demande antérieure (règle 53(3) CBE).

Zeichen des Anmelders / Applicant's reference / Référence du demandeur

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	<i>b) Zusätzlich im Verfahren vor dem EPA als Bestimmungsamt (PCT I):</i>	<i>(b) In addition, in proceedings before the EPO as designated Office (PCT I):</i>	<i>b) De plus, dans la procédure devant l'OEB agissant en qualité d'office désigné (PCT I) :</i>
7.4	☐ Übersetzung der nach Artikel 19 PCT geänderten Ansprüche nebst Erklärung, falls diese dem Verfahren vor dem EPA zugrunde gelegt werden sollen (siehe Feld 6).	Translation of amended claims and any statement under Article 19 PCT, if the claims as amended are to form the basis for the proceedings before the EPO (see Section 6).	Traduction des revendications modifiées et de la déclaration faite conformément à l'article 19 PCT, si la procédure devant l'OEB doit être fondée sur les revendications modifiées (voir la rubrique 6).
	<i>c) Zusätzlich im Verfahren vor dem EPA als ausgewähltem Amt (PCT II):</i>	<i>(c) In addition, in proceedings before the EPO as elected Office (PCT II):</i>	<i>c) De plus, dans la procédure devant l'OEB agissant en qualité d'office élu (PCT II) :</i>
7.5	☐ Übersetzung der Anlagen zum internationalen vorläufigen Prüfungsbericht	Translation of any annexes to the international preliminary examination report	Traduction des annexes du rapport d'examen préliminaire international
8.	Biologisches Material	Biological material	Matière biologique
	☐ Die Erfindung verwendet und/oder bezieht sich auf biologisches Material, das nach Regel 31 EPÜ hinterlegt worden ist.	The invention uses and/or relates to biological material deposited under Rule 31 EPC.	L'invention utilise et/ou concerne de la matière biologique déposée conformément à la règle 31 CBE.
	☐ Die Angaben nach Regel 31 (1) c) EPÜ (falls noch nicht bekannt, die Hinterlegungsstelle und das (die) vom Hinterleger zugeordnete(n) Bezugszeichen (Nummer, Symbole usw.)) sind in der internationalen Veröffentlichung oder in der gemäß Feld 7 eingereichten Übersetzung enthalten auf Seite(n) / Zeile(n):	The particulars referred to in Rule 31(1)(c) EPC (if not yet known, the depository institution and the identification reference(s) [number, symbols, etc.] of the depositor) are given in the international publication or in the translation submitted under Section 7 on page(s)/line(s):	Les indications visées à la règle 31(1)c) CBE (si elles ne sont pas encore connues, l'autorité de dépôt et la (les) référence(s) d'identification [numéro ou symboles etc.] du déposant) figurent dans la publication internationale ou dans la traduction produite conformément à la rubrique 7 à la/aux page(s)/ligne(s) :
	Die Empfangsbescheinigung(en) der Hinterlegungsstelle	The receipt(s) of deposit issued by the depository institution	Le(s) récépissé(s) de dépôt délivré(s) par l'autorité de dépôt
	☐ ist (sind) beigelegt.	is (are) enclosed.	est (sont) joint(s).
	☐ wird (werden) nachgereicht.	will be filed later.	sera (seront) produit(s) ultérieurement.
	☐ Verzicht auf die Verpflichtung des Antragstellers nach Regel 33 (2) EPÜ auf gesondertem Schriftstück	Waiver of the right to an undertaking from the requester pursuant to Rule 33(2) EPC attached	Renonciation, sur document distinct, à l'engagement du requérant au titre de la règle 33(2) CBE
9.	Nucleotid- und Aminosäuresequenzen	Nucleotide and amino acid sequences	Séquences de nucléotides et d'acides aminés
9.1	☐ Die nach den Regeln 5.2 und 13ter PCT sowie den Regeln 30 und 163 (3) EPÜ erforderlichen Unterlagen liegen dem EPA bereits vor.	The items pursuant to Rules 5.2 and 13ter PCT, Rules 30 and 163(3) EPC are already with the EPO.	Les pièces requises conformément aux règles 5.2 et 13ter PCT et aux règles 30 et 163(3) CBE ont déjà été déposées auprès de l'OEB.
9.2	☐ Das Sequenzprotokoll wird anliegend auf Papier nachgereicht.	The sequence listing is furnished herewith on paper.	Le listage de séquences sur papier est produit ci-joint.
9.3	☐ Der vorgeschriebene elektronische Datenträger ist beigelegt.	The prescribed electronic data carrier is enclosed.	Le support électronique de données prescrit est joint.
	☐ Die auf dem elektronischen Datenträger gespeicherte Information stimmt mit dem auf Papier eingereichten Sequenzprotokoll überein.	The information recorded on the electronic data carrier is identical to the sequence listing filed on paper.	L'information figurant sur le support électronique de données est identique à celle que contient le listage de séquences déposé sur papier.
9.4	☐ Das Sequenzprotokoll geht nicht über den Inhalt der Anmeldung in der ursprünglich eingereichten Fassung hinaus.	The sequence listing does not include matter which goes beyond the content of the application as filed.	Le listage de séquences ne contient pas d'éléments s'étendant au-delà du contenu de la demande telle qu'elle a été déposée.

Zeichen des Anmelders / Applicant's reference / Référence du demandeur

AVEG01/C/EP

10. **Benennung von Vertragsstaaten** **Designation of contracting states** **Désignation d'Etats contractants**

Alle Vertragsstaaten¹, die dem EPÜ bei Einreichung der internationalen Patentanmeldung angehören, gelten als benannt (siehe Artikel 79 (1) EPÜ), soweit sie in der internationalen Anmeldung bestimmt sind².

All the contracting states¹ party to the EPC at the time of filing of the international patent application and designated in the international application are deemed to be designated² (see Article 79(1) EPC).

Tous les Etats contractants¹ qui sont parties à la CBE lors du dépôt de la demande de brevet internationale et sont désignés dans la demande internationale sont réputés désignés² (voir article 79(1) CBE).

11. **Erstreckung des europäischen Patents** **Extension of the European patent** **Extension des effets du brevet européen**

Diese Anmeldung gilt als Antrag, die europäische Patentanmeldung und das darauf erteilte europäische Patent auf alle in der internationalen Anmeldung bestimmten Nichtvertragsstaaten des EPÜ zu erstrecken, mit denen am Tag der Einreichung der internationalen Anmeldung Erstreckungsabkommen in Kraft sind³. Der Antrag gilt jedoch **als zurückgenommen**, wenn die Erstreckungsgebühr nicht fristgerecht entrichtet wird.

This application is deemed to be a request to extend the European patent application and the European patent granted in respect of it to all non-contracting states to the EPC designated in the international application and with which extension agreements are in force on the date on which the international application is filed³. However, the request is **deemed withdrawn** if the extension fee is not paid within the prescribed time limit.

La présente demande est réputée constituer une requête en extension des effets de la demande de brevet européen et du brevet européen délivré sur la base de cette demande à tous les Etats non parties à la CBE qui sont désignés dans la demande internationale et avec lesquels des accords d'extension sont en vigueur à la date du dépôt de la demande internationale³. Cette requête est toutefois **réputée retirée** si la taxe d'extension n'est pas acquittée en temps utile.

Es ist beabsichtigt, diese Gebühr(en) für folgende Staaten zu entrichten:

It is intended to pay the fee(s) for the following state(s):

Il est envisagé de payer la(les) taxe(s) d'extension pour les Etats suivants :

Hinweis: Im automatischen Abbuchungsverfahren werden nur für die hier angekreuzten Staaten Erstreckungsgebühren abgebucht, sofern dem EPA nicht vor Ablauf der Zahlungsfrist ein anderslautender Auftrag zugeht.

Note: Under the automatic debiting procedure, extension fees will only be debited for states indicated here, unless the EPO is instructed otherwise before expiry of the period for payment.

Veillez noter que dans le cadre de la procédure de prélèvement automatique des taxes d'extension, le compte est débité du montant dû seulement pour les Etats cochés ici, sauf instruction contraire reçue avant l'expiration du délai de paiement.

☐	AL Albanien	Albania	Albanie
☐	BA Bosnien und Herzegowina	Bosnia and Herzegovina	Bosnie-Herzégovine
☐	HR Kroatien	Croatia	Croatie
☐	MK Ehemalige jugoslawische Republik Mazedonien	Former Yugoslav Republic of Macedonia	Ex-République yougoslave de Macédoine
☐	RS Serbien	Serbia	Serbie
☐			

4

12. **Automatischer Abbuchungsauftrag** (Nur möglich für Inhaber von beim EPA geführten laufenden Konten) **Automatic debit order** (for EPO deposit account holders only) **Ordre de prélèvement automatique** (possibilité offerte uniquement aux titulaires de comptes courants ouverts auprès de l'OEB)

☐

Das EPA wird hiermit ermächtigt, fällige Gebühren und Auslagen nach Maßgabe der Vorschriften über das automatische Abbuchungsverfahren vom unten stehenden laufenden Konto abzubuchen.

The EPO is hereby authorised, under the Arrangements for the automatic debiting procedure, to debit from the deposit account below any fees and costs falling due.

Par la présente, il est demandé à l'OEB de prélever du compte courant ci-dessous les taxes et frais venant à échéance, conformément à la réglementation relative à la procédure de prélèvement automatique.

Nummer und Kontoinhaber

Number and account holder

Numéro et titulaire du compte

--

13. ☒ **Etwaige Rückzahlungen sollen auf das unten stehende beim EPA geführte laufende Konto erfolgen** **Any refunds should be made to the EPO deposit account below** **Les remboursements éventuels doivent être effectués sur le compte courant ci-dessous ouvert auprès de l'OEB**

Nummer und Kontoinhaber

Number and account holder

Numéro et titulaire du compte

28060011	John A. O'Brien & Associates
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14. **Ort / Datum** **Place / Date** **Lieu / Date**

Dublin /	September 10, 2009
----------	--------------------

Unterschrift(en) des (der) Anmelder(s) oder Vertreter

Signature(s) of applicant(s) or representative

Signature(s) du (des) demandeur(s) ou du mandataire

Name(n) des (der) Unterzeichneten bitte in Druckschrift wiederholen und bei juristischen Personen auch die Stellung des (der) Unterzeichneten innerhalb der Gesellschaft angeben.

Under signature please print name and, in the case of legal persons, position within the company.

Prière d'indiquer en caractères d'imprimerie le ou les noms des signataires ainsi que, s'il s'agit d'une personne morale, la position occupée au sein de celle-ci par le ou les signataires.

 Michael J. Weldon
--

Für Angestellte (Art. 133 (3) EPÜ) mit allgemeiner Vollmacht Nr.:

For employees (Art. 133(3) EPC) with general authorisation No.:

Pour les employés (art. 133(3) CBE) disposant d'un pouvoir général n° :

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**Tabelle zu Feld 6
des Formblatts 1200.3**

**Table for section 6
of Form 1200.3**

**Tableau afférent
à la rubrique 6
du formulaire 1200.3**

Gemäß der Mitteilung des Europäischen Patentamts vom 26. Januar 2009 über die Gebührenstruktur 2009 (ABl. EPA 2009, 118 und Richtlinien für die Prüfung im EPA, April 2009, A-III, 13.2) wird die Zusatzgebühr (Art. 2 Nr. 1a Gebührenordnung) für die Seiten dieser europäischen Patentanmeldung wie folgt berechnet:

In accordance with the Notice from the European Patent Office dated 26 January 2009 concerning the 2009 fee structure (OJ EPO 2009, 118, and Guidelines for Examination in the EPO, April 2009, A-III, 13.2), the amount of the additional fee (Art. 2, item 1a, Rules relating to Fees) for the pages of this European patent application is calculated as follows:

Conformément au Communiqué de l'Office européen des brevets en date du 26 janvier 2009, relatif à la structure des taxes 2009 (JO OEB 2009, 118 et Directives relatives à l'examen pratiqué à l'OEB, avril 2009, A-III, 13.2), le montant de la taxe additionnelle (article 2, point 1bis du règlement relatif aux taxes) due pour les pages de la présente demande de brevet européen est calculé comme suit :

Für das Verfahren vor dem EPA (R. 159 (1) b) EPÜ) und die Berechnung der Zusatzgebühr (Art. 2 Nr. 1a GebO) bestimmte Unterlagen:⁶ / Documents intended for proceedings before the EPO (R. 159(1)(b) EPC) and for calculating the additional fee (Art. 2, item 1a, RFees):⁶ / Pièces destinées à la procédure devant l'OEB (règle 159(1)b) CBE) et au calcul de la taxe additionnelle (art. 2, point 1bis RRT) :⁶

		Seite(n) von ... bis ... ⁶ Page(s) from ... to ... ⁶ Page(s) ... à ... ⁶	Anzahl der Seiten ⁷ Number of pages ⁷ Nombre de pages ⁷
Veröffentlichte Fassung der internationalen Anmeldung (einschließlich etwaiger geänderter Ansprüche nach Art. 19 PCT) / International application as published (inclusive any amended claims Art. 19 PCT) / Demande internationale telle que publiée (y compris des éventuelles revendications modifiées en vertu de l'art. 19 PCT)	Beschreibung / description / description	1 to 60	60
	Ansprüche / claims / revendications		
	Zeichnungen / drawings / dessins	1/32 to 32/32	32
	Zusammenfassung / abstract / abrégé		1
Gesondert veröffentlichte geänderte Ansprüche nach Art. 19 PCT / Amended claims Art. 19 PCT, where published separately / Revendications modifiées en vertu de l'art. 19 PCT, si elles ont été publiées séparément	Beschreibung / description / description		
	Ansprüche / claims / revendications	61 to 64	4
	Zeichnungen / drawings / dessins		
Beim Eintritt in die europäische Phase eingereichte Änderungen / Amendments filed on entry into European phase / Modifications présentées lors de l'entrée dans la phase européenne	Beschreibung / description / description		
	Ansprüche / claims / revendications		
	Zeichnungen / drawings / dessins		
Anzahl der Seiten insgesamt / Total number of pages / Nombre total de pages			97
Gebührenfreie Seiten (Art. 2 Nr. 1a GebO) / Fee-exempt pages (Art. 2, item 1a, RFees) / Pages exemptes de taxes (art. 2, point 1bis RRT)			- 35
Anzahl der gebührenpflichtigen Seiten / Number of pages to be paid for / Nombre de pages soumises au paiement de la taxe			62
(x 12 EUR pro Seite) / (x EUR 12 per page) / (x 12 euros par page)			
Zu entrichtender Gesamtbetrag Total amount payable Montant total exigible en euros		EUR 744.00	

Fußnoten

- 1 Stand bei Drucklegung:
35 Vertragsstaaten, und zwar:
AT Österreich, **BE** Belgien, **BG** Bulgarien,
CH / **LI** Schweiz und Liechtenstein, **CY** Zypern,
CZ Tschechische Republik, **DE** Deutschland,
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FI Finnland, **FR** Frankreich, **GB** Vereinigtes
Königreich, **GR** Griechenland, **HR** Kroatien,
HU Ungarn, **IE** Irland, **IS** Island, **IT** Italien,
LT Litauen, **LU** Luxemburg, **LV** Lettland,
MC Monaco, **MK** ehemalige jugoslawische
Republik Mazedonien, **MT** Malta, **NL** Niederlande,
NO Norwegen, **PL** Polen, **PT** Portugal,
RO Rumänien, **SE** Schweden, **SI** Slowenien,
SK Slowakische Republik, **TR** Türkei

- 2 Für folgende Staaten nur möglich, falls in der internationalen Anmeldung am oder nach dem folgenden Tag bestimmt: Polen 1. März 2004, Island 1. November 2004, Litauen 1. Dezember 2004, Lettland 1. Juli 2005, Malta 1. März 2007, Norwegen 1. Januar 2008, Kroatien 1. Januar 2008, ehemalige jugoslawische Republik Mazedonien 1. Januar 2009.

- 3 Nur möglich, falls der Staat in der internationalen Anmeldung bestimmt und die internationale Anmeldung eingereicht wurde, während das Erststreckungsabkommen mit dem betreffenden Staat in Kraft war, d. h. für Albanien ab 1. Februar 1996, für Bosnien und Herzegowina ab 1. Dezember 2004, für Litauen vom 5. Juli 1994 bis 30. November 2004, für Lettland vom 1. Mai 1995 bis 30. Juni 2005, für Kroatien vom 1. April 2004 bis 31. Dezember 2007, für die ehemalige jugoslawische Republik Mazedonien vom 1. November 1997 bis 31. Dezember 2008.

Die vom 1. November 2004 bis 3. Juni 2006 eingereichten internationalen Anmeldungen, mit denen bei ihrer Einreichung Schutz in YU – Staatenunion Serbien und Montenegro – begehrt wurde, können auf das Territorium der heutigen Republik Serbien (RS) erstreckt werden. Dies gilt auch für die ab dem 4. Juni 2006 eingereichten internationalen Anmeldungen, in denen RS bestimmt ist.

Zur Wirkung solcher Anmeldungen in der heutigen Republik Montenegro (ME) siehe die montenegrinische „Regulation on Providing the Application of Intellectual Property Rights“ vom 20. September 2007, veröffentlicht in der Gesetzessammlung der Republik Montenegro Nr. 61/07 am 12. Oktober 2007 und in Kraft seit 20. Oktober 2007.

- 4 Platz für Staaten, mit denen Erststreckungsabkommen nach Drucklegung dieses Formblatts in Kraft treten und die in der internationalen Anmeldung bestimmt waren.
- 5 Der Berechnung der Zusatzgebühr werden die Seiten der Anmeldeunterlagen zugrunde gelegt, die zum Zeitpunkt der (teilweisen) Zahlung oder, wenn keine Zahlung geleistet wurde, bei Ablauf von 31 Monaten in der Akte enthalten sind, es sei denn, dass Änderungsseiten klar dahin gehend gekennzeichnet sind, dass sie Seiten früher eingereichter Dokumente ersetzen. Die Seiten des Formblatts 1200 sowie 35 Seiten sind gebührenfrei.

Zeichen des Anmelders / Applicant's
reference / Référence du demandeur

Footnotes

When this form was printed, there were
35 contracting states, namely:
AT Austria, **BE** Belgium, **BG** Bulgaria,
CH / **LI** Switzerland and Liechtenstein,
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Macedonia, **MT** Malta, **NL** Netherlands,
NO Norway, **PL** Poland, **PT** Portugal,
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Possible for the following states only if they are designated in the international application on or after the date specified: Poland 1 March 2004, Iceland 1 November 2004, Lithuania 1 December 2004, Latvia 1 July 2005, Malta 1 March 2007, Norway 1 January 2008, Croatia 1 January 2008, former Yugoslav Republic of Macedonia 1 January 2009.

Possible only if the state was designated in an international application filed while the extension agreement with the state concerned was in force: Albania from 1 February 1996, Bosnia and Herzegovina from 1 December 2004, Lithuania from 5 July 1994 to 30 November 2004, Latvia from 1 May 1995 to 30 June 2005, Croatia from 1 April 2004 to 31 December 2007, the former Yugoslav Republic of Macedonia from 1 November 1997 to 31 December 2008.

International applications filed from 1 November 2004 to 3 June 2006 with a view to obtaining protection in YU – the State Union of Serbia and Montenegro – can be extended to the territory of what is now the Republic of Serbia (RS). The same applies to international applications filed as from 4 June 2006 and designating RS.

As regards the effect of such applications in what is now the Republic of Montenegro (ME), see the Regulation of 20 September 2007 on Providing the Application of Intellectual Property Rights, published in the Republic of Montenegro's Official Gazette No. 61/07 on 12 October 2007 and in force since 20 October 2007.

Space for states with which extension agreements enter into force after this form has been printed and which were designated in the international application.

Pages of the application documents which are on file at the date of (partial) payment or, where no payment has been made, at expiry of 31 months, are taken into account for the calculation of the additional fee, unless pages of amendments have been clearly indicated as replacing previously filed document pages. The pages of Form 1200 and 35 pages are fee-exempt.

Notes de bas de page

Situation à la date d'impression :
35 Etats contractants, à savoir :
AT Autriche, **BE** Belgique, **BG** Bulgarie,
CH / **LI** Suisse et Liechtenstein, **CY** Chypre,
CZ République tchèque, **DE** Allemagne,
DK Danemark, **EE** Estonie, **ES** Espagne,
FI Finlande, **FR** France, **GB** Royaume-Uni,
GR Grèce, **HR** Croatie, **HU** Hongrie, **IE** Irlande,
IS Islande, **IT** Italie, **LT** Lituanie, **LU** Luxembourg,
LV Lettonie, **MC** Monaco, **MK** ex-République
yougoslave de Macédoine, **MT** Malte, **NL** Pays-
Bas, **NO** Norvège, **PL** Pologne, **PT** Portugal,
RO Roumanie, **SE** Suède, **SI** Slovénie,
SK République slovaque, **TR** Turquie

Possible pour les Etats suivants uniquement s'ils ont été désignés dans la demande internationale à partir des dates suivantes : 1^{er} mars 2004 pour la Pologne, 1^{er} novembre 2004 pour l'Islande, 1^{er} décembre 2004 pour la Lituanie, 1^{er} juillet 2005 pour la Lettonie, 1^{er} mars 2007 pour Malte, 1^{er} janvier 2008 pour la Norvège, 1^{er} janvier 2008 pour la Croatie et 1^{er} janvier 2009 pour l'ex-République yougoslave de Macédoine.

Possible uniquement si l'Etat a été désigné dans la demande internationale et que la demande internationale ait été déposée pendant la période où l'accord d'extension était en vigueur avec l'Etat concerné, c'est-à-dire à partir du 1^{er} février 1996 pour l'Albanie, à partir du 1^{er} décembre 2004 pour la Bosnie-Herzégovine, du 5 juillet 1994 au 30 novembre 2004 pour la Lituanie, du 1^{er} mai 1995 au 30 juin 2005 pour la Lettonie, du 1^{er} avril 2004 au 31 décembre 2007 pour la Croatie, du 1^{er} novembre 1997 au 31 décembre 2008 pour l'ex-République yougoslave de Macédoine.

Il est possible d'étendre au territoire de l'actuelle République de Serbie (RS) les effets produits par les demandes internationales qui ont été déposées entre le 1^{er} novembre 2004 et le 3 juin 2006 et dans lesquelles il était demandé d'obtenir une protection dans la Communauté d'Etats Serbie-et-Monténégro (YU). Il en va de même pour les demandes internationales déposées à compter du 4 juin 2006 et qui désignent RS.

Concernant les effets produits par ces demandes à l'actuelle République du Monténégro (ME), cf. le « Regulation on Providing the Application of Intellectual Property Rights » monténégrin en date du 20 septembre 2007, publié le 12 octobre 2007 dans le recueil de lois n° 61/07 de la République du Monténégro et en vigueur depuis le 20 octobre 2007.

Prévu pour des Etats à l'égard desquels des accords d'extension entreront en vigueur après l'impression du présent formulaire et qui ont été désignés dans la demande internationale.

Les pages des pièces de la demande qui figurent dans le dossier à la date du paiement (partiel) ou, si aucun paiement n'a été effectué, à l'expiration du délai de 31 mois sont prises en considération pour le calcul de la taxe additionnelle, à moins que des pages de modification n'aient été clairement signalées comme remplaçant des pages relatives à des pièces produites antérieurement. Les pages du formulaire 1200, ainsi que 35 pages sont exclues de la taxe.

AVEG01/C/EP

6 In dieser Spalte sind nur die Seiten anzugeben, die für Verfahren vor dem EPA (R. 159 (1) b) EPÜ) bestimmt und der Berechnung der Zusatzgebühr (Art. 2, Nr. 1a GebO) zugrunde zu legen sind. Verbleibende Seiten/Teile der veröffentlichten Fassung der Anmeldung und/oder der gemäß Artikel 19 PCT und/oder Artikel 34 PCT geänderten Anmeldung, die zu ersetzen und nicht für die oben genannten Zwecke zu verwenden sind, sind nicht in dieser Spalte anzugeben.

Only those pages which are intended for proceedings before the EPO (R. 159 (1)(b) EPC) and are to be taken into account for the calculation of the additional fee (Art. 2, item 1a, RFees) shall be indicated in this column. Any remaining pages/parts of the application as published and/or amended under Article 19 PCT and/or Article 34 PCT, which are to be replaced and not to be used for the above-mentioned purposes, shall not be indicated in this column.

Il convient de n'indiquer dans cette colonne que les pages destinées à la procédure devant l'OEB (règle 159(1)b) CBE) et devant être prises en considération pour le calcul de la taxe additionnelle (art. 2, point 1bis RRT). Si la demande telle que publiée et/ou modifiée au titre de l'article 19 PCT et/ou de l'article 34 PCT contient d'autres pages/parties qui doivent être remplacées et ne seront pas utilisées aux fins précitées, prière de ne pas mentionner les pages/parties en question dans cette colonne.

7 In dieser Spalte ist nur die Zahl der Seiten anzugeben, die für Verfahren vor dem EPA (R. 159 (1) b) EPÜ) bestimmt und der Berechnung der Zusatzgebühr (Art. 2, Nr. 1a GebO) zugrunde zu legen sind. Verbleibende Seiten/Teile der veröffentlichten Fassung der Anmeldung und/oder der gemäß Artikel 19 PCT und/oder Artikel 34 PCT geänderten Anmeldung, die zu ersetzen und nicht für die oben genannten Zwecke zu verwenden sind, sind nicht in dieser Spalte anzugeben.

Only the number of pages intended for proceedings before the EPO (R. 159 (1)(b) EPC) and to be taken into account for the calculation of the additional fee (Art. 2, item 1a, RFees) shall be indicated in this column. Any remaining pages/parts of the application as published and/or amended under Article 19 PCT and/or Article 34 PCT, which are to be replaced and not to be used for the above-mentioned purposes, shall not be indicated in this column.

Il convient de n'indiquer dans cette colonne que le nombre de pages destinées à la procédure devant l'OEB (règle 159(1)b) CBE) et devant être prises en considération pour le calcul de la taxe additionnelle (art. 2, point 1bis RRT). Si la demande telle que publiée et/ou modifiée au titre de l'article 19 PCT et/ou de l'article 34 PCT contient d'autres pages/parties qui doivent être remplacées et ne seront pas utilisées aux fins précitées, prière de ne pas mentionner les pages/parties en question dans cette colonne.

Zeichen des Anmelders / Applicant's
reference / Référence du demandeur

AVEG01/C/EP

1a

EPO - DG 1

15. 09. 2009

81

Change of Address of Applicant

The applicant's address has changed, as indicated in the enclosed Power of Attorney to:

Mr. Seán O'Sullivan,
Long Quay House,
Pearse Street,
Kinsale,
County Cork,
Ireland.

1a

EPO - DG 1

15. 09. 2009

(81)

2a

Additional representative(s)

Name(s):

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MURNAGHAN, Sarah

Address of place of business:

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JOHN A. O'BRIEN & ASSOCIATES

European Patent Attorneys Registered Patent Agents Intellectual Property Consultants

Third Floor, Duncairn House, 14 Carysfort Avenue, Blackrock, Co. Dublin, Ireland.

Tel: + 353 1 288 3877 Fax: + 353 1 288 3878

EPO - DG 1

European Patent Office
Patentlaan 2
Postbus 5818
NL-2280 H V Rijswijk
The Netherlands

15. 09. 2009

(81)

BY REGISTERED POST

Our Ref: AVEG01/C/EP
Your Ref: 08725447.0

September 10, 2009

Re: Entry into European Regional Phase, EP08725447.0 (PCT/US2008/001820)
"Shared Transport System and Service Network"
O'SULLIVAN, SEAN

Dear Sirs,

For the above matter we enclose the following:

1. A complete Form 1200.
2. The front page of the PCT application as published on August 21, 2008 under number WO2008/100489
3. Authorisation
4. A Form 1010 regarding payment of fees and costs from our deposit account. (A copy is enclosed. The original was sent today to the Cash and Accounts Department in Munich)
5. Claims for the European Regional Phase. We hereby request that the proceedings before the EPO be based on the enclosed set of claims. We also enclose a copy with the amendments tracked. The amendment to and/or deletion of the claims and specification should not be interpreted as abandonment of the claims or any subject matter and is without prejudice to re-instatement of those claims and subject matter or to the filing of a divisional patent application for the claims and subject matter.

Yours faithfully,



MICHAEL WELDON
PROFESSIONAL REPRESENTATIVE

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 August 2008 (21.08.2008)

PCT

(10) International Publication Number
WO 2008/100489 A2

(51) International Patent Classification:
G06F 19/00 (2006.01)

(21) International Application Number:
PCT/US2008/001820

(22) International Filing Date:
12 February 2008 (12.02.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/900,808 12 February 2007 (12.02.2007) US

(71) Applicant and
(72) Inventor: O'SULLIVAN, Sean [US/IE]; Cliff House,
Compass Hill, Kinsale, County Cork (IE).

(74) Agent: HAND, Francis, C.; Carella, Byrne, Bain et al, 5
Becker Farm Road, Roseland, NJ 07068-1739 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA,
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE,
EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID,
IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC,
LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN,
MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH,
PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV,
SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,
ZA, ZM, ZW.

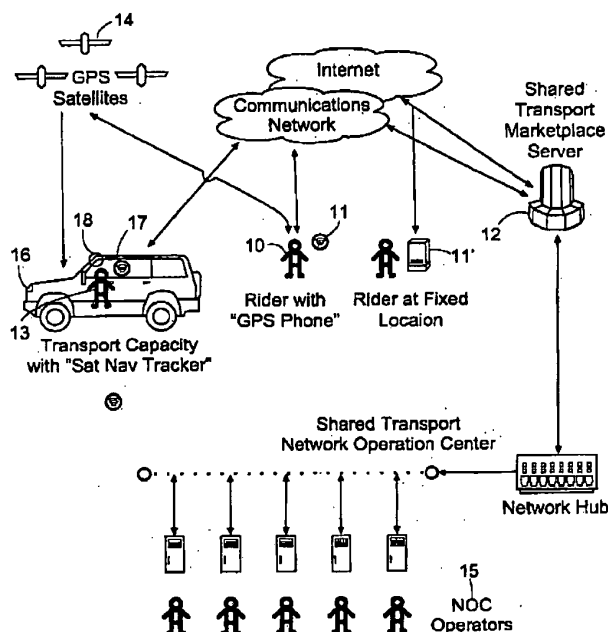
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL,
NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG,
CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished
upon receipt of that report

(54) Title: SHARED TRANSPORT SYSTEM AND SERVICE NETWORK

FIG. 1



(57) Abstract: The network system matches the supply and demand of transportation services by incorporating unused transportation capacity (i.e., empty seats) with a real-time allocation and matching service that enables individuals and goods to conveniently hire that capacity with attractive pricing, rapid responsiveness, better information availability and trusted security. The network system provides an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles, an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of individuals and a central processing capability to effect a match of the transport capacity of at least one transport vehicle with the transport demand of at least one individual.

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15. 09. 2009

(81)

JOHN A. O'BRIEN & ASSOCIATES

European Patent Attorneys (EPA*) Registered Patent Agents (RPA**) Intellectual Property Consultants

Third Floor, Duncairn House, 14 Carysfort Avenue, Blackrock, Co Dublin, Ireland.

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EPO - DG 1

15. 09. 2009

EUROPEAN PATENT OFFICE
Postbus 5818,
2280 HV Rijswijk
Netherlands

(81)

Our Ref: AVEG01/C/EP

September 10, 2009

Re: European Patent Application No. 08725447.0
Applicant: O'SULLIVAN, SEAN

Dear Sirs,

We wish to advise that the inventor Seán O'Sullivan has changed his address to:

Long Quay House,
Pearse Street,
Kinsale,
County Cork,
Ireland.

Yours sincerely,



MICHAEL WELDON
PROFESSIONAL REPRESENTATIVE

Amended Claims

(81)

1. A method, performed by a ground transportation network (11, 12), of sharing transportation, the method comprising the steps of

providing (723) an electronic registry of capacity containing an indication of spare transport capacity and location of a plurality of transport vehicles,

establishing a network of nodes (803-806) which are pick-up or drop-off points;

providing (723) an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users; and

a matching engine (701) effecting a match of said transport capacity of at least one transport vehicle (16-18) in said electronic registry of capacity with said transport demand of at least one transport user (13) in said electronic registry of demand for transport between at least two of said nodes (803-806).
2. A method as claimed in claim 1, comprising the further steps of:

abstracting geographic representation of a transport vehicle journey to nodes (803-806) of said network by calculating places where a transport vehicle's (16-18) journey intersects nodes of said network and representing the journey in the format of a set of nodes, and

the matching engine (701) continually gathering data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.
3. A method as claimed in claims 1 or 2, wherein the step of establishing the network of nodes (803-806) is determined from existing databases (712) of stops for bus networks or are created by an in-vehicle system (17-18).
4. A method as claimed in any preceding claim, wherein the geographic representation is received from a GPS unit (17-18).

5. A method as claimed in any preceding claim, wherein the network represents travel times between nodes using journeys when organized as a stream of nodes (803-806).
6. A method as claimed in any preceding claim, wherein the network develops a stochastic model from measuring volume of journeys between a plurality of nodes, in which volume of spare transport capacity is continually monitored by wireless communication with location-aware transport vehicles (16-18).
7. A method as claimed in any preceding claim, wherein the network uses gathered data to display (1481-1487) real time transport capacity between the nodes.
8. A method as claimed in claim 7, wherein the network logically represents a driver's journey on a route with intermediate nodes, with activity at each node and a variation of timing as expected by the network for that time of day.
9. A method as claimed in any preceding claim, wherein the network performs continuous coordinated proximity monitoring (1001-1006) to verify the identity of a transport user and a transport provider vehicle, by a network system communicating with a transport user device and with a transport provider device.
10. A method as claimed in claim 8, wherein the network system polls (1005) the devices to determine their positions, calculates differences between their positions, and if said differences are outside of an acceptable error determining that the user journey has ended.
11. A method as claimed in claims 9 or 10, wherein the devices communicate (1004) with each other using a near-field communication means, and the system determines that a journey has ended if the devices are outside of a range.
12. A method as claimed in any preceding claim, wherein the network (1209) determines a vehicle status according to access control rules, said status indicating authentication of a vehicle (1209), to allow restricted or favourably charged access to road or parking resources depending on rules for each type of use.

13. A method as claimed in any preceding claim, wherein the network generates transport user displays (1401-1410) of real time transport information according to the stored capacity and to real time vehicle monitoring.
14. A method as claimed in claim 13, wherein said information is in the form of a departure board (1481-1488).
15. A method as claimed in any preceding claim, wherein the network registers transport capacity automatically according to movement of a vehicle which indicates its direction and destination.
16. A method as claimed in any preceding claim, wherein a vehicle acts as a traffic probe, reporting on throughput and delays in traffic.
17. A ground transportation network comprising:
 - an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles,
 - a network of nodes (803-806) which are pick-up or drop-off points;
 - means for gathering data concerning traffic between said nodes;
 - an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users; and
 - a matching engine (701) adapted to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one transport user in said electronic registry of demand;and wherein:

the network comprises means for abstracting geographic representation of a transport vehicle position to nodes of said network by calculating places where a transport vehicle's journey intersects nodes of said network and representing the journey in the format of a set of nodes, and

the matching engine (701) is adapted to continually gather data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.

15. 09. 2009

Amended Claims

(81)

1. A method, performed by a ground transportation network (11, 12), *{original claim 11}* of sharing transportation, the method comprising the steps of

5

providing (723) an electronic registry of capacity containing an indication of ~~the~~ spare transport capacity and location of a plurality of transport vehicles,

10

establishing a network of nodes (803-806) which are pick-up or drop-off points; {page 29}

providing (723) an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users ~~individuals~~; and

15

~~providing a central processing capability to a matching engine (701) effecting a match of~~ said transport capacity of at least one transport vehicle (16-18) in said electronic registry of capacity with said transport demand of at least one ~~individual~~ transport user (13) in said electronic registry of demand for transport between at least two of said nodes (803-806).{page 30}

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2. A method as claimed in claim 1, comprising the further steps of:

25

abstracting geographic representation of a transport vehicle journey to nodes (803-806) of said network by calculating places where a transport vehicle's (16-18) journey intersects nodes of said network and representing the journey in the format of a set of nodes, and {pages 29, 30}, and

30

the matching engine (701) continually gathering data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.{pages 10 & 32, Figs. 8a and 8b}

3. A method as claimed in claims 1 or 2, wherein the step of establishing the network of nodes (803-806) is determined from existing databases (712) of stops for bus networks or are created by an in-vehicle system (17-18). {pages 29 & 30}
- 5 4. A method as claimed in any preceding claim, wherein the geographic representation is received from a GPS unit (17-18). {page 29}
5. A method as claimed in any preceding claim, wherein the network represents travel times between nodes using journeys when organized as a stream of nodes (803-806). {page 30}
- 10 6. A method as claimed in any preceding claim, wherein the network develops a stochastic model from measuring volume of journeys between a plurality of nodes, in which volume of spare transport capacity is continually monitored by wireless communication with location-aware transport vehicles (16-18). {pages 56 28, 30}
- 15 7. A method as claimed in any preceding claim, wherein the network uses gathered data to display (1481-1487) real time transport capacity between the nodes. {page 34}
- 20 8. A method as claimed in claim 7, wherein the network logically represents a driver's journey on a route with intermediate nodes, with activity at each node and a variation of timing as expected by the network for that time of day. {page 10, Fig. 8B}
- 25 9. A method as claimed in any preceding claim, wherein the network performs continuous co-ordinated proximity monitoring (1001-1006) to verify the identity of a transport user and a transport provider vehicle, by a network system communicating with a transport user device and with a transport provider device. {pages 45, 59, and Fig. 10A, Fig. 10B}
- 30 10. A method as claimed in claim 8, wherein the network system polls (1005) the devices to determine their positions, calculates differences between their positions, and if said differences are outside of an acceptable error determining that the user journey has ended. { Fig. 10B, original claim 10, pages 45, 56 59, Fig. 10A, }
11. A method as claimed in claims 9 or 10, wherein the devices communicate (1004) with each other using a near-field communication means, and the system determines that a

journey has ended if the devices are outside of a range. {Fig. 11B, pages 45, 46, original claim 10}

12. A method as claimed in any preceding claim, wherein the network (1209) determines a vehicle status according to access control rules, said status indicating authentication of a vehicle (1209), to allow restricted or favorably charged access to road or parking resources depending on rules for each type of use. {Figs. 12A to 12E, page 41}

13. A method as claimed in any preceding claim, wherein the network generates transport user displays (1401-1410) of real time transport information according to the stored capacity and to real time vehicle monitoring. (page 39, Figs. 14A to 14I)

14. A method as claimed in claim 13, wherein said information is in the form of a departure board (1481-1488). {page 39, Fig. 14G, H}

15. A method as claimed in any preceding claim, wherein the network registers transport capacity automatically according to movement of a vehicle which indicates its direction and destination. {pages 54, 55}

16. A method as claimed in any preceding claim, wherein a vehicle acts as a traffic probe, reporting on throughput and delays in traffic. {page 32}

17. A ground transportation network comprising:

an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles,

a network of nodes (803-806) which are pick-up or drop-off points;

means for gathering data concerning traffic between said nodes;

an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users individuals; and

a ~~central processing capability~~ matching engine (701) adapted to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one ~~individual~~ transport user in said electronic registry of demand.

5

and wherein:

10 the network comprises means for abstracting geographic representation of a transport vehicle position to nodes of said network by calculating places where a transport vehicle's journey intersects nodes of said network and representing the journey in the format of a set of nodes, and {pages 29, 30}

15 the matching engine (701) is adapted to continually gather data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.{page 32}



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this communication:**

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Blackrock, Co. Dublin
IRLANDE

Date	25-09-2009
------	------------

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1238 PCT/US2008001820
Applicant/Proprietor O'Sullivan, Sean	

Communication pursuant to Rules 161 and 162 EPC

(1) Amendment of application documents, especially the claims (R. 161 EPC)

The above mentioned international (Euro-PCT) application has entered the European phase.

Under Articles 28, 41 PCT, Rules 52, 78 PCT and Rule 137(2) to (4) EPC, the applicant may amend the application documents after receiving the international search report.

Whether or not he has already done so, he now has a further opportunity to file amended claims or other application documents within a non-extendable period of ONE MONTH after notification of the present communication (R. 161 EPC).

The claims applicable on expiry of the above time limit, i.e. those filed on entry into the European phase or in response to the present communication, will form the basis for the calculation of any claims fee to be paid (see page 2) and for any supplementary search to be carried out under Article 153(7) EPC (R. 161 EPC).

--2/

(2) Claims fees under Rule 162 EPC

If the application documents on which the European grant procedure is to be based comprise more than fifteen claims, a claims fee shall be payable for the sixteenth and each subsequent claim within the period provided for in Rule 159(1) EPC.

- ☒ Based on the application documents currently on file, all necessary claims fees have already been paid (or the documents do not comprise more than 15 claims).
- ☐ All necessary fees will be/have been debited automatically according to the automatic debit order.
- ☐ The claims fees due for the claims to were not paid within the above-mentioned period.

Any non-paid claims fee, either based on the current set of claims or on any amended claims to be filed pursuant to Rule 161 EPC (see page 1), may still be validly paid within a non-extendable period of **one month** after notification of this communication (R. 162(2) EPC).

If a payment is made for only some of the claims, it must be indicated for which claims it is intended. If a claims fee is not paid in due time, the claim concerned is deemed to be abandoned (R. 162(4) EPC).

If claims fees have already been paid, but on expiry of the above-mentioned period there is a new set of claims containing fewer fee-incurring claims than previously, the claims fees in excess of those due under Rule 162(2), 2nd sentence EPC will be refunded (R. 162(3) EPC).

You are reminded that any supplementary search under Article 153(7) EPC will relate only to the last set of claims applicable on expiry of the above period AND will be confined to those fee-incurring claims for which fees have been paid in due time.

The present amount of the claims fee is

EUR 200 for the 16th and each subsequent claim up to the limit of 50
EUR 500 for the 51st and each subsequent claim

Note to users of the automatic debiting procedure

Unless the EPO receives prior instructions to the contrary, the fees for all claims incurring fees will be debited on the last day of the period for payment. For further details see the Arrangements for the automatic debiting procedure, Supplement to OJ EPO 3/2009.

Receiving Section



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Tel.: +31 (0)70 340 45 00

Date
07.10.09

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1238 PCT/US2008001820
Applicant/Proprietor O'Sullivan, Sean	

Refund of fees

The following fee(s) was/were paid in respect of the application 08725447.0:

Fee	Reference	Voucher No	Date	Currency	Amount
Examination fee	006	00424723	10.09.09	EUR	1 252,00

According to the present state of the file the refund will be made by:

CREDITING THE DEPOSIT ACCOUNT 28060011 John A. O'Brien & Associates.

Amount refundable:	Reference	Currency	Amount	Voucher No
	006	EUR	128,00	00447529

Reason for refund: Overpayment

The Authorising Officer
Van Rosmalen
(31)(70)3403104





Payment of fees and costs

Zur Kasse

Patent Office
Cash and Accounts
3 München
Fax (+49-89) 2399-2528

Please complete using a typewriter or a word processor

01	Name of payer	John A O'Brien & Associates	Payer's reference	AVEG01/C/EP
	Address	Third Floor, Duncalm House, 14 Carysfort Avenue, Blackrock, Co. Dublin, Ireland	Mode of payment ¹	Bank/Giro Office
			☐ Bank/Giro transfer ¹	
			☐ Enclosed Cheque No	
			☒ Debit from deposit account with the EPO is requested ²	Deposit account No 28060011

Patent application / Patent No. (A separate form is required for each application)

03	EP	08725447.0	PCT		03
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	Code		Currency ³	Amount
04	001	Filing fee		
05	002	Search fee	EURO	1,050.00
06	005	Designation fee(s) ⁴		
07	015	Claims fee(s) (Rule 31(1) EPC)		
08	055	Additional copy		
09	006	Examination fee		
10	007	Fee for grant including fee for printing (up to 35 pages)		
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12	033	Renewal fee for the 3rd year		
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15		Extension fee(s) for ⁵ :		
16				
17				
18				
19				
20				
21				
22		Total	EURO	1,050.00

Signature *John A. O'Brien*
EPO Form 1010 07 00 wpt.pdf Explanations 1 - 5 see overleaf

Place, Date
Dublin, October 9, 2009



Posted

Einsender¹/Sender¹/Expéditeur¹ (bitte ausfüllen/please complete/veuillez compléter) :

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Pièces produites

Anmeldenummer/Patentnummer Application Number/Patent Number Numéro de la demande/numéro du brevet	Ihr Zeichen Your reference Votre référence	ggte. Art und Datum der Unterlagen ³ Nature and date of items (optional) ³ Nature et date des pièces (facultatif) ³
1. 087 25 44 7 - 0	AVEG01/c/EP	Letter dated October 9,
2.		2009 enclosing a Form
3.		1010 for payment of
4.		the supplementary
5.		European search fee.
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8.		

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Received at the EPO on Oct 09, 2009 15:27:45. Page 4 of 4

JOHN A. O'BRIEN & ASSOCIATESEUROPEAN PATENT ATTORNEYS REGISTERED PATENT
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FACSIMILE TRANSMITTAL SHEET

TO	FROM
Ms. Ghizzini	John A O'Brien & Associates
COMPANY	DATE
European Patent Office	October 9, 2009
FAX NUMBER	TOTAL NO. OF PAGES INCLUDING COVER
0049 89 23 99 44 65	4
PHONE NUMBER	SENDER'S REFERENCE NUMBER
0049 89 23 99 0	AVEG01/C/EP
RE	YOUR REFERENCE NUMBER
European Patent Application No. 08725447.0 <u>O'SULLIVAN, SEAN</u>	

☐ URGENT ☐ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

Dear Sirs,

Please refer to the attached.

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IRELANDReceived at the EPO on Oct 09, 2009 15:27:45, Page 1 of 4
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JOHN A. O'BRIEN & ASSOCIATES

European Patent Attorneys Registered Patent Agents Intellectual Property Consultants

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Germany

Attn: Ms. Ghizzini

**BY FAX
CONFIRMATION BY POST**

Our Ref: AVEG01/C/EP

October 9, 2009

Re: European Patent Application No. 08725447.0
Title: "Shared Transport System and Service Network"
Applicant(s): O'SULLIVAN, SEAN

Dear Sir,

We enclose a Form 1010 for payment of the supplementary European search fee for the above patent application.

Yours faithfully,


SARAH MURNAGHAN
PROFESSIONAL REPRESENTATIVE

JOHN A. O'BRIEN & ASSOCIATES

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EPO - Munich
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12. Okt. 2009

Attn: Ms. Ghizzini

BY FAX CONFIRMATION BY POST

Our Ref: AVEG01/C/EP

October 9, 2009

Re: European Patent Application No. 08725447.0
Title: "Shared Transport System and Service Network"
Applicant(s): O'SULLIVAN, SEAN

Dear Sir,

We enclose a Form 1010 for payment of the supplementary European search fee for the above patent application.

Yours faithfully,

Zur Kasse


SARAH MURNAGHAN
PROFESSIONAL REPRESENTATIVE



16 OCT 2009

EPO - Munich
11

19. Okt. 2009

1 General authorisation

554070.3

General authorisation No.
(For official use only)

Please forward the original direct to the EPO, Legal Division (Dir. 5.2.4) in Munich.
Please read the attached notes before completing the form.

2 I (We)

O'SULLIVAN, Sean
~~Cliff House,~~ LONG QUAY HOUSE
~~Compass Hill,~~ PEARSE STREET
Kinsale,
County Cork,
Ireland

Full name
and address
of authorisor(s)

3 do hereby authorise

WELDON, Michael J.
Professional Representative
John A O'Brien & Associates
Third Floor, Duncairn House,
14 Carysfort Avenue, Blackrock,
County Dublin, Ireland.

Full name
and address
of authorisee:
professional representative,
legal practitioner, employee,
association of representatives.
Please specify

4 to represent me (us) in all proceedings established by the European Patent Convention and to act for me (us) in all patent transactions.



This authorisation includes the power to receive payments on my (our) behalf.



This authorisation shall also apply to the same extent to any proceedings established by the Patent Cooperation Treaty.

5



Sub-authorisation may be given.



Additional representatives indicated on supplementary sheet.

6



Please return a copy, supplemented by the general authorisation number, to the authorisor.

Cork

Place

Sean O'Sullivan

Name (printed)

14 August 2009

Date

Position within the company

Sean O'Sullivan

Signature*

7 * The form must bear the personal signature(s) of the authorisor(s). In the case of legal persons, the signature must be that of the person empowered to sign on behalf of the company. If possible, please sign in blue.

1a

Additional representative(s)

Name(s):

O'BRIEN, John, A.
MURNAGHAN, Sarah

Address of place of business:

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European Patent Office
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19. Okt. 2009

Directorate 5.1.1

Our ref: AVEG01/C/EP

October 16, 2009

Re: European Patent Application No. 08725447.0
Applicant(s): O'SULLIVAN, SEAN

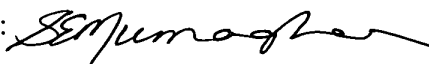
Dear Sirs,

We refer to the above reference patent application and enclose a copy of General Authorisation No. 554070.3 on behalf of O'Sullivan Sean.

Form 1037 is enclosed for acknowledgement of receipt.

Yours faithfully,

JOHN A. O'BRIEN & ASSOCIATES

BY: 

PROFESSIONAL REPRESENTATIVE



European Patent Office
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**For any questions about
this communication:**

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Blackrock, Co. Dublin
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Date 23-10-2009

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1238 PCT/US2008001820
Applicant/Proprietor O'Sullivan, Sean	

Noting of loss of rights pursuant to Rule 112(1) EPC

The European patent application cited above is deemed to be withdrawn (R. 160(1) EPC) for the following reason(s):

- ☐ translation of the international application into one of the EPO's official languages (Art. 153(4) EPC)
- ☐ filing fee
- ☐ additional fee for pages (Art. 2, item 1a, Rules relating to Fees)
.....
- ☐ designation fee
- ☒ search fee
- ☐ request for examination
- ☐ examination fee

not validly paid/not filed within the period specified in Rule 159(1) EPC.

- ☒ payment of the above fee(s) on 09.10.09 being after expiry
of the period for payment (on 14.09.09).

For information on the calculation of the additional fee, see Notice from the European Patent Office dated 26 January 2009 concerning the 2009 fee structure, OJ EPO 2/2009, 118, and Guidelines for Examination in the EPO, April 2009, A-III, 13.2.

Means of redress

Request for a decision (R. 112(2) EPC)

If the applicant considers that the finding of the European Patent Office is inaccurate, he may, within a (non-extendable) period of **two months** after notification of this communication, apply in writing for a decision on the matter. The application can only lead to the finding being reversed if this does not actually correspond to the factual or legal situation.

Further processing (Art. 121 EPC)

The legal consequence of the failure to observe the time limit shall be deemed not to have ensued if, within a (non-extendable) period of **two months** after notification of this communication, further processing is requested by payment of the fee prescribed under Article 2(12) of the Rules relating to Fees and the omitted act is completed (R. 135(1) EPC).

Registered letter

EPO Form 1205A 04.09 ADWI 2

It should be noted that if a loss of rights occurs because the translation or the request for examination has not been filed within the time limit, the flat-rate amount of the further processing fee ("other cases") is due and, where neither has been timely filed, this fee has to be paid twice. Apart from that, for any non-payment of fees in due time, 50% of the relevant fees become payable as further processing fees. In the case of non-payment or insufficient payment of the additional fee, the fee for further processing is calculated according to the number of pages for which the additional fee was not paid within the time limit.

Request under Article 7(3) and (4) Rules relating to Fees

The fee is considered to have been paid in due time if, within a period of **two months** from notification of this communication and in accordance with the requirements under Article 7(3) and (4) Rules relating to Fees, evidence is provided to the EPO that the payment was effected in an EPC Contracting State within the period in which the payment should have been made and, if applicable, the surcharge of 10% of the relevant fee(s) is paid.

Note

For applicants not having either a residence or principal place of business within the territory of one of the EPC Contracting States, the completion of the omitted acts (other than the non-payment of fees) for the purposes of a request under Article 121 EPC, or the filing of a request under Rule 112(2) EPC may only be undertaken by a professional representative authorised to act before the EPO.

Receiving Section

Annex: Schedule of Fees





Gebühren für in die europäische Phase eintretende internationale Anmeldungen in EURO *
Fees for international applications entering the European phase in EURO *
Taxes pour les demandes internationales entrant dans la phase européenne en EURO *

Anmeldegebühr	Das Formblatt für den Eintritt in die europäische Phase (EPA Form 1200) wird auf Papier eingereicht: The form for entry into the European phase (EPO Form 1200) is filed on paper : Le formulaire d'entrée dans la phase européenne (OEB Form 1200) est déposé sur papier :	180,00
Filing fee		
Taxe de dépôt	Das Formblatt für den Eintritt in die europäische Phase (EPA Form 1200) wird online eingereicht: The form for entry into the European phase (EPO Form 1200) is filed online : Le formulaire d'entrée dans la phase européenne (OEB Form 1200) est déposé en ligne :	100,00
Zusatzgebühr *	Für die 36. und jede weitere Seite Anwendbar für ab dem 1. April 2009 in die europäische Phase eintretende internationale Anmeldungen: For the 36th and each subsequent page Applicable to international applications entering the European phase on or after 1 April 2009 : Pour chaque page à partir de la 36ième Applicable aux demandes internationales entrant dans la phase européenne à compter du 1er avril 2009 :	12,00
Additional fee *		
Taxe additionnelle *		
Recherchegebühr **	Anwendbar für vor dem 1. Juli 2005 eingereichte internationale Anmeldungen: Applicable to international applications filed before 1 July 2005 : Applicable aux demandes internationales déposées avant le 1er juillet 2005 :	760,00
Search fee **		
Taxe de recherche **	Anwendbar für ab dem 1. Juli 2005 eingereichte internationale Anmeldungen: Applicable to international applications, filed on or after 1 July 2005 : Applicable aux demandes internationales déposées à compter du 1er juillet 2005 :	1050,00
Benennungsgebühr *	Für jeden benannten Vertragsstaat (siebenfacher Betrag = alle Vertragsstaaten) Anwendbar für vor dem 1. April 2009 in die europäische Phase eingetretene internationale Anmeldungen: For each Contracting State designated (seven times the amount = all Contracting States) Applicable to international applications having entered the European phase before 1 April 2009 : Pour chaque État contractant désigné (sept fois cette taxe = tous les États contractants) Applicables aux demandes internationales entrées dans la phase européenne avant le 1er avril 2009 :	85,00
Designation fee *		
Taxe de désignation*	Für einen oder mehr benannte Vertragsstaaten Anwendbar für ab dem 1. April 2009 in die europäische Phase eintretende internationale Anmeldungen: For one or more designated Contracting States Applicable to international applications entering the European phase on or after 1 April 2009 : Pour un ou plusieurs États contractants désignés Applicable aux demandes internationales entrant dans la phase européenne à compter du 1er avril 2009	500,00
Prüfungsgebühr **	Anwendbar für vor dem 1. Juli 2005 eingereichte internationale Anmeldungen: Applicable to international applications filed before 1 July 2005 : Applicable aux demandes internationales déposées avant le 1 juillet 2005 :	1565,00
Examination fee **	Anwendbar für ab dem 1. Juli 2005 eingereichte internationale Anmeldungen: Applicable to international applications filed on or after 1 July 2005 : Applicable aux demandes internationales déposées à compter du 1er juillet 2005 :	1405,00
Taxe d'examen **	Anwendbar für ab dem 1. Juli 2005 eingereichte internationale Anmeldungen, für die kein ergänzender europäischer Recherchenbericht erstellt wird (Art.153(7) EPÜ): Applicable to international applications filed on or after 1 July 2005 for which no supplementary European search report is drawn up (Art. 153(7) EPC): Applicable aux demandes internationales déposées à compter du 1er juillet 2005 pour lesquelles il n'est pas établi de rapport complémentaire de recherche européenne (Art. 153(7) CBE):	1565,00
Weiterbehandlungsgebühr (R. 135 EPÜ, Art. 2 GebO)	Bei verspäteter Gebührenzahlung : In the event of late payment of a fee : En cas de retard de paiement de taxe :	50% der betreffenden Gebühr 50% of the relevant fee 50% de la taxe concernée
Fee for further processing (R. 135 EPC, Art. 2 RFees)	Bei verspäteter Einreichung des schriftlichen Prüfungsantrags oder der Übersetzung : In case the written request for examination or the translation is filed late: En cas de retard de dépôt de la requête écrite en examen ou de la traduction :	je each chaque 210,00
Taxe de poursuite de la procédure (R. 135 CBE, Art. 2 RRT)		

**** Ermäßigungen können zutreffen (ABI. EPA 2008, 130) / Reductions may apply (OJ EPO 2008, 130) / Des réductions peuvent s'appliquer (JO OEB 2008, 130)**

* = Siehe Mitteilung des Europäischen Patentamts vom 26.01.2009 über die Gebührenstruktur 2009 (ABI. EPA 2009, 118)
 See Notice from the European Patent Office of 26.01.2009 concerning the 2009 fee structure (OJ EPO 2009, 118)
 Voir Communiqué de l'Office européen des brevets en date du 26.01.2009, relatif à la structure des taxes 2009 (JO OEB 2009, 118)

Hinweis/note/avis:

Die Zahlung mittels Schecks ist nicht möglich (ABI. EPA 2007, 626)
 Payment by cheque is not accepted (OJ EPO 2007, 626)
 Le paiement par chèque n'est pas accepté (JO OEB 2007, 626)

Bankkonten der Europäischen Patentorganisation in EURO (04.09)
Bank accounts of the European Patent Organisation in EURO (04.09)
Comptes bancaires de l'Organisation européenne des brevets en EURO (04.09)

Staat Country Pays	Bankkonto Bank account Compte bancaire	Anschrift Address Adresse	Staat Country Pays	Bankkonto Bank account Compte bancaire	Anschrift Address Adresse
AT	No. 102-133-851/00 (BLZ 12 000) IBAN AT91 1200 0102 1338 5100 BIC BKAUATWW	Bank Austria Creditanstalt AG Am Hof 2 Postfach 52000 1010 Wien AUSTRIA	IS	No. 0101-38-710440 IBAN IS77 0101 3871 0440 4312 0490 80 BIC LAISISRE Id no. EPO 431204-9080 (compulsary)	National Bank of Iceland Main Branch Austurstræti 11 101 Reykjavík ICELAND
BE	No. 310-0449878-78 IBAN BE69 3100 4498 7878 BIC BBRUBEBB	ING Belgium Marnix Business Branch 1, rue du Trône 1000 Bruxelles BELGIUM	IT	No. 936832 01 94 (conto estero) IBAN IT21 E030 6905 0200 0936 8320 194 BIC BCITITMM700 ABI 03069 / CAB 05020	Intesa Sanpaolo S.P.A. Via del Corso, 226 00186 Roma ITALY
BG	No. 1465104501 IBAN BG72 UNCR 7630 1465 1045 01 BIC UNCR BGSG	Unicredit Bulbank 7, Sveta Nedelya Sq. 1000 Sofia BULGARIA	LT	No. LT52 7044 0600 0559 2279 IBAN LT52 7044 0600 0559 2279 BIC CBVI LT 2X	AB SEB Vilniaus bankas Gedimino pr. 12 1103 Vilnius LITHUANIA
CH	No. 230-322 005 60 M IBAN CH49 0023 0230 3220 0560 M BIC UBSWCHZH80A	UBS Bahnhofstrasse 45 8021 Zürich SWITZERLAND	LU	No. 7-108/9134/200 IBAN LU41 0027 1089 1342 0000 BIC BILLULL	DEXIA Banque Internationale à Luxembourg 69, Route d'Esch 2953 Luxembourg LUXEMBOURG
CY	No. 0155-41-190144-48 IBAN CY68 0020 0155 0000 0041 1901 4448 BIC BCYPCY2N	Bank of Cyprus 2-4 Them. Dervi Street P.O. Box 1472 1599 Nicosia CYPRUS	LV	No. LV40UNLA0050008873109 IBAN LV40UNLA0050008873109 BIC UNLALV2XXXX	SEB Latvijas Unibanka Unicentrs, Kekavas Pagasts 1076 Rigas Rajons LATVIA
CZ	No. 01841280/0300 IBAN CZ52 0300 1712 8010 1700 2453 BIC CEKOCZPP	Ceskoslovenska Obchodní Banka A.S. Na Příkopě 854/14 11520 Praha 1 - Nové Město CZECH REPUBLIC	MC	No. 30004 09179 00025422154 91 (RIB) IBAN FR76 3000 4091 7900 0254 2215 491 BIC BNPAFRPPAMC	BNP - Paribas Agence Monaco Charles III Avenue de la Madone 98000 Monaco MONACO
DE	No. 3 338 800 00 (BLZ 700 800 00) IBAN DE20 7008 0000 0333 880000 BIC DRESDEFF SWIFT DRESDEFF700	Dresdner Bank Promenadeplatz 7 80273 München GERMANY	MK	Not yet available Noch nicht verfügbar Pas encore disponible	FORMER YUGOSLAV REPUBLIC of MACEDONIA
DK	No. 3001014560 IBAN DK94 3000 3001 0145 60 BIC DABADKKK	Danske Bank A/S Holmens Kanal Dept. Holmens Kanal 2-12 1092 Copenhagen K DENMARK	MT	Not yet available Noch nicht verfügbar Pas encore disponible	MALTA
EE	No. 10220025988223 IBAN EE24 1010 2200 2598 8223 BIC EEUHEE2X	SEB Eesti Ühispank AS Tornimäe 2, Tallinn 15010 Tallinn ESTONIA	NL	No. 51 36 38 547 IBAN NL54 ABNA 0513 6385 47 BIC ABNANL2A	ABN-AMRO Bank NV Kneuterdijk 1 Postbus 165 2501 AP Den Haag THE NETHERLANDS
ES	No. 0182-2325-08-029-0348002 IBAN ES54 0182 2325 0802 9034 8002 BIC BBVAESMM	Banco Bilbao Vizcaya Argentina Calle Alcalá 16, 1a Planta Oficina 2325 (Banca de Empresas) 28014 Madrid SPAIN	NO	Not yet available Noch nicht verfügbar Pas encore disponible	NORWAY
FI	No. 200118-182076 IBAN FI28 2001 1800 1820 76 BIC NDEAFIHH	Nordea Bank Finland plc. 1820 Foreign Customer Services Mannerheimintie 7, Helsinki 00020 Nordea FINLAND	PL	No. 42103015080000000504086003 IBAN PL42 1030 1508 0000 0005 0408 6003 BIC CITIPLPX	Bank Handlowy w Warszawie S.A. Senatorska 16 00-923 Warszawa POLAND
FR	No. 30004 00567 00020020463 29 (RIB) IBAN FR76 3000 4005 6700 0200 2046 329 BIC BNPAFRPPPOP	BNP - Paribas Agence: Paris Clientèle Internationale 2, Place de l'Opéra 75002 Paris FRANCE	PT	No. 2088391145 IBAN PT50 0033 0000 0208 8391 1452 2 BIC BCOMPTPL	Millennium.bcp Banco Comercial Português Av. Fontes Pereira de Melo, 7 1050-115 Lisboa PORTUGAL
GB	No. 86 98 72 66 (Sorting Code 20-47-35) IBAN GB10 BARC 2047 3586 9872 66 BIC BARCGB22	Barclays Bank plc International Corporate PO Box 391 38 Hans Crescent Knightsbridge London SW1X 0LZ THE UNITED KINGDOM	RO	No. 279682 IBAN RO36 BACX 0000 0002 7968 2000 BIC BACX ROBU	Unicredit Tiriac Bank S.A. Sucursala Rosetti Str. C.A. Rosetti Nr. 36, Sectorul 2, 020015 Bucuresti ROMANIA
GR	No. 112002002007046 IBAN GR36 0140 1120 1120 0200 2007 046 BIC CRBAGRAAXX	Alpha Bank Athens Tower Branch 2, Messoghion Avenue 115 27 Athens GREECE	SE	No. 6014-48857939 IBAN SE08 6000 0000 0000 4885 7939 BIC HANDSESS	SHB, HIFF-L Svenska Handelsbanken 106 70 Stockholm SWEDEN
HR	Not yet available Noch nicht verfügbar Pas encore disponible	CROATIA	SI	No. 03500-1000001709 IBAN SI56 0350 0100 0001 709 BIC SKBASIX	SKB Banka D.D. Ajdovščina 4 1513 Ljubljana SLOVENIA
HU	No. 11764946-00239880 IBAN HU46 1176 4946 0023 9880 0000 0000 BIC OTPVHUHB	OTP Bank Rt. Kőzponti Fiók Deák Ferenc utca 7-9 1052 Budapest HUNGARY	SK	No. 2920480237 (Bank code 1100) IBAN SK89 1100 0000 0029 2048 0237 BIC TATRSKBX	Tatra Banka A.S. Branch Banská Bystrica Dolná 2 97401 Banská Bystrica SLOVAKIA
IE	No. 309 822 01 (Bank Code 901 490) IBAN IE10 BOFI 9014 9030 9822 01 BIC BOFIE2D	Bank of Ireland Lower Baggot Street Branch P.O. Box 3131 Dublin 2 IRELAND	TR	No. 4214-301120-1039000 IBAN TR89 0006 4000 0024 2141 039000 BIC ISBKTRIS	Türkiye İS Bankası A.Ş. Gazi Mustafa Kemal Bulvarı 8 06640 Kızılay / Ankara TURKEY

JOHN A. O'BRIEN & ASSOCIATES

European Patent Attorneys (EPA*) Registered Patent Agents (RPA**) Intellectual Property Consultants

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European Patent Office
D-80298 München
Germany

EPO - Munich
46

03. Nov. 2009

BY REGISTERED POST

Our Ref: AVEG01/C/EP

October 29, 2009

Re: European Patent Application No. 08725447.0 - 1238
O'SULLIVAN, SEAN

Dear Sirs,

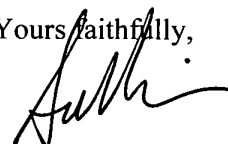
We refer to the above mentioned patent application and to the communication noting the loss of rights pursuant to Rule 112(1) EPC dated October 23, 2009.

We hereby request further processing pursuant to Art. 121 EPC and enclose a form 1010 in connection with the further processing fee.

Notwithstanding the fact that we have paid a supplementary search fee of €1,050.00 and a further processing fee of €525.00. It is our understanding that in accordance with the Decision of the Administrative Council of 27 October 2005 (OJ 2005,548), the supplementary search fee should be reduced by €190.00 as the United States Patent and Trademark Office was the international Search Authority. Therefore we believe a refund of €285.00 is due (€190.00 for the reduction of the supplementary search fee and €95.00 from over payment of the further processing fee).

Form 1037 is enclosed for acknowledgement of receipt.

Yours faithfully,



JOHN O'BRIEN
PROFESSIONAL REPRESENTATIVE

Zur Kasse



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Date

23-11-2009

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1238 PCT/US2008001820
Applicant/Proprietor O'Sullivan, Sean	

Decision on the request for further processing under Rule 135(3) EPC

The request for further processing received on 03.11.09 has been granted (Art. 121(2) EPC).

- ☒ The legal consequence notified in the communication dated 23.10.09 that the application was deemed to be withdrawn shall not ensue.
- ☐ The refusal of the application dated shall not ensue.
- ☐ The legal consequence notified in the communication dated that the particular loss of rights occurred shall not
- ☐ ensue.
- ☐ ensue for the following contracting state(s):

- ☐ The time limit set in the communication dated is deemed to have been met.

The procedure shall be continued/the particular loss of rights shall not ensue (Art. 121(3) EPC).

Receiving Section



Registered letter

EPO Form 1144 12.07 16.11.09

RFPR4=3



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Date

25.11.09

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1238 / 2135200 PCT/US2008001820
Applicant/Proprietor O'Sullivan, Sean	

Communication of European publication number and information on the application of Article 67(3) EPC

The provisional protection under Article 67(1) and (2) EPC in the individual Contracting States becomes effective only when the conditions referred to in Article 67(3) EPC have been fulfilled (for further details, see information brochure of the European Patent Office "National Law relating to the EPC" and additional information in the Official Journal of the European Patent Office).

Pursuant to Article 153(3) EPC the publication under Article 21 PCT of an international application for which the European Patent Office is a designated or elected Office takes the place of the publication of a European patent application.

The bibliographic data of the above-mentioned Euro-PCT application will be published on 23.12.09 in Section I.1 of the European Patent Bulletin. The European publication number is 2135200.

In all future communications to the European Patent Office, please quote the application number plus Directorate number.

Receiving Section





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02.12.09

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1238 / 2135200 PCT/US2008001820
Applicant/Proprietor O'Sullivan, Sean	

Refund of fees

The following fee(s) was/were paid in respect of the application 08725447.0:

Fee	Reference	Voucher No.	Date	Currency	Amount
Search fee	002	00463240	09.10.09	EUR	1 050,00

REFUND ORDER

- Reduction of the supplementary European search fee (see Notice from the European Patent Office dated 11 February 2008 concerning search and examination fees, OJ EPO 2008, 130)
- The refund will be done by:
CREDITING THE DEPOSIT ACCOUNT 28060011 John A. O'Brien & Associates.

Amount refundable:	Reference	Currency	Amount	Voucher No.
	002	EUR	190,00	00027742

The Authorising Officer
Van Den Berghe
(31)(70)3403285





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Date
02.12.09

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1238 / 2135200 PCT/US2008001820
Applicant/Proprietor O'Sullivan, Sean	

Refund of fees

The following fee(s) was/were paid in respect of the application 08725447.0:

Fee	Reference	Voucher No	Date	Currency	Amount
Further processing fee (late payment)	123	00489796	03.11.09	EUR	525,00

According to the present state of the file the refund will be made by:

CREDITING THE DEPOSIT ACCOUNT 28060011 John A. O'Brien & Associates.

Amount refundable:	Reference	Currency	Amount	Voucher No
	123	EUR	95,00	00027742

Reason for refund: Overpayment US

The Authorising Officer
Van Den Berghe
(31)(70)3403285



**SUPPLEMENTARY
EUROPEAN SEARCH REPORT**

Application Number
EP 08 72 5447

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 2 397 683 A (OLMI GIUSEPPE ANTONIO [GB]) 28 July 2004 (2004-07-28) * figures 1-4, 6, 8 * * page 8 - page 18 * * page 29 - page 36 * * page 40 - page 46 * * page 62 - page 64 * * page 77 - page 78 * * page 82 - pages 84, 87 * * page 94 - page 95 *	1-17	INV. G06Q10/00 ADD. G06Q50/00
X	US 2005/049781 A1 (OESTERLING CHRISTOPHER L [US]) 3 March 2005 (2005-03-03) * abstract; figures 1,2 * * paragraph [0001] - paragraph [0002] * * paragraph [0005] * * paragraph [0011] - paragraph [0017] * * paragraph [0026] * * paragraph [0031] * * paragraph [0040] *	1-17	
A	WO 2006/128946 A1 (ECOLANE FINLAND OY [FI]; POEYKKOE SAMI [FI]; RUUTU VILLE [FI]; SALMENK) 7 December 2006 (2006-12-07) * abstract; figures 1,2,10 * * page 2 - page 9 * * page 22 *	1-17	TECHNICAL FIELDS SEARCHED (IPC) G06Q
The supplementary search report has been based on the last set of claims valid and available at the start of the search.			
Place of search The Hague		Date of completion of the search 17 November 2011	Examiner Fiorenzo Catalano, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

2
EPO FORM 1503 03.82 (P04C04)

**SUPPLEMENTARY
EUROPEAN SEARCH REPORT**

Application Number
EP 08 72 5447

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	WALBRIDGE ED - INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS: "Real Time Ridesharing Using Wireless Pocket Phones to Access the Ride Matching Computer", PACIFIC RIM TRANSTECH CONFERENCE. VEHICLE NAVIGATION AND INFORMATION SYSTEMS CONFERENCE PROCEEDINGS. WASHINGTON, JULY 30 - AUG. 2, 1995; [PACIFIC RIM TRANSTECH CONFERENCE. VEHICLE NAVIGATION AND INFORMATION SYSTEMS CONFERENCE PROCEEDINGS], NEW YORK,, vol. CONF. 6, 30 July 1995 (1995-07-30), pages 486-492, XP002105805, DOI: 10.1109/VNIS.1995.518881 ISBN: 978-0-7803-2588-3 * the whole document * -----	1-17	
			TECHNICAL FIELDS SEARCHED (IPC)
The supplementary search report has been based on the last set of claims valid and available at the start of the search.			
Place of search		Date of completion of the search	Examiner
The Hague		17 November 2011	Fiorenzo Catalano, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

2
EPO FORM 1503 03.82 (P04C04)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 72 5447

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

17-11-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2397683	A	28-07-2004	NONE

US 2005049781	A1	03-03-2005	NONE

WO 2006128946	A1	07-12-2006	CA 2607123 A1 07-12-2006
			EP 1877970 A1 16-01-2008
			US 2008270204 A1 30-10-2008
			WO 2006128946 A1 07-12-2006

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82



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Date

24.11.11

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1238 / 2135200 PCT/US2008001820
Applicant/Proprietor O'Sullivan, Sean	

Communication

The extended European search report is enclosed.

The extended European search report includes, pursuant to Rule 62 EPC, the supplementary European search report (Art. 153(7) EPC) and the European search opinion.

Copies of documents cited in the European search report are attached.

☒ 0 additional set(s) of copies of such documents is (are) enclosed as well.

Refund of the search fee

If applicable under Article 9 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.



The examination is being carried out on the **following application documents**

Description, Pages

1-60 as published

Claims, Numbers

1-17 filed with entry into the regional phase before the EPO

Drawings, Sheets

1-32 as published

1 Reference is made to the following documents; the numbering will be adhered to in the rest of the procedure.

D1 GB 2 397 683 A (OLMI GIUSEPPE ANTONIO [GB]) 28 July 2004 (2004-07-28)

D2 US 2005/049781 A1 (OESTERLING CHRISTOPHER L [US]) 3 March 2005 (2005-03-03)

D3 WO 2006/128946 A1 (ECOLANE FINLAND OY [FI]; POEYKKOE SAMI [FI]; RUUTU VILLE [FI]; SALMENK) 7 December 2006 (2006-12-07)

D4 WALBRIDGE ED - INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS: "Real Time Ridesharing Using Wireless Pocket Phones to Access the Ride Matching Computer", PACIFIC RIM TRANSTECH CONFERENCE. VEHICLE NAVIGATION AND INFORMATION SYSTEMS CONFERENCE PROCEEDINGS. WASHINGTON, JULY 30 - AUG. 2, 1995; [PACIFIC RIM TRANSTECH CONFERENCE. VEHICLE NAVIGATION AND INFORMATION SYSTEMS CONFERENCE PROCEEDINGS], NEW YORK, vol. CONF. 6, 30 July 1995 (1995-07-30), pages 486-492, XP002105805, DOI: 10.1109/VNIS.1995.518881 ISBN: 978-0-7803-2588-3

1.1 The following document has been cited in the international search report; the numbering will be adhered to in the rest of the procedure.

D9 US 2007/052586 A1

2 Amendments, Article 123(2) EPC

2.1 The newly filed set of claims does not meet the requirements of Article 123(2) EPC as it appears that the subject-matter as amended extends beyond that which was originally filed for the following reasons:

New independent claim 17 has been amended to specify that the system further comprises that:

- the matching engine (701) is adapted to continually gather data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.

The Applicant indicated the basis for this amendment in page 32 of the description. However, the Examiner notes that the feature of new claim 1 relating to "the matching engine" does not correspond to the disclosure of page 32 section D of the description, which refers to an "active monitoring system", whereas the "matching engine appears to relates to the part of the system generating matches". This part of the amendment therefore is not directly and unambiguously derivable from the application as a whole and does not comply with the requirements of Article 123(2) EPC.

2.2 The same amendments have been introduced in new dependent claim 2, therefore similar reasoning applies to claim 2, rendering also claim 2 not complying with the requirements of Article 123(2) EPC.

3 Clarity, Article 84 EPC

3.1 The application does not meet the requirements of Article 84 EPC, because claims 1, 6, 7, 9, 10, 12, 13, 15 and 17 are not clear.

3.2 The term "network" and "ground transportation network" used in independent claims 1, 6, 7, 9, 12, 13, 15 and 17 is vague and unclear and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject - matter of said claims unclear (Article 84 EPC). In light of the description the Examiner assumes that the use of such terms relating to a "network" actually corresponds to a "Shared Transport System" comprising a server, a network of computers attached to Internet and telecommunications services, personal communication devices and vehicles (see description page 5 lines 3-5, page 13, Fig. 1, page 47-48). The terms "the network develops a stochastic model" in claim 6 and the "network uses gathered data" in claim 7 are also not clear.

3.3 Claim 10 is not clear, since the reference to claim 8 is not clear. Reference to claim 9 appears to be more appropriate.

4 Novelty, Article 54(1) and (2) EPC

4.1 The objections on Article 123(2) and Clarity of the subject-matter (see points 2 and 3) notwithstanding, the subject-matter of claims 1-17 has been examined as above objections have been overcome in a straightforward manner by amendments.

4.2 Document D1 discloses (the references in parentheses applying to this document):

A method, performed by a ground transportation network of sharing transportation (see D1 page 8 section 5.1, page 15 section 5.5, pages 29-30 section 6.2, Fig. 4), the method comprising the steps of

providing an electronic registry of capacity containing an indication of spare transport capacity and location of a plurality of transport vehicles (see D1 page 12 section 5.3, pages 13-14 section 5.4, page 31 section 7, pages 35-36 section 7.1, pages 42-43 section 7.3)

establishing a network of nodes which are pick-up or drop-off points (see D1 section 5.3 pages 11-12, section 5.4 page 14, Fig. 1-3) ;

providing an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users (see D1 section 5.3 pages 11-12, section 71 page 33) ; and

a matching engine effecting a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one transport user in said electronic registry of demand for transport between at least two of said nodes (see D1 pages 13-14 section 5.4, Fig. 1-4, 6).

Document D1 discloses all the features of claim 1, which therefore is not novel in the sense of Article 54(1) and (2) EPC.

5 Inventive step, Article 56 EPC

5.1 The subject-matter of independent claim 17 relates to a shared transport system comprising similar features of independent claim 1. The reasoning applied for claim 1 applies to claim 17 accordingly. The additional technical features of claim 17 relate to means for gathering data concerning traffic between nodes of the network, means for abstracting geographic representation of a transport vehicle position to nodes of the network and that the system is adapted to continually gather data concerning traffic between nodes of the network in order to inform transport users regarding traffic delays.

However the use of means for gathering data relating to traffic is well-known in the art of traffic monitoring, such as shown in D9, and the geographic representation of the transport vehicle position is also known in the prior art documents (see D1 and D3). The fact that the system would continually gather traffic data and use them to inform the user travelling from one node to another would be implemented by the skilled person without the use of inventive skills. Therefore, the Examiner notes that the subject-matter of independent claim 17 does not involve an inventive step as defined by Article 56 EPC.

- 5.2 Dependent claims 2-16 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the EPC with respect to novelty and/or inventive step.

The geographic representation of the transport vehicle position representing the vehicle journey, the establishing of the network of nodes and the network representing travel times between nodes is also known in the prior art documents (see D1 and D3).

The fact that vehicles act as traffic probes reporting real time traffic delays is also well-known in the art of traffic monitoring (see D9). Furthermore, the fact that the system would continually gather traffic data and use them for informing the user travelling from one node to another would be implemented by the skilled person without the use of inventive skills.

The use of GPS was well-known at the priority date of the application (2007), as it is shown in documents D1 and D2. The use of stochastic model for measuring volume of journey and the fact that the system applies access rules to allow the transport vehicles to access to road or parking with favourable charges is considered non-technical.

The display of real time transport information (claims 7 and 13) is already anticipated by D1 (see page 43 section 7.3, page 63 section 7.17, Fig. 8). The use of devices to determine the location of the users and the transport vehicles is also well-known in the art, see D1-D4. The fact that transport capacity is registered automatically is also disclosed in D1 (see D1 page 12 section 5.3, page 31 section 7, page 42 section 7.3).

6 Further proceedings

- 6.1 It is not at present apparent which part of the application could serve as a basis for a new, allowable claim.

- 6.2 Should the present application be pursued, the Applicant is requested to point out and discuss in his letter of reply any difference which would distinguish the subject matter of the present application from the disclosure of the available prior art.
- 6.3 The attention of the Applicant is drawn to the fact that the application may not be amended in such a way that it contains subject matter which extends beyond the content of the application as filed (Article 123(2) EPC).
- 6.4 In order to facilitate the examination of the conformity of the amended application with the requirements of Article 123(2) EPC, the applicant should clearly identify the amendments made, irrespective of whether they concern amendments by addition, replacement or deletion, and indicate the passages of the application as filed on which these amendments are based (see Guidelines E II, 1).
- 6.5 Amendments should be made by filing replacement pages. Unnecessary recasting of the description should be avoided. An amended abstract is not required. The applicant should also take account of the requirements of Rule 50(1) EPC. If handwritten amendments are submitted, they should be clearly legible to the printer.



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this communication:**

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Date
13.12.11

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1238 / 2135200 PCT/US2008001820
Applicant/Proprietor O'Sullivan, Sean	

Communication pursuant to Rules 70(2) and 70a(2) EPC

A supplementary European search report has been drawn up concerning the above-identified European patent application (publication number: 2135200).

Since the request for examination has been filed (R. 70(1), 159(1)(f), Art. 94(1) EPC) prior to the transmission of the supplementary European search report, you are hereby invited to indicate within

six months

of notification of this communication whether you wish to proceed further with the European patent application.

If you do not indicate in due time that you wish to proceed further with the European patent application, it **will be deemed to be withdrawn** (R. 70(3) EPC).

You are invited to correct any deficiencies noted in the opinion accompanying the European search report and to amend the description, claims and drawings within the above period (R. 70a(2), R. 137(2) EPC).

If filing amendments, you must identify them and indicate the basis for them in the application as filed. Failure to meet either requirement may lead to a communication from the Examining Division requesting that you correct this deficiency (R. 137(4) EPC).

Should the reply to the invitation pursuant to Rule 70a(2) EPC be filed in an admissible non-EPO language, a translation is to be submitted within one month of its filing (R. 6(2) EPC).

Should you not comply with or comment on this invitation within the time limit, the application **will be deemed to be withdrawn** in accordance with Rule 70a(3) EPC.

Receiving Section



Registered letter

EPO Form 1224 04.10 (RTB/ESOP01=N) DMEX

JOHN A. O'BRIEN & ASSOCIATES

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*By fax
Confirmation by post*

Our Ref: AVEG01/C/EP

May 25, 2012

Re: EP Patent Application No. 08725447.0
O'SULLIVAN, SEAN

Dear Sirs,

This is in response to the Rule 80(2) and 70a(2) EPC Communication dated December 13, 2011.

Please find enclosed amended pages 4 and 61 – 64, and copies of these pages with the amendments highlighted.

Articles 123(2) and 84 EPC

The claims are amended to correct the deficiencies indicated in sections 2 and 3 of the above Communication. The apparatus is termed a “shared transport system” throughout, to avoid confusion with the “network of nodes” which it establishes. Also, the term “active monitoring system” has been used for the component which gathers data, for improved clarity.

The examiner is invited to contact the undersigned if there are any outstanding queries in this regard.

Articles 54 and 56 EPC

Claim 1 has been amended to include the subject matter of previous claim 2. Also, the scope of claim 17 (now 16) has been amended accordingly.

Importantly, in the revised independent claims 1 and 16, the system establishes a network of nodes which are pick-up or drop-off points. Also, the system abstracts geographic representation of a vehicle journey to nodes of this network. This is counter-intuitive because the prior art describes the very different approach of instructing the vehicle to drive to the location where the user happens to be located, akin to a taxi company. The invention achieves much more efficient processor operation because there are likely to be

much fewer network nodes in a city than addresses and hence the permutations for journeys are much fewer, by several orders of magnitude.

Referring for example to the abstract of D1, the prior approach involved: “..... *travellers must submit their itinerary requirements to the computer system.*” The computer system then “...*creates a customised road route for this transit vehicle so that each traveller thus grouped is picked up and conveyed exactly according to his itinerary*”. Please also refer to page 64 third paragraph, in which it is stated that the D1 approach is like that of a taxibus, and there is a fare increase for a “diversion time”. D1 is a very lengthy document and it taught the person of ordinary skill at the priority date to devise a shared transport system in such a manner, with routes being instructed in real time according to where the requesting traveller happens to be. D1 relies on supply of journey information in terms of an itinerary and driver navigational instructions (e.g. page 11, page 12 line 26, and page 14). Where D1 uses the term “Intelligent Grouping” it means use of a digitized map (page 14 lines 37 – 40).

Referring again to our claim 1, by abstracting geographical representations of vehicle journeys to nodes as claimed, the system can efficiently perform active monitoring and matching as claimed to match demand with capacity. Even as the system becomes very busy with many drivers and many travellers the computing is relatively straight-forward because of use of the established network of nodes. Also, even though the network of nodes is established, there is still flexibility because the system can automatically adapt to changing circumstances in a dynamic manner. In effect, the network of nodes established by the system uses the real-life movement of the vehicles by virtue of the abstracting step. The system can provide detailed information to prospective users in terms of these nodes, so that the user knows where to go for a drop-off or pick-up.

Further, by providing a network of nodes a computer can computationally generate useful information about the capabilities of the network, as illustrated for example in our Figs. 14 G, H, and I. Also please refer to Fig. 5A, third step, which shows the computer presenting route options in terms of the nodes. The following steps are much simpler computationally than if the driver needed to drive to a specific location provided by the passenger, and all of the consequent co-ordination required for any other passengers.

D2 is concerned with matching a driver's actual route with an existing database of car-pooler's requests for service. We have not found in this disclosure an established network of nodes

Document D3 is concerned with aspects such as fare payment, distance calculations and message analysis. It states in its abstract for example the records are produced according to requested drop-off points and pick-up points. Also, this document is concerned with optimizing the allocation of passengers to vehicles, based on payments and distances etc. It applies especially to public service operators managing rosters of passengers in a fleet of vehicles.

D4 is a general discussion about the benefits of ride-sharing without any suggestion of the claimed invention. It does not provide network definition or journey abstracting. It merely mentions zone-to-zone matching which does not involve a stream of nodes and would thus miss match any routes that were a superset of the nodes traversed in a path. It appears to us that it would therefore miss many potential matches that would be achieved with the invention. Also, it would not have the possibility of matching without requiring re-routing the driver, as zone-based matching would often require further co-ordination between the rider and the driver.

D9 concerns notification communication with "Mobile Things, MTs" and for example providing advertisements (Figs. 11 and 12). As demonstrated in Fig. 14B it relies on received data on individual MT journeys. It describes creating a roster of pick-up or drop-off activity for the benefit of a driver or transport operator. We have not found any disclosure of generating a transport network of nodes as claimed.

In summary, the prior approaches have all involved real time determining of where the traveller is to be picked up and giving instructions to the drivers accordingly, in a manner generally akin to a taxi company. There is no suggestion of the combination of the features of the amended claim 1, in which a network of nodes is established and journey abstracting, matching, and monitoring is performed.

The invention is much more suitable to the bottom-up creation of a general transport network (as shown in Figures 14G H I, rather than the prior approaches' focus on dispatching and optimization from the viewpoint of a single vehicle.

Further the subsidiary claims add several inventive features. For example referring to claims 8 and 9 there is continuous coordinated proximity monitoring, in which distances between a user and a vehicle is determined according to their communication devices, and using this to determines if a journey has ended. We have not found any disclosure or suggestion of this.

As we understand it this claim is allowable, however the examiner is invited to contact the undersigned at +353-23-8852144 if there are any outstanding queries. Also, the applicant hereby requests, in advance of any adverse decision being taken, in order of preference a telephone interview, a personal interview, or oral proceedings under Article 116 EPC.

The amendment to and/or deletion of the claims and specification should not be interpreted as abandonment of those claims or any subject matter and is without prejudice to re-instatement of those claims and subject matter or to the filing of a divisional patent application for those claims and subject-matter.

Yours sincerely,



MICHAEL WELDON
PROFESSIONAL REPRESENTATIVE

Encs.

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Amended Claims

1. A method, performed by a shared transport system (11, 12), of sharing transportation, the method comprising the steps of

providing (723) an electronic registry of capacity containing an indication of spare transport capacity and location of a plurality of transport vehicles,

establishing a shared transport network of nodes (803-806) which are pick-up or drop-off points,

abstracting geographic representation of a transport vehicle journey to nodes (803-806) of said network by calculating places where a transport vehicle's (16-18) journey intersects nodes of said network and representing the journey in the format of a set of nodes;

providing (723) an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users;

a matching engine (701) effecting a match of said transport capacity of at least one transport vehicle (16-18) in said electronic registry of capacity with said transport demand of at least one transport user (13) in said electronic registry of demand for transport between at least two of said nodes (803-806), and

an active monitoring system gathering data concerning traffic between said nodes (803-806), and the matching engine using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.
2. A method as claimed in claim 1, wherein the step of establishing the network of nodes (803-806) is determined from existing databases (712) of stops for bus networks or are created by an in-vehicle system (17-18).
3. A method as claimed in any preceding claim, wherein the geographic representation is received from a GPS unit (17-18).

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4. A method as claimed in any preceding claim, wherein the shared transport system represents travel times between nodes using journeys when organized as a stream of nodes (803-806).
5. A method as claimed in any preceding claim, wherein the system develops a stochastic model from measuring volume of journeys between a plurality of nodes in said network of nodes, in which volume of spare transport capacity is continually monitored by wireless communication with location-aware transport vehicles (16-18).
6. A method as claimed in any preceding claim, wherein the system uses gathered data to display (1481-1487) real time transport capacity between the nodes.
7. A method as claimed in claim 6, wherein the shared transport system logically represents a driver's journey on a route with intermediate nodes, with activity at each node and a variation of timing as expected by the shared transport system for that time of day.
8. A method as claimed in any preceding claim, wherein the system performs continuous coordinated proximity monitoring (1001-1006) to verify the identity of a transport user and a transport provider vehicle, by the system communicating with a transport user device and with a transport provider device.
9. A method as claimed in claim 5, wherein the system polls (1005) the devices to determine their positions, calculates differences between their positions, and if said differences are outside of an acceptable error determining that the user journey has ended.
10. A method as claimed in claims 8 or 9, wherein the devices communicate (1004) with each other using a near-field communication means, and the system determines that a journey has ended if the devices are outside of a range.
11. A method as claimed in any preceding claim, wherein the system determines a vehicle status according to access control rules, said status indicating authentication of a vehicle

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(1209), to allow restricted or favourably charged access to road or parking resources depending on rules for each type of use.

12. A method as claimed in any preceding claim, wherein the system generates transport user displays (1401-1410) of real time transport information according to the stored capacity and to real time vehicle monitoring.
13. A method as claimed in claim 12, wherein said information is in the form of a departure board (1481-1488).
14. A method as claimed in any preceding claim, wherein the system registers transport capacity automatically according to movement of a vehicle which indicates its direction and destination.
15. A method as claimed in any preceding claim, wherein a vehicle acts as a traffic probe, reporting on throughput and delays in traffic.
16. A shared transport system comprising:

an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles,

a shared transport network of nodes (803-806) which are pick-up or drop-off points;

means for gathering data concerning traffic between said nodes;

an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users; and

a matching engine (701) adapted to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one transport user in said electronic registry of demand;

and wherein:

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the network comprises means for abstracting geographic representation of a transport vehicle position to nodes of said network by calculating places where a transport vehicle's journey intersects nodes of said network and representing the journey in the format of a set of nodes, and

the matching engine (701) is adapted to continually gather data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.

Amended Claims

1. A method, performed by a ~~ground-transportation-network~~ shared transport system (11, 12), of sharing transportation, the method comprising the steps of

providing (723) an electronic registry of capacity containing an indication of spare transport capacity and location of a plurality of transport vehicles,

establishing a shared transport *{page 29, line 14}* network of nodes (803-806) which are pick-up or drop-off points,

abstracting geographic representation of a transport vehicle journey to nodes (803-806) of said network by calculating places where a transport vehicle's (16-18) journey intersects nodes of said network and representing the journey in the format of a set of nodes; {claim 2, and page 30 lines 4-15}

providing (723) an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users; and

a matching engine (701) effecting a match of said transport capacity of at least one transport vehicle (16-18) in said electronic registry of capacity with said transport demand of at least one transport user (13) in said electronic registry of demand for transport between at least two of said nodes (803-806), and

an active monitoring system gathering data concerning traffic between said nodes (803-806), and the matching engine using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.*{previous claim 2, pages 10 and 31- 32, Figs. 7, 8a and 8b}*

2. ~~A method as claimed in claim 1, comprising the further steps of:~~

~~abstracting geographic representation of a transport vehicle journey to nodes (803-806) of said network by calculating places where a transport vehicle's (16-18) journey intersects nodes of said network and representing the journey in the format of a set of nodes, and~~

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- ~~the matching engine (701) continually gathering data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.~~
- 3 ~~2~~. A method as claimed in claims 1 ~~or 2~~, wherein the step of establishing the network of nodes (803-806) is determined from existing databases (712) of stops for bus networks or are created by an in-vehicle system (17-18).
- 4 ~~3~~. A method as claimed in any preceding claim, wherein the geographic representation is received from a GPS unit (17-18).
- 5 ~~4~~. A method as claimed in any preceding claim, wherein the shared transport system network represents travel times between nodes using journeys when organized as a stream of nodes (803-806).
- 6 ~~5~~. A method as claimed in any preceding claim, wherein the network system develops a stochastic model from measuring volume of journeys between a plurality of nodes in said network of nodes, in which volume of spare transport capacity is continually monitored by wireless communication with location-aware transport vehicles (16-18).
- 7 ~~6~~. A method as claimed in any preceding claim, wherein the network system uses gathered data to display (1481-1487) real time transport capacity between the nodes.
8. — ~~7~~ A method as claimed in claim ~~6~~ 7, wherein the shared transport system network logically represents a driver's journey on a route with intermediate nodes, with activity at each node and a variation of timing as expected by the shared transport system network for that time of day.
- 9 ~~8~~. A method as claimed in any preceding claim, wherein the network system performs continuous coordinated proximity monitoring (1001-1006) to verify the identity of a transport user and a transport provider vehicle, by ~~a network~~ the system communicating with a transport user device and with a transport provider device.

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- ~~40~~ 9. A method as claimed in claim ~~8~~ 5, wherein the ~~network~~ system polls (1005) the devices to determine their positions, calculates differences between their positions, and if said differences are outside of an acceptable error determining that the user journey has ended.
- ~~41~~ 10. A method as claimed in claims ~~9~~ or 10 ~~8 or 9~~, wherein the devices communicate (1004) with each other using a near-field communication means, and the system determines that a journey has ended if the devices are outside of a range.
- ~~42~~ 11. A method as claimed in any preceding claim, wherein the ~~network~~ ~~(1209)~~ system determines a vehicle status according to access control rules, said status indicating authentication of a vehicle (1209), to allow restricted or favourably charged access to road or parking resources depending on rules for each type of use.
- ~~43~~ 12. A method as claimed in any preceding claim, wherein the ~~network~~ system generates transport user displays (1401-1410) of real time transport information according to the stored capacity and to real time vehicle monitoring.
- ~~44~~ 13. A method as claimed in claim ~~43~~ 12, wherein said information is in the form of a departure board (1481-1488).
- ~~45~~ 14. A method as claimed in any preceding claim, wherein the ~~network~~ system registers transport capacity automatically according to movement of a vehicle which indicates its direction and destination.
- ~~46~~ 15. A method as claimed in any preceding claim, wherein a vehicle acts as a traffic probe, reporting on throughput and delays in traffic.
- ~~47~~ 16. A ~~ground transportation network~~ shared transport system comprising:
- an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles,
- a shared transport network of nodes (803-806) which are pick-up or drop-off points;

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means for gathering data concerning traffic between said nodes;

an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users; and

a matching engine (701) adapted to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one transport user in said electronic registry of demand;

and wherein:

the network comprises means for abstracting geographic representation of a transport vehicle position to nodes of said network by calculating places where a transport vehicle's journey intersects nodes of said network and representing the journey in the format of a set of nodes, and

the matching engine (701) is adapted to continually gather data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.

JOHN A. O'BRIEN & ASSOCIATES

EUROPEAN PATENT ATTORNEYS REGISTERED PATENT AGENTS
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NOTES/COMMENTS:

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Lorise O'Regan

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Please note that the information contained in this fax transmission is confidential. If this transmission has been received in error, please contact the sender by telephone and arrange to return it to the sender. Any costs will be reimbursed. Thank you for your help.

JOHN A. O'BRIEN & ASSOCIATES

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- 4 -

popularization of highways in the 1950s in the US, cities have become increasingly suburban. Highway systems do not complement mass transit systems and, in fact, work against mass transit systems by enabling urban sprawl to the point where mass transit infrastructure is unsustainable (at the extremities of a city center, due to lack of population density) and unattractive (because of inconvenient intermodal interchange). As fewer people use mass transit, less routes are supportable, less area is reachable via mass transit, and thus more people need to rely on relatively costly and ecologically damaging individual transport, resulting in the mass transit system itself imploding with a lack of critical mass, while personal transport systems simultaneously suffer through massive over-congestion.

GB2397683 describes an autonomous dial-a-ride system. A computer creates a customised road route so that each traveller is picked up and conveyed exactly according to his itinerary.

US2005/0049781 describes a carpool service in which matches are made according to determining vehicle positional information.

It is an object of the invention to provide a system that enables regular highway traffic and privately owned personal transport systems to augment and enable public mass transit networks.

It is another object of the invention to match a need to move individuals and/or goods from one geographic point to another geographic point ("Transport Demand") with an unrelated driver's unused transportation capacity.

It is another object of the invention to provide riders and transport providers with information services and content that adequately enable the use and expansion of such a system.

The invention is as set out in the claims.

Briefly, the invention provides a network system that matches the supply and demand of transportation services by incorporating unused transportation capacity (i.e., empty seats) with a real-time allocation and matching service that enables individuals

WO 2008/100489

PCT/US2008/001820

popularization of highways in the 1950s in the US, cities have become increasingly suburban. Highway systems do not complement mass transit systems and, in fact, work against mass transit systems by enabling urban sprawl to the point where mass transit infrastructure is unsustainable (at the extremities of a city center, due to lack of population density) and unattractive (because of inconvenient intermodal interchange). As fewer people use mass transit, less routes are supportable, less area is reachable via mass transit, and thus more people need to rely on relatively costly and ecologically damaging individual transport, resulting in the mass transit system itself imploding with a lack of critical mass, while personal transport systems simultaneously suffer through massive over-congestion.

* →

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* * →

Briefly, the invention provides a network system that matches the supply and demand of transportation services by incorporating unused transportation capacity (i.e., empty seats) with a real-time allocation and matching service that enables individuals

* GB2397683 describes an autonomous dial-a-ride system. A computer creates a customised road route so that each traveller is picked up and conveyed directly according to his itinerary. US 2005/0049781 describes a carpool service in which matches are made according to determining vehicle positional information.

** the invention is as set out in the claims.

JOHN A. O'BRIEN & ASSOCIATES

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29. Mai 2012

*By fax
Confirmation by post*

Our Ref: AVEG01/C/EP

May 25, 2012

Re: EP Patent Application No. 08725447.0
O'SULLIVAN, SEAN

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Articles 123(2) and 84 EPC

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Articles 54 and 56 EPC

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much fewer network nodes in a city than addresses and hence the permutations for journeys are much fewer, by several orders of magnitude.

Referring for example to the abstract of D1, the prior approach involved: “..... *travellers must submit their itinerary requirements to the computer system.*” The computer system then “...*creates a customised road route for this transit vehicle so that each traveller thus grouped is picked up and conveyed exactly according to his itinerary*”. Please also refer to page 64 third paragraph, in which it is stated that the D1 approach is like that of a taxibus, and there is a fare increase for a “diversion time”. D1 is a very lengthy document and it taught the person of ordinary skill at the priority date to devise a shared transport system in such a manner, with routes being instructed in real time according to where the requesting traveller happens to be. D1 relies on supply of journey information in terms of an itinerary and driver navigational instructions (e.g. page 11, page 12 line 26, and page 14). Where D1 uses the term “Intelligent Grouping” it means use of a digitized map (page 14 lines 37 – 40).

Referring again to our claim 1, by abstracting geographical representations of vehicle journeys to nodes as claimed, the system can efficiently perform active monitoring and matching as claimed to match demand with capacity. Even as the system becomes very busy with many drivers and many travellers the computing is relatively straight-forward because of use of the established network of nodes. Also, even though the network of nodes is established, there is still flexibility because the system can automatically adapt to changing circumstances in a dynamic manner. In effect, the network of nodes established by the system uses the real-life movement of the vehicles by virtue of the abstracting step. The system can provide detailed information to prospective users in terms of these nodes, so that the user knows where to go for a drop-off or pick-up.

Further, by providing a network of nodes a computer can computationally generate useful information about the capabilities of the network, as illustrated for example in our Figs. 14 G, H, and I. Also please refer to Fig. 5A, third step, which shows the computer presenting route options in terms of the nodes. The following steps are much simpler computationally than if the driver needed to drive to a specific location provided by the passenger, and all of the consequent co-ordination required for any other passengers.

D2 is concerned with matching a driver’s actual route with an existing database of car-pooler’s requests for service. We have not found in this disclosure an established network of nodes

Document D3 is concerned with aspects such as fare payment, distance calculations and message analysis. It states in its abstract for example the records are produced according to requested drop-off points and pick-up points. Also, this document is concerned with optimizing the allocation of passengers to vehicles, based on payments and distances etc. It applies especially to public service operators managing rosters of passengers in a fleet of vehicles.

D4 is a general discussion about the benefits of ride-sharing without any suggestion of the claimed invention. It does not provide network definition or journey abstracting. It merely mentions zone-to-zone matching which does not involve a stream of nodes and would thus miss match any routes that were a superset of the nodes traversed in a path. It appears to us that it would therefore miss many potential matches that would be achieved with the invention. Also, it would not have the possibility of matching without requiring re-routing the driver, as zone-based matching would often require further co-ordination between the rider and the driver.

D9 concerns notification communication with "Mobile Things, MTs" and for example providing advertisements (Figs. 11 and 12). As demonstrated in Fig. 14B it relies on received data on individual MT journeys. It describes creating a roster of pick-up or drop-off activity for the benefit of a driver or transport operator. We have not found any disclosure of generating a transport network of nodes as claimed.

In summary, the prior approaches have all involved real time determining of where the traveller is to be picked up and giving instructions to the drivers accordingly, in a manner generally akin to a taxi company. There is no suggestion of the combination of the features of the amended claim 1, in which a network of nodes is established and journey abstracting, matching, and monitoring is performed.

The invention is much more suitable to the bottom-up creation of a general transport network (as shown in Figures 14G H I, rather than the prior approaches' focus on dispatching and optimization from the viewpoint of a single vehicle.

Further the subsidiary claims add several inventive features. For example referring to claims 8 and 9 there is continuous coordinated proximity monitoring, in which distances between a user and a vehicle is determined according to their communication devices, and using this to determine if a journey has ended. We have not found any disclosure or suggestion of this.

As we understand it this claim is allowable, however the examiner is invited to contact the undersigned at +353-23-8852144 if there are any outstanding queries. Also, the applicant hereby requests, in advance of any adverse decision being taken, in order of preference a telephone interview, a personal interview, or oral proceedings under Article 116 EPC.

The amendment to and/or deletion of the claims and specification should not be interpreted as abandonment of those claims or any subject matter and is without prejudice to re-instatement of those claims and subject matter or to the filing of a divisional patent application for those claims and subject-matter.

Yours sincerely,



MICHAEL WELDON
PROFESSIONAL REPRESENTATIVE

Encs.

Amended Claims

1. A method, performed by a shared transport system (11, 12), of sharing transportation, the method comprising the steps of

providing (723) an electronic registry of capacity containing an indication of spare transport capacity and location of a plurality of transport vehicles,

establishing a shared transport network of nodes (803-806) which are pick-up or drop-off points,

abstracting geographic representation of a transport vehicle journey to nodes (803-806) of said network by calculating places where a transport vehicle's (16-18) journey intersects nodes of said network and representing the journey in the format of a set of nodes;

providing (723) an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users;

a matching engine (701) effecting a match of said transport capacity of at least one transport vehicle (16-18) in said electronic registry of capacity with said transport demand of at least one transport user (13) in said electronic registry of demand for transport between at least two of said nodes (803-806), and

an active monitoring system gathering data concerning traffic between said nodes (803-806), and the matching engine using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.
2. A method as claimed in claim 1, wherein the step of establishing the network of nodes (803-806) is determined from existing databases (712) of stops for bus networks or are created by an in-vehicle system (17-18).
3. A method as claimed in any preceding claim, wherein the geographic representation is received from a GPS unit (17-18).

4. A method as claimed in any preceding claim, wherein the shared transport system represents travel times between nodes using journeys when organized as a stream of nodes (803-806).
5. A method as claimed in any preceding claim, wherein the system develops a stochastic model from measuring volume of journeys between a plurality of nodes in said network of nodes, in which volume of spare transport capacity is continually monitored by wireless communication with location-aware transport vehicles (16-18).
6. A method as claimed in any preceding claim, wherein the system uses gathered data to display (1481-1487) real time transport capacity between the nodes.
7. A method as claimed in claim 6, wherein the shared transport system logically represents a driver's journey on a route with intermediate nodes, with activity at each node and a variation of timing as expected by the shared transport system for that time of day.
8. A method as claimed in any preceding claim, wherein the system performs continuous coordinated proximity monitoring (1001-1006) to verify the identity of a transport user and a transport provider vehicle, by the system communicating with a transport user device and with a transport provider device.
9. A method as claimed in claim 5, wherein the system polls (1005) the devices to determine their positions, calculates differences between their positions, and if said differences are outside of an acceptable error determining that the user journey has ended.
10. A method as claimed in claims 8 or 9, wherein the devices communicate (1004) with each other using a near-field communication means, and the system determines that a journey has ended if the devices are outside of a range.
11. A method as claimed in any preceding claim, wherein the system determines a vehicle status according to access control rules, said status indicating authentication of a vehicle

(1209), to allow restricted or favourably charged access to road or parking resources depending on rules for each type of use.

12. A method as claimed in any preceding claim, wherein the system generates transport user displays (1401-1410) of real time transport information according to the stored capacity and to real time vehicle monitoring.
13. A method as claimed in claim 12, wherein said information is in the form of a departure board (1481-1488).
14. A method as claimed in any preceding claim, wherein the system registers transport capacity automatically according to movement of a vehicle which indicates its direction and destination.
15. A method as claimed in any preceding claim, wherein a vehicle acts as a traffic probe, reporting on throughput and delays in traffic.
16. A shared transport system comprising:

an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles,

a shared transport network of nodes (803-806) which are pick-up or drop-off points;

means for gathering data concerning traffic between said nodes;

an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users; and

a matching engine (701) adapted to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one transport user in said electronic registry of demand;

and wherein:

the network comprises means for abstracting geographic representation of a transport vehicle position to nodes of said network by calculating places where a transport vehicle's journey intersects nodes of said network and representing the journey in the format of a set of nodes, and

the matching engine (701) is adapted to continually gather data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.

Amended Claims

1. A method, performed by a ~~ground transportation network~~ shared transport system (11, 12), of sharing transportation, the method comprising the steps of

providing (723) an electronic registry of capacity containing an indication of spare transport capacity and location of a plurality of transport vehicles,

establishing a shared transport {page 29, line 14} network of nodes (803-806) which are pick-up or drop-off points,

abstracting geographic representation of a transport vehicle journey to nodes (803-806) of said network by calculating places where a transport vehicle's (16-18) journey intersects nodes of said network and representing the journey in the format of a set of nodes: {claim 2, and page 30 lines 4-15}

providing (723) an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users; ~~and~~

a matching engine (701) effecting a match of said transport capacity of at least one transport vehicle (16-18) in said electronic registry of capacity with said transport demand of at least one transport user (13) in said electronic registry of demand for transport between at least two of said nodes (803-806), and

an active monitoring system gathering data concerning traffic between said nodes (803-806), and the matching engine using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.{previous claim 2, pages 10 and 31- 32, Figs. 7, 8a and 8b}

2. ~~A method as claimed in claim 1, comprising the further steps of:~~

~~abstracting geographic representation of a transport vehicle journey to nodes (803-806) of said network by calculating places where a transport vehicle's (16-18) journey intersects nodes of said network and representing the journey in the format of a set of nodes, and~~

~~the matching engine (701) continually gathering data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.~~

- 3 2. A method as claimed in claims 1 or 2, wherein the step of establishing the network of nodes (803-806) is determined from existing databases (712) of stops for bus networks or are created by an in-vehicle system (17-18).
- 4 3. A method as claimed in any preceding claim, wherein the geographic representation is received from a GPS unit (17-18).
- 5 4. A method as claimed in any preceding claim, wherein the shared transport system network represents travel times between nodes using journeys when organized as a stream of nodes (803-806).
- 6 5. A method as claimed in any preceding claim, wherein the network system develops a stochastic model from measuring volume of journeys between a plurality of nodes in said network of nodes, in which volume of spare transport capacity is continually monitored by wireless communication with location-aware transport vehicles (16-18).
- 7 6. A method as claimed in any preceding claim, wherein the network system uses gathered data to display (1481-1487) real time transport capacity between the nodes.
8. — 7 A method as claimed in claim 6 7, wherein the shared transport system network logically represents a driver's journey on a route with intermediate nodes, with activity at each node and a variation of timing as expected by the shared transport system network for that time of day.
- 9 8. A method as claimed in any preceding claim, wherein the network system performs continuous coordinated proximity monitoring (1001-1006) to verify the identity of a transport user and a transport provider vehicle, by a network the system communicating with a transport user device and with a transport provider device.

- ~~10~~ 9. A method as claimed in claim ~~8~~ 5, wherein the ~~network~~ system polls (1005) the devices to determine their positions, calculates differences between their positions, and if said differences are outside of an acceptable error determining that the user journey has ended.
- ~~11~~ 10. A method as claimed in claims ~~9 or 10~~ 8 or 9, wherein the devices communicate (1004) with each other using a near-field communication means, and the system determines that a journey has ended if the devices are outside of a range.
- ~~12~~ 11. A method as claimed in any preceding claim, wherein the ~~network~~ ~~(1209)~~ system determines a vehicle status according to access control rules, said status indicating authentication of a vehicle (1209), to allow restricted or favourably charged access to road or parking resources depending on rules for each type of use.
- ~~13~~ 12. A method as claimed in any preceding claim, wherein the ~~network~~ system generates transport user displays (1401-1410) of real time transport information according to the stored capacity and to real time vehicle monitoring.
- ~~14~~ 13. A method as claimed in claim ~~13~~ 12, wherein said information is in the form of a departure board (1481-1488).
- ~~15~~ 14. A method as claimed in any preceding claim, wherein the ~~network~~ system registers transport capacity automatically according to movement of a vehicle which indicates its direction and destination.
- ~~16~~ 15. A method as claimed in any preceding claim, wherein a vehicle acts as a traffic probe, reporting on throughput and delays in traffic.
- ~~17~~ 16. A ~~ground transportation network~~ shared transport system comprising:
- an electronic registry of capacity containing an indication of the spare transport capacity and location of a plurality of transport vehicles,
- a shared transport network of nodes (803-806) which are pick-up or drop-off points;

means for gathering data concerning traffic between said nodes;

an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users; and

a matching engine (701) adapted to effect a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one transport user in said electronic registry of demand;

and wherein:

the network comprises means for abstracting geographic representation of a transport vehicle position to nodes of said network by calculating places where a transport vehicle's journey intersects nodes of said network and representing the journey in the format of a set of nodes, and

the matching engine (701) is adapted to continually gather data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.

popularization of highways in the 1950s in the US, cities have become increasingly suburban. Highway systems do not complement mass transit systems and, in fact, work against mass transit systems by enabling urban sprawl to the point where mass transit infrastructure is unsustainable (at the extremities of a city center, due to lack of population density) and unattractive (because of inconvenient intermodal interchange). As fewer people use mass transit, less routes are supportable, less area is reachable via mass transit, and thus more people need to rely on relatively costly and ecologically damaging individual transport, resulting in the mass transit system itself imploding with a lack of critical mass, while personal transport systems simultaneously suffer through massive over-congestion.

GB2397683 describes an autonomous dial-a-ride system. A computer creates a customised road route so that each traveller is picked up and conveyed exactly according to his itinerary.

US2005/0049781 describes a carpool service in which matches are made according to determining vehicle positional information.

It is an object of the invention to provide a system that enables regular highway traffic and privately owned personal transport systems to augment and enable public mass transit networks.

It is another object of the invention to match a need to move individuals and/or goods from one geographic point to another geographic point ("Transport Demand") with an unrelated driver's unused transportation capacity.

It is another object of the invention to provide riders and transport providers with information services and content that adequately enable the use and expansion of such a system.

The invention is as set out in the claims.

Briefly, the invention provides a network system that matches the supply and demand of transportation services by incorporating unused transportation capacity (i.e., empty seats) with a real-time allocation and matching service that enables individuals

popularization of highways in the 1950s in the US, cities have become increasingly suburban. Highway systems do not complement mass transit systems and, in fact, work against mass transit systems by enabling urban sprawl to the point where mass transit infrastructure is unsustainable (at the extremities of a city center, due to lack of population density) and unattractive (because of inconvenient intermodal interchange). As fewer people use mass transit, less routes are supportable, less area is reachable via mass transit, and thus more people need to rely on relatively costly and ecologically damaging individual transport, resulting in the mass transit system itself imploding with a lack of critical mass, while personal transport systems simultaneously suffer through massive over-congestion.

* →

It is an object of the invention to provide a system that enables regular highway traffic and privately owned personal transport systems to augment and enable public mass transit networks.

It is another object of the invention to match a need to move individuals and/or goods from one geographic point to another geographic point ("Transport Demand") with an unrelated driver's unused transportation capacity.

It is another object of the invention to provide riders and transport providers with information services and content that adequately enable the use and expansion of such a system.

* * →

Briefly, the invention provides a network system that matches the supply and demand of transportation services by incorporating unused transportation capacity (i.e., empty seats) with a real-time allocation and matching service that enables individuals

* GB2397683 describes an autonomous dial-a-ride system. A computer creates a customised road route so that each traveller is picked up and conveyed exactly according to his itinerary. US 2005/0049781 describes a carpool service in which matches are made according to determining vehicle positional information.

** the invention is as set out in the claims.



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Application No. 08 725 447.0 - 1238	Ref. AVEG01/C/EP	Date 31.07.2012
Applicant O'Sullivan, Sean		

Communication pursuant to Article 94(3) EPC

The examination of the above-identified application has revealed that it does not meet the requirements of the European Patent Convention for the reasons enclosed herewith. If the deficiencies indicated are not rectified the application may be refused pursuant to Article 97(2) EPC.

You are invited to file your observations and insofar as the deficiencies are such as to be rectifiable, to correct the indicated deficiencies within a period

of 4 months

from the notification of this communication, this period being computed in accordance with Rules 126(2) and 131(2) and (4) EPC. One set of amendments to the description, claims and drawings is to be filed within the said period on separate sheets (R. 50(1) EPC).

If filing amendments, you must identify them and indicate the basis for them in the application as filed. Failure to meet either requirement may lead to a communication from the Examining Division requesting that you correct this deficiency (R. 137(4) EPC).

Failure to comply with this invitation in due time will result in the application being deemed to be withdrawn (Art. 94(4) EPC).

The notification of this communication starts the 24-month period according to Rule 36(1)(a) EPC for filing a voluntary divisional application divided from this application or from any sequential application. For further information see Guidelines for Examination, A-IV, 1.1.1.2 and 1.1.1.4.



Fiorenzo Catalano, M
Primary Examiner
For the Examining Division

Enclosure(s): 6 page/s reasons (Form 2906)

Datum
Date 31.07.2012
Date

Blatt
Sheet 1
Feuille

Anmelde-Nr:
Application No: 08 725 447.0
Demande n°:

The examination is being carried out on the **following application documents**

Description, Pages

1-3, 5-60 as published
4 filed with telefax on 25-05-2012

Claims, Numbers

1-16 filed with telefax on 25-05-2012

Drawings, Sheets

1-32 as published

1 Reference is made to the following documents; the numbering will be adhered to in the rest of the procedure.

D1 GB 2 397 683 A (OLMI GIUSEPPE ANTONIO [GB]) 28 July 2004
(2004-07-28)

D2 US 2005/049781 A1 (OESTERLING CHRISTOPHER L [US]) 3 March
2005 (2005-03-03)

D3 WO 2006/128946 A1 (ECOLANE FINLAND OY [FI]; POEYKKOE SAMI
[FI]; RUUTU VILLE [FI]; SALMENK) 7 December 2006 (2006-12-07)

D4 WALBRIDGE ED - INSTITUTE OF ELECTRICAL AND ELECTRONICS
ENGINEERS: "Real Time Ridesharing Using Wireless Pocket Phones to
Access the Ride Matching Computer",
PACIFIC RIM TRANSTECH CONFERENCE. VEHICLE NAVIGATION
AND INFORMATION SYSTEMS CONFERENCE PROCEEDINGS.
WASHINGTON, JULY 30 - AUG. 2, 1995; [PACIFIC RIM TRANSTECH
CONFERENCE. VEHICLE NAVIGATION AND INFORMATION
SYSTEMS CONFERENCE PROCEEDINGS], NEW YORK,
vol. CONF. 6, 30 July 1995 (1995-07-30), pages 486-492, XP002105805,
DOI: 10.1109/VNIS.1995.518881
ISBN: 978-0-7803-2588-3

D9 US 2007/052586 A1

2 Amendments, Article 123(2) EPC

2.1 The newly filed set of claims does not meet the requirements of Article 123(2) EPC as it appears that the subject-matter as amended extends beyond that which was originally filed for the following reasons.

2.2 New independent claim 1 has been amended to specify that the method further comprises the steps of:

- an active monitoring system gathering data concerning traffic between said nodes (803-806), and the matching engine using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.

The Applicant indicated the basis for this amendment in previous filed claim 2, pages 10, 31-32 of the description, and Fig. 7, Fig.8a and 8b. However, the Examiner notes that the disclosure of page 32 section E of the description refers to "a **system** to generate matches between route capacity and timing and Transport Demands, from usage data. Regular traffic between nodes and subsets of nodes is gathered by this **system** continually (Fig. 7, elements 709, 710, 711, 712). The **system** 12 can thus tell a user who wishes to go from one point to the next how best get there using the available transport capacity via its matching engine (element 701)". It appears therefore that it is the system 12 described in Fig. 7 that gathers data concerning traffic and informs the users. This part of the amendment therefore is not directly and unambiguously derivable from the application as a whole and does not comply with the requirements of Article 123(2) EPC.

2.3 New independent claim 16 specifies that the system comprises:

- the matching engine (701) is adapted to continually gather data concerning traffic between said nodes (803-806), and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.

This part is similar to the one introduced in new claim 1, similar reasoning applied for claim 1 (see point 2.2 above) applies to new claim 16, rendering also claim 16 not complying with the requirements of Article 123(2) EPC.

3 Clarity, Article 84 EPC

3.1 The application does not meet the requirements of Article 84 EPC, because claims 1, 4-15 are not clear.

3.2 New claim 1 relates to "a method" comprising the steps of "a matching engine effecting a match..." and "an active monitoring system gathering data...". Therefore, the method steps are defined in terms of system components (see description pages 31-32, Fig. 7). This wording is vague and unclear and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of claim 1 unclear (Article 84 EPC). New claims 4-15 either relate to "a method wherein the system" or "shared transport system". This formulation renders the claimed subject-matter unclear.

3.3 New claim 9 refers to "a method as claimed in claim 5, wherein the system polls (1005) the devices to...", however no devices are defined in claim 5 or preceding claims. This renders claim 9 unclear (Article 84 EPC).

4 Inventive step, Article 56 EPC

4.1 The present request does not meet the requirements of Article 123(2) and Article 84 EPC as pointed out above. For the sake of completeness, it is noted that the claimed subject-matter does also not appear to involve an inventive step in the sense of Article 56 EPC. For the assessment of inventive step those parts of the present claims will be used which are clear and would appear to be supported by the application as originally filed.

4.2 Document D1 is considered to be the closest prior art to the subject-matter of claim 1 and discloses (the references in parentheses applying to this document):

A method, performed by a shared transport system, of sharing transportation (see D1 page 8 section 5.1, page 15 section 5.5, pages 29-30 section 6.2, Fig. 4), the method comprising the steps of

providing an electronic registry of capacity containing an indication of spare transport capacity and location of a plurality of transport vehicles (see D1 page 12 section 5.3, pages 13-14 section 5.4, page 31 section 7, pages 35-36 section 7.1, pages 42-43 section 7.3),

establishing a shared transport network of nodes which are pick-up or drop-off points (see D1 section 5.3 pages 11-12, section 5.4 page 14, Fig. 1-3) ;

abstracting geographic representation of a transport vehicle journey to nodes of said network by calculating places where a transport vehicle's journey intersects nodes of said network and representing the journey in the format of a set of nodes (see D1 section 5.6 lines 21-23, section 5.7 last paragraph with

reference to Fig. 1, 2, 3, page 22 lines 9-14, page 23 lines 16-19, Fig. 1, please note that transit route or journey are represented as 1-2-3-4, 1-2-4-3, 1-4-2-3, where 1, 2, 3, 4 are nodes of the network and stops for the travellers); providing an electronic registry of demand containing an indication of the demand for transportation needs of a plurality of transport users (see D1 section 5.3 pages 11-12, section 71 page 33) ;

effecting a match of said transport capacity of at least one transport vehicle in said electronic registry of capacity with said transport demand of at least one transport user in said electronic registry of demand for transport between at least two of said nodes (see D1 pages 13-14 section 5.4, Fig. 1-4, 6).

The subject-matter of claim 1 therefore differs from this known D1 in gathering data concerning traffic between the nodes, and using said data to inform a transport user who wishes to travel from one node to another how to do so using the available transport capacity.

It is noted that gathering data relating to traffic was well-known in the art of traffic monitoring, such as shown in D9 (see par. [0017], [0198]-[0203]), at the date of priority (2007) of the present application. An expected effect or surprising result is not apparent from the use of such common feature.

The fact that the system would continually gather traffic data and use them to inform the users travelling from one node to another relates to a selection from a limited number of obvious alternatives which does not render an unexpected technical effect or surprising result apparent. The skilled person implementing the system of D1 would apply such a modification as a matter of routine work without the exercise of inventive skills in order to inform the users travelling from one node to another.

Therefore, the subject - matter of independent claim 1 does not involve an inventive step as defined by Article 56 EPC.

- 4.3 The subject - matter of independent claim 16 corresponds to the subject-matter of claim 1 in terms of a shared transport system. The reasoning provided for claim 1 applies to claim 16 accordingly.
- 4.4 Dependent claims 2-15 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the EPC with respect to inventive step.

The step of establishing the network of nodes from existing database (claim 2) is disclosed in document D3 (see page 9 lines 1-10). The use of GPS (claim 3) was well-known at the priority date of the application (2007), as it is shown in documents D1 and D2. The use of travel times between nodes (claim 4) is well-known in the art of traffic modelling, as it is shown in documents D1 and D3. The use of stochastic model for measuring volume of journey and the fact that the system applies access rules to allow the transport vehicles to access to road or parking (claim 5) with favourable charges is considered non-technical.

The display of real time transport information (claims 6 and 12) is already anticipated by D1 (see page 43 section 7.3, page 63 section 7.17, Fig. 8). The use of devices to determine the location of the users and the transport vehicles (claims 8-10) is also well-known in the art, see D1-D4. The fact that transport capacity is registered automatically is also disclosed in D1 (see D1 page 12 section 5.3, page 31 section 7, page 42 section 7.3).

The supplementary features of claims 11-14 merely define implementation choices, which do not add anything of inventive significance to the subject matter of claim 1. The fact that vehicles act as traffic probes reporting real time traffic delays (claim 15) is also well-known in the art of traffic monitoring (see D9).

5 Applicants' arguments

- 5.1 In the letter of reply of 25.05.2012 the Applicants essentially argued that the invention achieves much more efficient processor operation because there are likely to be much fewer network nodes in a city than addresses and hence the permutation for journeys are much fewer, by several orders of magnitude. The Applicants went on saying that D1 fails to teach or suggest the abstracting geographical representations of vehicle journeys to nodes as claimed. The citations D2-D4 and D9 did not provide more than D1, in particular D2 and D9 did not disclose the generation of a transport network of nodes as claimed. It was therefore not obvious to reach the claimed invention from the prior art.
- 5.2 The Applicants arguments were carefully considered but not found to be convincing. Regarding the geographical representation claimed in claim 1 it is noted that the description of the present application states: "Vehicles delivering transport services to commuters (trains, buses, planes) have long used the characterization of stops to summarize their transport network services in a way that the consumer could relate to" (page 28, section B, last paragraph). Therefore, in the Examiner's view such representations is a well-

known technique in the field of transportation modelling, and it is also disclosed in documents D1. In particular, the transit route or journey is represented is D1 as 1-2-3-4, 1-2-4-3, 1-4-2-3, where 1, 2, 3, 4 are nodes of the network and stops for the travellers (see D1 section 5.6 lines 21-23, section 5.7 last paragraph with reference to Fig. 1, 2, 3, page 22 lines 9-14, page 23 lines 16-19, Fig. 1). Document D3 also discloses that "the route of transport vehicle is a chain-like series of legs between stops" (see page 4 line 11), which is equivalent to representing the journey in the format of a set of nodes, as claimed in claim 1. Therefore, in the Examiner's view, no inventive step is present (Article 56 EPC).

6 Further proceedings

- 6.1 It is not at present apparent which part of the application could serve as a basis for a new, allowable claim.
- 6.2 Should the present application be pursued, the Applicant is requested to point out and discuss in his letter of reply any difference which would distinguish the subject matter of the present application from the disclosure of the available prior art.
- 6.3 The attention of the Applicant is drawn to the fact that the application may not be amended in such a way that it contains subject matter which extends beyond the content of the application as filed (Article 123(2) EPC).
- 6.4 In order to facilitate the examination of the conformity of the amended application with the requirements of Article 123(2) EPC, the applicant should clearly identify the amendments made, irrespective of whether they concern amendments by addition, replacement or deletion, and indicate the passages of the application as filed on which these amendments are based (see Guidelines H-III, 2.2).
- 6.5 Amendments should be made by filing replacement pages. Unnecessary recasting of the description should be avoided. An amended abstract is not required. The applicant should also take account of the requirements of Rule 50(1) EPC. If handwritten amendments are submitted, they should be clearly legible to the printer.



Letter accompanying subsequently filed items

Representative:

Mr. Michael WELDON
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The document(s) listed below is (are) subsequently filed documents pertaining to the following application:

Application number

08725447.0

Applicant's or representative's reference

AVEG01/C/EP

	Description of document	Original file name	Assigned file name
1	Request for extension of time limit during examination procedure	Ltr,EPO,AVEG01a.pdf	EXRE92-1.pdf

Signatures

Place:

Dublin

Date:

09 October 2012

Signed by:

IE, John A. O'Brien & Associates, M. Weldon 29800

Capacity:

(Representative)

AVEG01/C/EP

JOHN A. O'BRIEN & ASSOCIATES

European Patent Attorneys (EPA*) Registered Patent Agents (RPA**) Intellectual Property Consultants

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European Patent Office
D- 80298 Munchen
Germany

Attn: Primary Examiner FIORENZO Catalano, M

By Online Filing

Our Ref: AVEG01/C/EP

October 9, 2012

Re: EP Patent Application No. 08725447.0
"Shared Transport System and Service Network"
O'SULLIVAN, SEAN

Dear Sirs,

Referring to the official letter of July 31, 2012, we request under Rule 84 EPC, an extension of two months on the time limit in which to file a response.

Please confirm allowance of the time extension.

Yours faithfully,



MICHAEL WELDON
PROFESSIONAL REPRESENTATIVE



Acknowledgement of receipt

We hereby acknowledge receipt of the following subsequently filed document(s):

Submission number	1834844	
Application number	EP08725447.0	
Date of receipt	09 October 2012	
Receiving Office	European Patent Office, The Hague	
Your reference	AVEG01/C/EP	
Applicant	All applicants as on file	
Documents submitted	package-data.xml epf1038.pdf (1 p.)	ep-sfd-request.xml EXRE92-1.pdfLtr,EPO,AVEG01a.pdf (1 p.)
Submitted by	CN=M. Weldon 29800,O=John A. O'Brien & Associates,C=IE	
Method of submission	Online	
Date and time receipt generated	09 October 2012, 15:08 (CEST)	
Message Digest	E6:82:09:01:71:21:12:8C:0E:21:1E:E7:8E:4F:50:3E:52:FA:EF:D4	

Correction by the EPO of errors in debit instructions filed by eOLF

Errors in debit instructions filed by eOLF that are caused by the editing of Form 1038E entries or the continued use of outdated software (all forms) may be corrected automatically by the EPO, leaving the payment date unchanged (see decision T 152/82, OJ EPO 1984, 301 and point 6.3 ff ADA, Supplement to OJ EPO 10/2007).

/European Patent Office/



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Weldon, Michael James
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Blackrock, Co. Dublin
IRLANDE

**For any questions about
this communication:**

Tel.: +31 (0)70 340 45 00

Date
15.10.12

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1238 / 2135200
Applicant/Proprietor O'Sullivan, Sean	

Extension of time limit pursuant to Rule 132(2) EPC

Examination procedure

With reference to your request, the time limit for replying to the communication pursuant to Article 94(3) EPC dated 31.07.12 has been extended

by 2 months

to a total of 6 months

from the date of notification of the above-mentioned communication.

Please note: To the extent that your request exceeded the above extension, your request has been refused.

Note

The granting of extensions to time limits is governed by the Implementing Regulations to the EPC and the Guidelines for Examination in the EPO, part E-VII, 1.6. A request for extension, which would result in the total period set exceeding six months, must be reasoned and supported by evidence.

If no reply to the communication is received in due time, the European patent application will be deemed to be withdrawn (Art. 94(4) EPC).

For the Examining Division





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Weldon, Michael James
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Third Floor,
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14 Carysfort Avenue
Blackrock, Co. Dublin
IRLANDE

Date
19-03-2013

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1955 / 2135200
Applicant/Proprietor O'Sullivan, Sean	

Noting of loss of rights pursuant to Rule 112(1) EPC

The European patent application is deemed to be withdrawn under Article 94(4) EPC, because the invitation to file observations on the communication from the Examining Division dated 31.07.12 was not complied with.

Means of redress

Request for a decision (R. 112(2) EPC)

If the applicant considers that the finding of the European Patent Office is inaccurate, he may, within a (non-extendable) period of **two months** after notification of this communication, apply in writing for a decision on the matter. The application can only lead to the finding being reversed if this does not actually correspond to the factual or legal situation.

Further processing (Art. 121 EPC)

The legal consequence of the failure to observe the time limit shall be deemed not to have ensued if, within a (non-extendable) period of **two months** after notification of this communication, further processing is requested by payment of the fee prescribed under Article 2(1)12 of the Rules relating to Fees and the omitted act is completed (R. 135(1) EPC).

Important note to users of the automatic debiting procedure

The fee for further processing will be debited automatically on the day on which the above-mentioned omitted act is completed (see Arrangements for the automatic debiting procedure, Supplement to OJ EPO 3/2009).

For the Examining Division





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Date
04.04.13

Reference AVEG01/C/EP	Application No./Patent No. 08725447.0 - 1955 / 2135200
Applicant/Proprietor O'Sullivan, Sean	

**Notice drawing attention to Rule 51(2) EPC, Article 2 No. 5 of the Rules relating to Fees,
- Payment of the renewal fee plus additional fee -**

The renewal fee for the 06. year fell due on 28.02.13 unless this date falls within the period covered by an interruption of the proceedings in accordance with Rule 142(1) EPC, or a request for re-establishment of rights is pending (Art. 122, R. 51(4) EPC).

The current rate of the renewal fee amounts to **EUR 995,00** (see current Schedule of fees and costs).

The renewal fee was not paid by the due date.

The renewal fee may still be validly paid **up to the last day of the sixth calendar month** following the due date, provided that the additional fee (50% of the renewal fee) is paid at the same time, see OJ EPO 2008, 5.

Within the above period, which cannot be extended, the following fees are to be paid:

Renewal fee for the 06. year:	EUR	995,00
Additional fee:	EUR	497,50

TOTAL AMOUNT	EUR	1.492,50

If the renewal fee and the additional fee are not paid in due time, the European patent application shall be deemed to be withdrawn (Art. 86(1) EPC).

Note to users of the automatic debiting procedure

The normal time limit for payment of the above renewal fee had already expired when the automatic debit order was received. The renewal fee and the surcharge will be debited automatically on the last day of the six-month period (Supplement to OJ EPO 3/2009).

Important information concerning fee amounts

Following any amendment to the Rules relating to Fees, the amount(s) mentioned in this communication may be different from the amount(s) **actually due on the date of payment**. The latest version of the Schedule of fees and expenses, published as a Supplement to the Official Journal of the EPO, is also available on the EPO website (www.epo.org) and can be found under www.epo.org/schedule-of-fees, which allows the viewing, downloading and searching for individual fee amounts, both current and previous.

Payments by cheque delivered or sent direct to the EPO are no longer accepted as from 1 April 2008 (see OJ EPO 2007, 626).

For the Examining Division

Closure of the procedure in respect of application No. 08725447.0 - 1955

28.06.13

1. The procedure in respect of the above application is closed for the following reason:

ADWI 11/19.03.13 The time limit under Rule 112(2) EPC has expired.
No request for a decision under Rule 112(2), or for further processing under Article 121 EPC or for re-establishment of rights under Article 122 EPC has been filed.

2. The EPASYS situation has been verified in respect of item 1:

DFIL: 12.02.08

NOAP: ///

RDEC: ///

RFPR: 03.11.09/03.11.09/3

REES: ///

REFU 3/ADWI 3 and DEAD 1 coded. Date of legal effect 11-02-13.

3. Position regarding fees:

FEFS01	002	00463240	09.10.09	EUR	1 050,00
FEFS01	002	00027742	21.11.09	EUR	190,00 -
DEST03	005	00424723	10.09.09	EUR	500,00
EXAM02	006	00424723	10.09.09	EUR	1 252,00
EXAM02	006	00447529	26.09.09	EUR	128,00 -
IGRA05	008	00437979	10.09.09	EUR	744,00 S
IGRA05	008	00424723	10.09.09	EUR	744,00
CLMS(2)	015	00424723	10.09.09	EUR	400,00
FFEE01	020	00424723	10.09.09	EUR	180,00
RFEE 03	033	00057616	18.12.09	EUR	400,00
RFEE 04	034	00390372	17.12.10	EUR	525,00
RFEE 05	035	00066291	21.02.12	EUR	735,00
RFPR02	123	00489796	03.11.09	EUR	525,00
RFPR02	123	00027742	21.11.09	EUR	95,00 -
NUPF04	520	00437979	10.09.09	EUR	744,00

-
- ☐ EPO Form **2058A** submitted to 1st examiner (if applicable)
- ☐ EPO Form **2058A** with 1st examiner's reply scanned into PHX (if applicable)
- ☐ Refund(s) ordered:
- ☐ 75% EXAM fee ☐ RFEE(s): _____ ☐ Other fees: _____

Note: Attention is to be paid to potential automated refund proposal(s).

4. Mark "DEAD" on the paper file and:

- ☐ Check whether a divisional application is pending and if so attach the DEAD file to it.
- ☐ Any **models** still in the Office's possession were returned on _____
(for dealing with models, please refer to Fil d'Ariane).
- ☐ Keep paper file in file store (separate place) until next action for file destruction.

28-06-2013

Date

Stuckart, Christoph

Formalities Officer