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U.S. Patent 9,792,361

U.S. Patent 9,792,361 ("*Mimzi LLC*" or the "patent-at-issue") was filed on May 22, 2013. According to its cover page, the publication claims a priority date of July 29, 2008 on the basis of a prior application. Claim 1 of the patent-at-issue is generally directed to a method designed to deliver location-based social network outputs to a mobile electronic device based on user input. It consists of several integral components: a hardware data input port receives input from the user, an automated hardware processor interprets this input along with metadata including the device's location obtained from a geospatial positioning system, and an automated hardware communication interface port that transmits the user request to a social network database housing roadway condition records. This database contains time and location information for various roadway conditions. Subsequently, the system retrieves location-specific social network information from the database based on the user request. Finally, it generates a message incorporating time and location data of a new roadway condition, contributing to the social network database.

The primary reference, the U.S. Patent 9,574,899 ("*R2 Solutions*"), was filed on November 30, 2015. According to the paragraph in the specification entitled "Cross-Reference to Related Applications," the patent-at-issue is a continuation of U.S. patent application Ser. No. 12/163,249, filed June 27, 2008 and now U.S. Pat. No. 8,706.406. The patent is directed to a method that involves receiving a request for the determination of personalized distance over a network, which includes identifying the requesting user and several real-world entities such as starting and ending locations. At least one route was determined between these locations. Spatial, temporal, topical, and social data relevant to the requesting user and each real-world entity along the route is retrieved using a global index of network-available data. A personalized distance is then calculated between the first location and the second location based on this data. Finally, a representation of the personalized distance calculated for the route is displayed on a display medium.

The primary reference, U.S. Pat. App. 2007/0282519 ("*IBM*"), was filed on April 3, 2007 and claims priority on June 2, 2006. The patent application is directed to a method aimed to collect, analyze, and manage abnormal situations or behaviors encountered by vehicles on the road. It involves several steps: receiving reports from originators regarding abnormal situations or vehicle behaviors; for each report, characterizing the situation or behavior and identifying its type and location; taking appropriate action based on the situation type, localization, and previous reports within a given time period; for abnormal vehicle behaviors, characterizing the behavior, identifying the vehicle or driver, and taking action based on behavior type and previous reports; and recording the report for further analysis or reference.

The primary reference, U.S. Patent 10,318,965 ("*Kyndryl*"), was filed on January 18, 2008. According to the cover page, the patent claims a priority date of January 31, 2007 on the basis of a foreign application. The patent is directed to a method of providing location-specific information by receiving event data from an event reporting system, including location

identification, event type, and event description. Geofences associated with the location data are identified, each with a geometric shape within a specific geographic area. A topic linked to the event type and associated with the identified geofences is determined. Subscribers with a subscription to the topic in the relevant geographic area are identified; these subscriptions entitle them to receive notifications about events related to the topic in that area. Finally, the event description data is published to each subscriber, ensuring they receive relevant and timely information based on their subscriptions and location.

A sample claim chart comparing claim 1 of *Mimzi LLC* to *R2 Solutions*, *IBM*, and *Kyndryl* is provided below.

US9792361 ("*Mimzi LLC*")	**A. US9574899** (*"R2 Solutions"*) **B. US20070282519** (*"IBM"*) **C. US10318965** (*"Kyndryl"*)
1.pre **A computer implemented system for presenting social network provided outputs** to **a mobile electronic device dependent on a location, in response to the mobile electronic device user's input, comprising**:	**A. US9574899** "**Embodiments of the present invention utilize information provided by a network which is capable of providing data collected and stored by multiple devices on a network**. **Such information may include, without limitation, temporal information, spatial information, and user information relating to a specific user or hardware device**. User information may include, without limitation, user demographics, user preferences, user social networks, and user behavior. **One embodiment of such a network is a W4 Communications Network**." *R2 Solutions* at col. 4:24-32 "**A "W4 Communications Network" or W4 COMN, provides information related to the "Who, What, When and Where" of interactions within the network**." *R2 Solutions* at col. 4:33-35 "In one embodiment, **a W4 COMN network relates to what may be termed "real-world entities", hereinafter referred to as RWEs. A RWE refers to, without limitation, a person, device, location, or other physical thing known to a W4 COMN**." *R2 Solutions* at col. 4:61-65 "In one embodiment, **a W4 COMN network may additionally include what may be termed "information-objects", hereinafter referred to as IOs. An information object (IO) is a logical object that may store, maintain, generate or otherwise provides data for use by RWEs and/or the W4 COMN**." *R2 Solutions* at col. 5:54-57

(cont.) 1.pre **A computer implemented system for presenting social network provided outputs** to **a mobile electronic device dependent on a location, in response to the mobile electronic device user's input, comprising**:	"1. A method comprising: **receiving, by a computing device over a network**, **a request from a user for a route from a starting location and an ending location,** the request comprising information associated with geographical position information of the starting location and the ending location; **determining, via the computing device, message data that is associated with the first route, said determination comprising analyzing message activity by users and identifying, based on said analyzing, the message data that is related to the first route, the analysis further comprising determining spatial, temporal, topical and social data from the message data**; communicating, via the **computing device**, the **second route to the requesting user for display on a device of the user**." *R2 Solutions* at claim 1 **B. US20070282519** "The present invention relates to **a system, method, and computer program product for allowing the driver or passengers of a vehicle to report abnormal situations observed with regard to other vehicles when such situations are detected**. In an embodiment of the invention, the system comprises **a voice interactive system and a camera to facilitate the reporting of such incidents**. Further, the present invention relates to **a central traffic management system for collecting and analyzing the data reported from one or a plurality of vehicles in order to take appropriate actions**." *IBM* at par. 0021 **C. US10318965** "FIG. 1 is a block diagram illustrating **a distributed computing system** 100 **comprising a data processing network**, in accordance with embodiments of the present invention. **The computing system** 100 **comprises a plurality of requesting devices, for example, hand held devices** 105, **desktop computers** 110, **in-car navigation systems** 115, **etc**. **All of these devices communicate over a network 135 with a processing server** 120. **The processing server** 120 **processes requests for services from each of the requesting devices** 105, 110, 115 **and processes each of the service requests for communicating back to each requesting device** 105, 110, 115." *Kyndryl* at col. 3:43-53

1.a **a hardware data input port configured to receive information from the mobile electronic device user defining the user input**;	**A. US9574899** "In one embodiment, **the proxy devices** 104, 106, 108, 110 **can be explicitly associated with the user** 102. For example, **one device** 104 **can be a smart phone connected by a cellular service provider to the network and another device** 106 **can be a smart vehicle that is connected to the network**. Other devices can be implicitly associated with the user 102." *R2 Solutions* at col. 6:48-53 "In the illustrated embodiment, an individual 702 wishes to determine a personalized distance between a starting location 720 and an ending location 724. In one embodiment, **a user** 704 **enters a personalized location request using a user proxy device** 704, **for example a PDA or portable media player**, **which is transmitted to a W4 COMN** 750." *R2 Solutions* at col. 19:59-64 "FIG. 4 illustrates one embodiment of **the functional layers of a W4 COMN architecture. At the lowest layer, referred to as the sensor layer** 402, **is the network** 404 **of the actual devices, users, nodes and other RWEs**." *R2 Solutions* at col. 10:43-46 "The data layer 406 stores and catalogs the data produced by the sensor layer 402. The data can be managed by either the network 404 of sensors or the network infrastructure 406 that is built on top of the instrumented network of users, devices, agents, locations, processes and sensors. **The network infrastructure** 408 **is the core under-the-covers network infrastructure that includes the hardware and software necessary to receive that transmit data from the sensors, devices, etc. of the network** 404. It further includes the processing and storage capability necessary to meaningfully categorize and track the data created by the network 404." *R2 Solutions* at col. 10:53-61 **B. US20070282519** "The function of the event detector 100, as shown in FIG. 1, is to detect such abnormal and dangerous situations. **The event detector** 100, which can be a system installed in the car of a driver, **includes speed sensors and distance sensors**. **The event detector** 100 **can also be the driver him/herself**." *IBM* at par. 0026 "Once an event is detected by the event detector 100, **a reporting mechanism** 101 **is used to report this event. The**

(cont.) 1.a **a hardware data input port configured to receive information from the mobile electronic device user defining the user input**;	**reporting mechanism** 101 **includes a communication system for communicating a report**." *IBM* at par. 0029 "**The report can be downloaded on a user mobile device** (e.g., a PDA, a cellular phone, etc.). **Then, when the user connects this mobile device to a computer in an office or at home**, **the data can be sent to one or more specific destinations**. It is useful to have communication system adapted to different situations." *IBM* at par. 0030 "As shown in FIG. 1, **the final report is sent to a central point or remote traffic opinion server** 102. **The remote traffic opinion server** 102 **receives reports from different drivers about different events** and uses an event verifier 103 to verify that the car has not respected the highway code and created disturbances." *IBM* at par. 0036 "**The remote traffic opinion server** 102 **comprises a communication module** 300 **to receive data from various mobile devices embarked in cars** (e.g., cellular phones, car communication systems, etc.) **as well as from other communication systems located in particular places** (e.g., in garages, gas stations, etc.). **The communication module** 300 **can also receive data from the Internet when drivers connect their mobile devices to computers at homes or in offices**." *IBM* at par. 0038 **C. US10318965** "The computing system 100 comprises a plurality of requesting devices, for example, hand held devices 105, desktop computers 110, in-car navigation systems 115, etc. All of these devices communicate over a network 135 with a processing server 120. **The processing server** 120 **processes requests for services from each of the requesting devices** 105, 110, 115 and processes each of the service requests for communicating back to each requesting device 105, 110, 115." *Kyndryl* at col. 3:45-53
1.b **an automated hardware processor configured to define a user request dependent on the user input and metadata associated with the received information from the mobile electronic device user**,	**A. US9574899** "11. A **non-transitory computer-readable storage medium tangibly encoded with computer-executable instructions, that when executed by a processor associated with a computing device**, performs a method comprising: **receiving a request from a user for a route from a starting**

comprising at least the location of the mobile electronic device determined by an automated hardware geospatial positioning system;	**location and an ending location**, the request comprising information associated with geographical position information of the starting location and the ending location;" *R2 Solutions* at claim 11 "**RWEs which can only interact with the W4 COMN through proxies, such as people** 102, 140, 142, 144, **computing devices** 104, 106 **and locations** 112, **can have one or more** IOs 132, 134, 146, 148, 150 **directly associated with them which contain RWE-specific information for the associated RWE.** For example, **IOs associated with a person** 132, 146, 148, 150 **can include a user profile containing email addresses, telephone numbers, physical addresses, user preferences, identification of devices and other RWEs associated with the user. The IOs may additionally include records of the user's past interactions with other RWE's on the W4 COMN** (e.g., transaction records, copies of messages, listings of time and location combinations recording the user's whereabouts in the past), the unique W4 COMN identifier for the location **and/or any relationship information** (e.g., explicit user-designations of the user's relationships with relatives, employers, co-workers, neighbors, service providers, etc.)." *R2 Solutions* at col. 7:47-64 "**Some of items of metadata** 206, 214, **on the other hand, can identify relationships between the IO** 202 **and other RWEs and IOs**. As illustrated, the IO 202 is associated by one item of metadata 206 with an RWE 220 that RWE 220 is further associated with two IOs 224, 226 and a second RWE 222 based on some information known to the W4 COMN. **For example, could describe the relations between an image** (IO 202) **containing metadata** 206 **that identifies the electronic camera** (the first RWE 220) **and the user** (the second RWE 224) **that is known by the system to be the owner of the camera** 220. Such ownership information can be determined, for example, from one or another of the IOs 224, 226 associated with the camera 220." *R2 Solutions* at col. 8:37-49 "**The data collected by the W4 COMN includes spatial data, temporal data**, RWE interaction data, IO content data (e.g., media data), and user data including explicitly-provided and deduced social and relationship data. **Spatial data can be any data identifying a location associated with an RWE. For example, the spatial data can include any passively collected location data, such as cell tower data, global**

(cont.) 1.b **an automated hardware processor configured to define a user request dependent on the user input and metadata associated with the received information from the mobile electronic device user, comprising at least the location of the mobile electronic device determined by an automated hardware geospatial positioning system**;	**packet radio service (GPRS) data, global positioning service (GPS) data, WI-FI data, personal area network data, IP address data and data from other network access points, or actively collected location data, such as location data entered by the user**." *R2 Solutions* at col. 13:10-21 **B. US20070282519** "**The identification/data collector** 301 **collects different kinds of data received from the same person at different times**. First, **the identification/data collector** 301 **checks that the data is received from the same person and classifies this data**. The user identification can be done in various ways:" *IBM* at par. 0039 "**The identification/data collector** 301 **classifies the data by category**: (a) **audio data, video data**, **GPS data**, **distance data, speed data, etc**.; (b) **data from the same person or from different persons in the same car** (e.g., if passengers speak); (c) **data related to the same car or to different cars**; (d) **data related to the same car but at different times;** and (e) **other factors**." *IBM* at par. 0043 through par. 0048 "The **identification/data collector** 301 **may comprise a speech and language processing server** using natural language processing means to recognize sentences from a driver like. . . ." *IBM* at par. 0050 "The **identification/data collector** 301 **may also comprise image processing means** (such as image recognition means) to recognize visual objects sent to the remote traffic opinion server 102 (e.g., as cars, trees, people, animals, buildings, streets, etc.)." *IBM* at par. 0051 **C. US10318965** "**The processing server** 120 receives the event data and **communicates the event data to an event broker**, **operable for use with the processing server** 120." *Kyndryl* at col. 4:19-21 "In accordance with embodiments of the present invention and with reference to FIGS. 2 and 3, **an event broker** 200 **allows a user to subscribe to geographic topics of interest which are associated with geofences in which events occur**. **A geofence comprises a geometric shape located in a geographic area**,

(cont.) 1.b **an automated hardware processor configured to define a user request dependent on the user input and metadata associated with the received information from the mobile electronic device user, comprising at least the location of the mobile electronic device determined by an automated hardware geospatial positioning system**;	wherein the geometric can be of any shape or any size, such as a line, a point, a two dimensional shape (e.g., an area), a three dimensional shape, etc." *Kyndryl* at col. 4:21-29 "FIG. 2 illustrates **the components of the event broker** 200, in accordance with embodiments of the present invention. **The components comprise** a data input component 205 for receiving data associated with a geofence and a number of topics associated with one or more geofences, a first and second data store 220, 225 for storing the received data, **an interface component** 210 **for receiving subscriber requests for topics of interest**, a queue manager 240 for queuing event data received from event reporting systems 125, 130, a mapping component 235 for determining whether the real time event data is associated with a geofence and geographical topics associated with the geofence, **and a publishing component** 215 **determining which subscriber have subscribed to which topics** and publishing to the subscribers their selected topics of interest based on received event data from the event reporting systems 125, 130. Each of these components will be explained in turn." *Kyndryl* at col. 4:37-53 "Moving back to FIG. 2, **the interface component** 210 **also receives subscriptions to topics from a plurality of subscribers, which are stored in a further data store** 230. **A topic comprises a subject that a user wishes to be notified about, for example, a topic may be a topic associated with road traffic accidents, road works, or road closure etc.** The interface component 210 comprises selection means 245 (e.g., mapping rules) for **a subscriber to select a geographic area of interest and in response to the selection means, the subscriber can select an event of interest associated with the geographic area of interest. Alternatively, a subscriber can first select a topic of interest and the interface component in response to the first selection means provides second selection means** 245 **for selecting a geographic area of interest**." *Kyndryl* at col. 5:42-55
1.c **an automated hardware communication interface port configured to**:	**A. US9574899** "FIG. 3 illustrates one **embodiment a conceptual model of a W4 COMN. The W4 COMN** 300 **creates an instrumented messaging infrastructure in the form of a global logical network cloud conceptually sub-divided into networked-clouds for each of the 4Ws: Who, Where, What and When**.

(cont.) 1.c **an automated hardware communication interface port configured to**:	In the Who cloud 302 are all users whether acting as senders, receivers, data points or confirmation/certification sources as well as user proxies in the forms of user-program processes, devices, agents, calendars, etc." *R2 Solutions* at col. 8:61-67 through col. 9:1-2 "In the illustrated embodiment, an individual 702 wishes to determine a personalized distance between a starting location 720 and an ending location 724. In one embodiment, **a user** 704 **enters a personalized location request** using a user proxy device 704, for example a PDA or portable media player, **which is transmitted to a W4 COMN** 750." *R2 Solutions* at col. 19:59-64 **B. US20070282519** "**The remote traffic opinion server** 102 **comprises a communication module** 300 **to receive data from various mobile devices embarked in cars** (e.g., cellular phones, car communication systems, etc.) **as well as from other communication systems located in particular** places (e.g., in garages, gas stations, etc.). The communication module 300 can also receive data from the Internet when drivers connect their mobile devices to computers at homes or in offices." *IBM* at par. 0038 **C. US10318965** "FIG. 2 illustrates **the components of the event broker** 200, in accordance with embodiments of the present invention. **The components comprise a data input component** 205 **for receiving data** associated with a geofence and a number of topics associated with one or more geofences, a first and second data store 220, 225 for storing the received data, **an interface component** 210 **for receiving subscriber requests for topics of interest, a queue manager** 240 **for queuing event data received from event reporting systems** 125, 130, **a mapping component** 235 **for determining whether the real time event data is associated with a geofence and geographical topics associated with the geofence**, and a publishing component 215 determining which subscriber have subscribed to which topics and publishing to the subscribers their selected topics of interest based on received event data from the event reporting systems 125, 130. Each of these components will be explained in turn." *Kyndryl* at col. 4:37-53

1.d **automatically transmit the user request to a social network database comprising a plurality of roadway condition records having time information and location information associated with respective roadway conditions**;	**A. US9574899** "In the illustrated embodiment, an individual 702 wishes to determine a personalized distance between a starting location 720 and an ending location 724. In one embodiment, **a user** 704 **enters a personalized location request using a user proxy device** 704, **for example a PDA or portable media player, which is transmitted to a W4 COMN** 750." *R2 Solutions* at col. 19:59-64 "**There are fixed traffic sensors** 730 **along all or part of the route. The sensors are in communication with the W4 COMN and continuously transmit real-time data including at least traffic information to the W4 COMN**. Additionally or alternatively, the W4 COMN can track the location of network user devices which are traveling on the route 730. For example, the network can determine the location of cell phones by triangulating cellular signals or through the use of embedded GPS. Vehicles 708 may additionally contain sensors or geo-locatable devices which includes the vehicles rate, direction, and mode of motion. Such vehicles may include the user's vehicle. **Additionally or alternatively, the W4 COMN can track alerts and traffic advisories transmitted by local authorities, or data provided by the local 911 network** (not shown.) Additionally or alternatively, the W4 COMN can track the movement of air traffic 709 as well as vehicular traffic." *R2 Solutions* at col. 20:20-36 **B. US20070282519** "**It may also be useful to identify a dangerous place rather than a driver**. For example, it may be very useful to detect rocks that have fallen from a mountain on a road and to warn drivers about this situation. In this particular case, the warning does not relate to a driver or a car but to a dangerous situation." *IBM* at par. 0052 "**The opinion classification system** 302 **puts the different opinions reported by a particular driver into different categories** (e.g., reckless, inexperienced behavior at wheel, etc.) **and characterizes the abnormal situations that are reported according to predefined types** (e.g., exceeding a speed limit, crossing a street when the light is red, crossing a center line, overtaking a car without visibility, etc.)." *IBM* at par. 0053 "**A similar opinion can be provided by the driver about a particular place** (when for instance this place is dangerous).

(cont.) 1.d **automatically transmit the user request to a social network database comprising a plurality of roadway condition records having time information and location information associated with respective roadway conditions**;	In order to characterize an abnormal situation, **the opinion classification system** 302 **can use different examples of situations stored in a driving history database** 304." *IBM* at par. 0054 "**The opinion classification system** 302 **adds into the driving history database** 304 **new kinds of driving behavioral descriptions that it may get from users**. There can be behavioral driving characteristics that were not described and stored in the driving history database 304." *IBM* at par. 0056 "**The opinion classification system** 302 **also stores a description of earlier driving behavioral disturbances that can be used for later evaluation of various drivers**." *IBM* at par. 0058 "As shown in FIG. 1, the remote traffic opinion server 102 **forwards the resulting information to a decision taking unit** 104, **which then forwards the relevant information to the appropriate organizations**. The **decision taking unit** 104 **can send a warning message to the drivers who have been identified as being particularly dangerous. The decision taking unit** 104 **can also inform the police or insurance companies**." *IBM* at par. 0060 **C. US10318965** "Moving back to FIG. 2, **the interface component** 210 **also receives subscriptions to topics from a plurality of subscribers, which are stored in a further data store** 230. A topic comprises a subject that a user wishes to be notified about, for example, a topic may be a topic associated with road traffic accidents, road works, or road closure etc." *Kyndryl* at col. 5:42-47 "**A queue manager** 240 **receives an event data stream from the processing server** 120 (which receives the event data stream from the event reporting systems). **The event data stream is stored by the queue manager** 240 **for communicating on request to the mapping component** 235." *Kyndryl* at col. 6:6-10 "**Traffic reporting systems** 125, 130 **communicate traffic data to the processing server** 120 **in real time; i.e., as an event is detected by the data gathering means, the traffic reporting system**s 125, 130 **communicate this information to the processing server** 120.

(cont.) 1.d **automatically transmit the user request to a social network database comprising a plurality of roadway condition records having time information and location information associated with respective roadway conditions**;	**The processing server** 120 **receives the event data and communicates the event data to an event broker, operable for use with the processing server** 120." *Kyndryl* at col. 4:14-21
1.e **automatically receive location-dependent social network information from the social network database**, **selectively dependent on the transmitted user request**; and	**A. US9574899** "**Relationship data can also include social network data. Social network data includes data relating to any relationship that is explicitly defined by a user or other RWE, such as data relating to a user's friends, family, co-workers, business relations, and the like.** Social network data can include, for example, data corresponding with a user-maintained electronic address book. **Relationship data can be correlated with, for example, location data to deduce social network information**, such as primary relationships (e.g., user-spouse, user-children and user-parent relationships) or other relationships (e.g., user-friends, user-co-worker, user-business associate relationships). Relationship data also can be utilized to deduce, for example, activities information." *R2 Solutions* at col. 14:13-25 "In the illustrated embodiment, the route IO is further associated with two IOs relating to topics: IO 828 representing the user profile of an RWE 820 representing a friend 820 of the requesting user whose home address is located on or near the route. **Note that the route IO may be directly related to any or all IOs associated with physical locations along the route, but is also indirectly related to an unbounded set of IOs related to spatial**, temporal, and topical **factors related to the route and requesting user**. For example, **in FIG**. 9, **the route is indirectly related to user** 802's **friends** 806, 810, **and** 820 **through user** 802's **social network.** In FIG. 9, **every IO shown is related directly or indirectly to the route** 830." *R2 Solutions* at col. 21:30-42 **C. US10318965** "**The mapping component** 235 **processes the event data stream to extract the coordinates of the geographic location of the event, data associated with the event type, and the data that describes what event has occurred.** An example of

(cont.) 1.e **automatically receive location-dependent social network information from the social network database, selectively dependent on the transmitted user request**; and	an event data stream is shown below." *Kyndryl* at col. 6:11-15 "**The mapping component** 235 **returns a list of geofences** 300, 305, 310 **which the mapping component** 235 **identifies the event type data falling within. The list also comprises the name of the event type that has occurred; e.g., road traffic accident. The mapping component** 235 **transmits the list to the publishing component for processing**." *Kyndryl* at col. 6:40-45 "**The publishing component** 235, using each entry in the list, **searches data store** 230 **to identify if a subscriber has subscribed to an event type in the identified geofence**. **For example**, if the list comprises an entry for a road traffic accident in geofence area 300, **then the mapping component** 235 **searches for a subscriber that has subscribed to be notified of road traffic accidents taking place in geofence** 300." *Kyndryl* at col. 6:46-53
1.f **communicate a message dependent on the received location-dependent social network information for creating a new record in the social network database, comprising time information and location information of a respective roadway condition**;	**A. US9574899** "A request receiving module 1100 receives requests for the calculation of personalized distances between real-world entities, wherein the request comprises at least two real-world entities corresponding to a starting location and an ending location. The request may additionally include a physical route between the starting location and the ending location. **A route determination module** 1200 **maps one or more physical routes between the starting location and ending location. A route data retrieval module** 1300 **retrieves spatial, temporal, social, and topical data from network databases** 1320 **and sensors** 1340 **for entities and objects associated with a route. A personalized distance calculation module** 1400 **uses retrieved spatial, temporal, social, and topical data to calculate a personalized distance using one or more embodiments of methodologies discussed above**. **A personalized distance display module** 1500 **displays personalized distance on a display medium** 1520." *R2 Solutions* at col. 22:40-56 **C. US10318965** "A further list of search results is returned, detailing the subscribers which have subscribed to the event type listed above. **The mapping component** 235 **generates a data package comprising the subscriber's identification details,**

(cont.) 1.f **communicate a message dependent on the received location-dependent social network information for creating a new record in the social network database, comprising time information and location information of a respective roadway condition**;	**the subscriber's data delivery means, and the event data (i.e., road traffic accident at location Junction 3 of North bound of M3 motorway) and communicates the data package to the publishing component** 215 **for publishing to subscribers**." *Kyndryl* at col. 6:54-61
1.g **an automated hardware user interface configured to selectively present the received social network information ranked according to at least one social network ranking factor.**	**A. US9574899** "**A personalized distance calculation module** 1400 **uses retrieved spatial, temporal, social, and topical data to calculate a personalized distance using one or more embodiments of methodologies discussed above. A personalized distance display module** 1500 **displays personalized distance on a display medium** 1520." *R2 Solutions* at col. 22:51-56 "**In one embodiment every RWE and IO associated with a personalized distance calculation has at least one data point for spatial, temporal, social, and topical factors, and can have large sets of data points for each type of factor. Such factors can be sorted and ranked for weighting a personalized distance calculation.** Alternatively, or additionally, a users weighting preferences are stored on the network in a weighting profile, which can be additionally maintained using a user interface such as that shown in FIG. 12. The interface 2000 can be used to apply differential weights to spatial 2400, temporal 2300, social 2100, and topical factors 2200 using sliders 2420, 2320, 2120, and 2200." *R2 Solutions* at col. 24:49-60 **B. US20070282519** "As shown in FIG. 1, **the remote traffic opinion server** 102 **forwards the resulting information to a decision taking unit** 104, **which then forwards the relevant information to the appropriate organizations. The decision taking unit** 104 **can send a warning message to the drivers who have been identified as being particularly dangerous. The decision taking unit** 104 **can also inform the police or insurance companies**." *IBM* at par. 0060

(cont.) 1.g **an automated hardware user interface configured to selectively present the received social network information ranked according to at least one social network ranking factor.**	**C. US10318965** "In step 620, **the publishing component** 215 **communicates the event description data to the identified subscribers**." *Kyndryl* at col. 8:12-13