

PATROLL Winning Submission

U.S. Patent 10,107,628

U.S. Patent 10,107,628 (“*InfoGation Corp*” or the “patent-at-issue”) was filed on August 6, 2008. According to its cover page, the publication claims a priority date of August 11, 2007 on the basis of a prior application. Claim 1 of the patent-at-issue is generally directed to a method for navigating in a specific area involves downloading an artistic map onto a portable computing device from a network. This map is non-linearly scaled and exaggerates various objects for easy viewing and selection by users. The computing device, equipped with navigation capabilities, then allows users to select an object from the artistic map. Once selected, the device determines coordinates for a point on the chosen object and transforms these coordinates into latitude and longitude on a geographical map. Although the geographical map is not displayed directly, the device detects the user's current location on it and calculates a navigational direction to the selected object. Finally, it displays this navigational direction on the artistic map for user guidance.

The primary reference, the Japanese patent published as JP2002181583 (“*Seiko*”), was filed on December 11, 2000, and published on June 26, 2002. The publication is directed to a device that incorporates a display, GPS tuner, memory card for map data, and CPU. The CPU converts map data into a pictorial map, which is then displayed along with the present position on the device. This integration allows for both the advantages of a pictorial map (displaying targets/marks) and traditional navigation functions (showing the present position) to be utilized simultaneously.

The primary reference, the European patent published as EP1426876 (“*HWS*”), was filed on December 4, 2002, and published on June 9, 2004. The publication is directed to a geographical information system comprising a client computer and a server computer connected via a network. The server computer hosts a geographic information database containing map data and georeference parameters. Users can create multimedia personal information sheets, itineraries, and maps using this data, storing them in a geographically referenced database. They can search for personal data, view their position on system or personal maps, and access relevant multimedia content.

A sample claim chart comparing claim 1 of *InfoGation Corp* to *Seiko*, and *HWS* is provided below.

US10107628 (“ <i>InfoGation Corp</i> ”)	<p style="text-align: center;">A. JP2002181583 (“<i>Seiko</i>”) B. EP1426876 (“<i>HWS</i>”)</p>
<p>1.pre A method for navigating in a particular area, the method comprising:</p>	<p>A. JP2002181583 “... a navigation method according to an aspect of the present invention includes converting a scale map into a picture map and displaying the picture map on a display device, and acquiring a current position and displaying the current position at a corresponding position on the picture map displayed on the display device.” <i>Seiko</i> at par. 0006</p> <p>B. EP1426876 “Referring to Figure 1, a personal geographical information system (GIS) is shown which comprises a client computer 1 and a server computer 2 connected via a network 3.” <i>HWS</i> at par. 0037</p>
<p>1.a downloading from a network into a computing device an artistic map, the artistic map being non-linearly scaled and including various objects being exaggeratedly shown on the computing device to facilitate a user using the computing device to view and select one of the objects to navigate thereto in the artistic map, wherein the computing device is portable, equipped with navigation capability and provides a traveling guidance based on a geographical map, the artistic map is not used directly by the computing device for navigation, each of the objects is represented by a plurality of points on a display of the computing device, and the geographical map is not being displayed on the display;</p>	<p>A. JP2002181583 “1. A navigation method comprising: converting a reduced scale map to a pictorial map and displaying the pictorial map on a display device; and acquiring a current position and displaying the current position at a corresponding position on the pictorial map displayed on the display device.” <i>Seiko</i> at claim 1</p> <p>“3. The navigation method according to claim 1 or 2, wherein an optimal route is determined from a departure point and a destination point, and a picture map is generated in which a straight route along the optimal route is shortened.” <i>Seiko</i> at claim 3</p> <p>“(8) A navigation method according to another aspect of the present invention, in the navigation method according to any one of (4) to (7) described above, generates a picture map to which is further added information indicating a distance between a current position and a landmark, a predetermined building, or a destination, or information indicating a shortened straight road distance. The distance of the picture map is not accurately displayed, but in the present invention, displaying information indicating the distance (e.g., 0 m, 5 traffic lights) makes it possible to accurately determine the distance between the current position</p>

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1.a **downloading from a network into a computing device an artistic map, the artistic map being non-linearly scaled and including various objects being exaggeratedly shown on the computing device to facilitate a user using the computing device to view and select one of the objects to navigate thereto in the artistic map, wherein the computing device is portable, equipped with navigation capability and provides a traveling guidance based on a geographical map, the artistic map is not used directly by the computing device for navigation, each of the objects is represented by a plurality of points on a display of the computing device, and the geographical map is not being displayed on the display;**

and the landmark, and the like, and the distance of a shortened straight route.” *Seiko* at par. 0013

“A **mobile phone according to another aspect of the present invention is equipped with the navigation device** according to any one of (9) to (16) described above. In the present invention, the functions of a mobile phone are expanded by **mounting the navigation device on the mobile phone.**” *Seiko* at par. 0022

“Embodiment of the invention 1 . Fig.1 is a block diagram illustrating a configuration of a navigation device according to Embodiment 1 of the invention. Navigation device 10 includes GPS antenna 11, GPS tuners (receivers) 12, CPU 13, main storage (RAM) 14, render storage 15, render processing unit 16; It includes **a display device (LCD panel or the like)** 17, a program storage device (ROM) 18, an operation button interface 19, operation buttons 20, and a card adapter 21. In the present embodiment, **an CF card 22 is installed in the card adapter 21, and the CF card 22 stores a portion of map information of a desired region, for example, extracted from a CD-RO M in which map information is stored.**” *Seiko* at par. 0024

“The (S2) CPU13 captures position information (latitude, longitude) of the current position from the GPS tune (receiver) 13. **The (S3) CPU13 reads map information stored in the CF card 22** via the card adapter 21, and causes the display device 17 to display a reduced scale map centered on the current position via the drawing processing device 16.” *Seiko* at par. 0026

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“The **server computer 2 provides means for controlling user access** 25, means for managing databases 26, a database for geographical information 27 and, optionally, a database for auxiliary information 28. If the server computer 2 is used to build the geographical and auxiliary databases 27, 28, then it is provided with raw data sources 29.” *HWS* at par. 0056

“**The geographical information database 27 includes map data** 34 and geographical coordinates 35 for georeferencing.” *HWS* at par. 0075

“**When map data 34 is retrieved from the geographical information database 27 for transmission to the client**

<p>(cont.)</p> <p>1.a downloading from a network into a computing device an artistic map, the artistic map being non-linearly scaled and including various objects being exaggeratedly shown on the computing device to facilitate a user using the computing device to view and select one of the objects to navigate thereto in the artistic map, wherein the computing device is portable, equipped with navigation capability and provides a traveling guidance based on a geographical map, the artistic map is not used directly by the computing device for navigation, each of the objects is represented by a plurality of points on a display of the computing device, and the geographical map is not being displayed on the display;</p>	<p>computer 1 (Figure 1), georeferencing parameters 35 are dynamically calculated and transmitted to permit georeferencing of the map data 34. The georeferencing parameters 35 include a code for identifying the projection model, such as "P" for plan or "L" for Lambert, and a plurality of geographic coordinates." <i>HWS</i> at par. 0080</p> <p>"Referring again to Figure 6, the client computer 1 provides means for managing geographic information 30, means for controlling user interface 31, means for interfacing a mobile telephone 32 and a database for geographically referenced information 33." <i>HWS</i> at par. 0095</p> <p>"A plurality of graphical representation formats may be used to display a map. These include two dimensional, axonometric and artistic formats." <i>HWS</i> at par. 0121</p> <p>"The axonometric format is obtained by transforming a two dimensional format. Axonometric perspective helps to optimise visualization of maps on the small size screens of cellular phones and Pocket-PC." <i>HWS</i> at par. 0122</p> <p>"Artistic format is an axonometric format where monuments and themes, such as trees, are inserted in artistic representation. This format is directed to tourist and cultural applications." <i>HWS</i> at par. 0123</p> <p>"The mapping process may also graphically superimpose an icon, area or other graphic on a displayed map at the calculated map coordinates 187." <i>HWS</i> at par. 0152</p> <p>"A fifth button 195 is for selecting an option to access geographical coordinates transmitted by a mobile communications device 226 (Figure 35) fitted with a GPS receiver 227 (Figure 35)." <i>HWS</i> at par. 0156</p>
<p>1.b receiving in the computing device a selection on the one of the objects from the user as a selected object;</p>	<p>A. JP2002181583</p> <p>"Fig.2 is a flowchart illustrating a process of performing navigation in the navigation device illustrated in Fig.1. When the (S1) user operates the operation buttons 20 to input a destination point and a destination, the CPU13 retrieves that information via the operation button interface 19." <i>Seiko</i> at par. 0025</p>

<p>1.b receiving in the computing device a selection on the one of the objects from the user as a selected object;</p>	<p>B. EP1426876 “The browser window 188 also includes buttons 205, 206, 207, for selecting shapes which the user can then draw on the map 190. This permits the user to select areas of the map 190 to be personalised or areas of the map 190 where a search is restricted.” <i>HWS</i> at par. 0160</p> <p>“At this point, the user is presented with a map on which icons are superimposed, each icon associated with a multimedia personal information sheet 65 (Figure 15). The user, having consulted the map, may now select an icon and view the contents of the corresponding multimedia personal information sheet (step S 2.7). Preferably, the user input means 8 (Figure 2) includes a mouse which can be used to select an icon by "clicking" on a screen.” <i>HWS</i> at par. 0210</p> <p>“The user selects a point on the system map 190 (Figure 190). This is preferably done by clicking on a point on the map 190. The means for controlling user interface 31 (Figure 6) sends the map coordinate corresponding to the selected point to the means for managing geographic information 30 for conversion into geographical coordinates.” <i>HWS</i> at par. 0279</p>
<p>1.c determining by the computing device a pair of coordinates for one of the points on the selected object;</p>	<p>A. JP2002181583 “The (S2) CPU13 captures position information (latitude, longitude) of the current position from the GPS tune (receiver) 13. The (S3) CPU13 reads map information stored in the C F card 22 via the card adapter 21, and causes the display device 17 to display a reduced scale map centered on the current position via the drawing processing device 16.” <i>Seiko</i> at par. 0026</p> <p>“Note that the current position includes latitude and longitude information as position information, and the road and the like displayed on the pictorial map also include latitude and longitude information and position information on the screen, and thus the position of the current position on the screen, that is, the position on the pictorial map is determined on the basis of this information.” <i>Seiko</i> at par. 0028</p> <p>“(8) A navigation method according to another aspect of the present invention, in the navigation method according to any one of (4) to (7) described above, generates a picture map to which is further added information indicating a distance between a current position and a landmark, a</p>

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1.c determining by the computing device **a pair of coordinates for one of the points on the selected object;**

predetermined building, or a destination, or information indicating a shortened straight road distance. The distance of the picture map is not accurately displayed, but in the present invention, **displaying information indicating the distance (e.g., 0 m, 5 traffic lights) makes it possible to accurately determine the distance between the current position and the landmark**, and the like, and the distance of a shortened straight route.” *Seiko* at par. 0013

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“Referring to Figure 10, **georeferencing parameters 35 comprise a plurality of pairs of coordinates 351, 352, 353 which correspond to map grid coordinates 43.**” *HWS* at par. 0079

“The **georeferencing parameters 35 include a code for identifying the projection model, such as "P" for plan or "L" for Lambert, and a plurality of geographic coordinates.**” *HWS* at par. 0080

“For the plan model, **geographical coordinates of any point within a map may be determined if geographical coordinates of two or more points within the map are provided. Preferably, one point is the centre of the map and another point is a corner of the map.**” *HWS* at par. 0081

“For the Lambert model, **geographical coordinates of any point within a map may be determined if geographical coordinates of four points within the map are provided, preferably the corners of the map, and also a position of an apex of a cone used to define the cartographic representation is supplied.**” *HWS* at par. 0082

“**The mapping process may also graphically superimpose an icon, area or other graphic on a displayed map at the calculated map coordinates 187.**” *HWS* at par. 0152

“The user selects a point on the system map 190 (Figure 190). This is preferably done by clicking on a point on the map 190. **The means for controlling user interface 31 (Figure 6) sends the map coordinate corresponding to the selected point to the means for managing geographic information 30 for conversion into geographical coordinates.**” *HWS* at par. 0279

1.d **transforming in the computing device the pair of coordinates to a physical point represented by a pair of latitude and longitude in the geographical map not being shown on the display, the points representing the selected object having different pairs of coordinates, but all of the different pairs of coordinates for the selected object corresponding substantially to the physical point when said transforming is performed;**

A. JP2002181583

“The (S2) **CPU13 captures position information (latitude, longitude) of the current position from the GPS tune (receiver) 13. The (S3) CPU13 reads map information stored in the C F card 22 via the card adapter 21, and causes the display device 17 to display a reduced scale map centered on the current position via the drawing processing device 16.**” *Seiko* at par. 0026

“The (S5) CPU13 performs data processing to modify the scale map displayed above to generate a picture map based on the optimal route. The (S6) CPU13 causes the display device 17 to display a map modified based on the data processed above, i.e., a pictorial map. The (S7) CPU13 causes the current position to be displayed on the pictorial map described above. **Note that the current position includes latitude and longitude information as position information, and the road and the like displayed on the pictorial map also include latitude and longitude information and position information on the screen, and thus the position of the current position on the screen, that is, the position on the pictorial map is determined on the basis of this information.**” *Seiko* at par. 0028

“(8) A navigation method according to another aspect of the present invention, in the navigation method according to any one of (4) to (7) described above, generates a picture map to which is further added **information indicating a distance between a current position and a landmark, a predetermined building**, or a destination, or information indicating a shortened straight road distance. The distance of the picture map is not accurately displayed, but in the present invention, **displaying information indicating the distance (e.g., 0 m, 5 traffic lights) makes it possible to accurately determine the distance between the current position and the landmark**, and the like, and the distance of a shortened straight route.” *Seiko* at par. 0013

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“A geographical coordinate system is used to define a position of an origin and a scale. **In this example, the coordinate system is the WGS-84 positioning system used in GPS (Global Positioning System). However, another geographic coordinate system may be specified, in which case map data in a GPS coordinate system is converted into map data in another coordinate system.**” *HWS* at par. 0131

<p>(cont.)</p> <p>1.d transforming in the computing device the pair of coordinates to a physical point represented by a pair of latitude and longitude in the geographical map not being shown on the display, the points representing the selected object having different pairs of coordinates, but all of the different pairs of coordinates for the selected object corresponding substantially to the physical point when said transforming is performed;</p>	<p>“The means for managing geographic information 30 calculates geographic coordinates corresponding to the address while outputting the relationship between the geographic coordinates and the graphical coordinates.” <i>HWS</i> at par. 0183</p> <p>“If the icon is repositioned, the means for controlling user interface 31 sends graphical coordinates corresponding to the position of the icon to the means for managing geographic information 30 which converts them into corresponding geographical coordinates using georeferencing parameters 178 (Figure 23b). The corresponding geographical coordinates are returned to the means for controlling user interface 31.” <i>HWS</i> at par. 0185</p> <p>“The user selects a point on the system map 190 (Figure 190). This is preferably done by clicking on a point on the map 190. The means for controlling user interface 31 (Figure 6) sends the map coordinate corresponding to the selected point to the means for managing geographic information 30 for conversion into geographical coordinates.” <i>HWS</i> at par. 0279</p> <p>“The geographical coordinates are expressed in terms of latitude and longitude.” <i>HWS</i> at par. 0078</p>
<p>1.e detecting a current location of the computing device in the geographical map;</p>	<p>A. JP2002181583</p> <p>“The (S2) CPU13 captures position information (latitude, longitude) of the current position from the GPS tune (receiver) 13. The (S3) CPU13 reads map information stored in the C F card 22 via the card adapter 21, and causes the display device 17 to display a reduced scale map centered on the current position via the drawing processing device 16.” <i>Seiko</i> at par. 0026</p> <p>B. EP1426876</p> <p>“As will be explained in more detail later, a vehicle may be fitted with a mobile communications device 226 (Figure 35) and a GPS receiver 227 (Figure 35). The GPS receiver 227 (Figure 35) logs points at predetermined distance or time intervals and can send a message, such as an SMS message, via the means for interfacing a mobile telephone 32 (Figure 6) to the client computer 1.” <i>HWS</i> at par. 0109</p>

1.f determining according to the geographical map **a navigational direction from the current location to the one of the objects being selected**; and

A. JP2002181583

“(11) A navigation device according to another aspect of the present invention is the navigation device according to (9) or (10) described above, wherein **the computation unit obtains an optimal route from a starting point and a destination point**, and generates a picture map in which a straight route along the optimal route is shortened. In the present invention, there is no inconvenience in terms of navigating even when a straight line route in the optimal route is shortened, and thus a picture map obtained by shortening the straight line route is generated and displayed.” *Seiko* at par. 0016

“The (S4) CPU13 refers to map information of the CF card to determine the optimal route based on the destination and destination input above. Here, in the map information of the CF card 22, **the search for an optimal route is based on link information attached to a road** (link information is a table summarizing additional information such as the distance and closeness of the road, and normally the link table is configured for each intersection). **A search method for determining a combination of links (directions) by searching for which road a total of link information is an optimal value** (normally called cost, a combination with lowest cost is taken as an optimal value). **the search method is a publicly known method.**” *Seiko* at par. 0027

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“Referring to Figure 25a, **a fourth type of query 163 for calculating a route is shown. The query 163 includes geographic coordinates or address 164 corresponding to a beginning of a route, coordinates or address 165 corresponding to an end of a route, a geographic district 166 of the beginning of the route and a geographic district 167 of the end of the route.**” *HWS* at par. 0142

“**The user then specifies one or more intermediate points along a route and a finish point** (step S3.5). Each point may be associated with a corresponding multimedia personal information sheet. **Consecutive points along the route are joined with a line.** Preferably, the user input means 8 (Figure 2) includes a mouse which can be used to specify points on the map by "clicking" on a screen.” *HWS* at par. 0226

1.g **showing the navigational direction on the artistic map being displayed.**

A. JP2002181583

“Exemplary Embodiment 3 . Criteria for modifying and converting a scaled map to **a pictorial map include those described above. And In addition to the above, examples thereof include the following items. Display a relatively large or detailed portion of the optimal route around the destination. Display relatively large or detailed the periphery of the current location of the optimal route.**”

Seiko at par. 0034

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“The **browser window 188 includes a window 189 for displaying a map 190** and a plurality of buttons 191, 192, 193, 194, 195 for selecting different options.” *HWS* at par. 0156

“The means for controlling user interface 31 **retrieves the multimedia personal itinerary 107 (Figure 18) which fall within the scope of the search and displays them. The user selects an option (not shown) to display the routes associated with one or more selected multimedia personal itineraries on a map (step S4.3).**” *HWS* at par. 0240