

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOYOTA MOTOR CORPORATION

Petitioner

v.

INFOGATION CORPORATION

Patent Owner

**PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT 10,107,628**

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Cases

<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005) (<i>en banc</i>)	13
<i>Pitney Bowes, Inc. v. Hewlett-Packard Co.</i> , 182 F.3d 1298, 51 USPQ2d 1161 (Fed. Cir. 1999)	17, 41
<i>Wellman, Inc. v. Eastman Chem. Co.</i> , 642 F.3d 1355 (Fed. Cir. 2011)	14

TABLE OF EXHIBITS

Exhibit	Description
1001	U.S. Patent No. 10,107,628 to Pu
1002	Prosecution File History of U.S. Patent No. 10,107,628
1003	Declaration of William Michalson, Ph.D.
1004	Japan Patent Application Publication No. JP2001-082973 (JP973)
1005	Certified Translation of JP973
1006	Japan Patent Application Publication No. JP2007-17351 (JP351)
1007	Certified Translation of JP351
1008	Japan Patent Application Publication No. JP2003-130680 (JP680)
1009	Certified Translation of JP680
1010	Japan Patent Application Publication No. JPH09229706A (JP706)
1011	Certified Translation of JP706
1012	U.S. Patent No. 5,459,824 to Kashiwazaki
1013	U.S. Patent No. 5,805,165 to Thorne
1014	U.S. Patent No. 6,040,824 to Maekawa
1015	Curriculum Vitae of William Michalson, Ph.D
1016	R.L. French, “Automobile navigation: Where is it going?,” Aerospace and Electronic Systems Magazine, pp. 6-12, May 1987 (French)
1017	D.E. Boyce, “Route Guidance Systems for Improving Urban Travel and Location Choices,” Transportation Research Part A: General, Vol. 22A, No. 4, pp.275-281, Pergamon Press, 1988 (Boyce)
1018	UK Patent Application GB 2,079,453 (Wootton)
1019	Ishikawa K.; Ogawa, M.; Azuma, S.; Ito, T.; “Map navigation software of the electro-multivision of the ‘91 Toyota Soarer,” IEEE Vehicle Navigation and Information Systems Conference, pp. 463-473, 20-23 Oct. 1991 (Ishikawa).

1020	Saito, T.; Shima, J.; Kanemitsu, H.; Tanaka, Y.; “Automobile navigation system using beacon information,” IEEE 1989 Vehicle Navigation and Information Systems Conference, pp. 139-145, Toronto, 11-13 Sep 1989 (Saito)
1021	Wootton, J.; Ness, M.; “The experience of developing and providing driver route information systems,” 1989 Vehicle Navigation and Information Systems Conference, pp. 71-75, Toronto, Ont., Canada, 11-13 Sep 1989 (Wootton 1989 VNIS)
1022	Guzolek, J.; Koch, E.; “Real-time route planning in road networks,” 1989 Vehicle Navigation and Information Systems Conference, pp. 165-169, Toronto, Ont., Canada, 11-13 Sep 1989 (Guzolek)
1023	B. Coppock et. al., History of GIS, Geographical Information Systems: Principles and Applications, Vol. 1, Longman Group, pp. 21-34, 1991 (Coppock)
1024	Peuquet, A Conceptual Framework And Comparison Of Spatial Data Models, Cartographica, Vol. 21, No. 4, pp. 66–113, 1984 (Peuquet).
1025	White, Car Navigation Systems, Geographical Information Systems: Principles and Applications, D.J. Maguire, et. al., eds., Vol. 2, pp. 115-125, Longman Group, 1991
1026	Rosen, D.A.; Mammano, F.J.; Favout, R.; “An electronic route-guidance system for highway vehicles,” IEEE Transactions on Vehicular Technology, vol. 19, no. 1, pp. 143-152, Feb 1970 (Rosen)

I. INTRODUCTION

Toyota Motor Corporation (“Petitioner”) requests *inter partes* review and cancelation of claims 1-20 of U.S. Patent No. 10,107,628 (“the ’628 Patent,” EX1001), which describes a method and apparatus for providing navigation directions on an artistic map. EX1001, Title, Abstract. The artistic map is described as a non-linearly scaled map including exaggerated objects that are selectable as destinations. *Id.*, Abstract. Despite occupying an area of plural pixels on the displayed map, any point of the exaggerated object corresponds to the same, single geographical point for purposes of determining the navigation directions. *Id.*, Abstract, 4:33-50. The specification contends that this alleged solution differed from then-existing systems in which “the point of interest may not be even displayed in a map.” *Id.*, 1:46-54. This characterization inaccurately reflects the prior art.

Indeed, the alleged solution from the ’628 Patent was not innovative by the time leading up to its 2007 priority date. As explained below and in the accompanying testimony of Dr. Michalson (EX1003), the use of an artistic map to exaggeratedly show points of interest selectable as destinations and a navigation route thereto was a known prior art practice, as exemplified in JP973. JP973 and its predictable combinations cited in Grounds 1-4 were not considered during

prosecution. If they had been, the '628 Patent never would have issued. Petitioner therefore requests the Board to institute IPR of claims 1-20 as set forth below.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real Parties-in-Interest

Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner certifies that Petitioner, Toyota Motor North America, Inc., Toyota Motor Engineering & Manufacturing North America, Inc., and Toyota Motor Sales, U.S.A., Inc., are the real parties-in-interest, and further certify that no other party exercised control or could exercise control over Petitioner's participation in this proceeding, the filing of this petition, or the conduct of any ensuing trial.

B. Related Matters

The '628 Patent is currently the subject of the following litigation: *Infogation Corporation v. Toyota Motor Corp. et al*, Case No. 2:23-cv-359 (EDTX Aug. 2, 2023); *Infogation Corporation v. Bayerische Motoren Werke AG et al*, Case No. 2:23-cv-358 (EDTX Aug. 2, 2023); *Infogation Corporation v. Honda Motor Co. Ltd. Et al*, Case No. 2:23-cv-513 (EDTX Nov. 7, 2023); and *Infogation Corporation v. Changan Ford Automobile Co., Ltd. Et al*, Case No. 2:23-cv-573 (EDTX Dec. 6, 2023).

C. Lead and Back-up Counsel and Service Information

Lead Counsel for Petitioner is: William Mandir, Registration No. 32,156.
Back-Up Counsel for Petitioner are: Fadi Kiblawi, Registration No. 61,973; John Rabena, Registration No. 38,584; and Yoshinari Kishimoto, Registration No. 47,327.

Service Information: Petitioner consents to electronic service by email to the following addresses:

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A Power of Attorney accompanies this Petition.

III. CERTIFICATION OF GROUNDS FOR STANDING

Petitioner certifies, pursuant to Rule 42.104(a), that the '628 Patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in this Petition.

IV. OVERVIEW OF CHALLENGE AND RELIEF REQUESTED

Pursuant to Rules 42.22(a)(1) and 42.104(b)(1)–(2), Petitioner challenges claims 1-20 (“Challenged Claims”) of the '628 Patent.

A. Prior Art Patents and Printed Publications

The '628 Patent has an earliest effective filing date of August 11, 2007.

The following references are pertinent to the grounds of unpatentability explained below:

1. Japan Patent Application Publication No. JP2001-082973 (JP973) (EX1004, EX1005), published March 30, 2001, which is prior art under at least 35 U.S.C. §102(b).
2. Japan Patent Application Publication No. JP2003-130680 (JP680) (EX1008, EX1009), published May 8, 2003, which is prior art under at least 35 U.S.C. §102(b).
3. Japan Patent Application Publication No. JPH09229706A (JP706) (EX1010, EX1011), published September 5, 1997, which is prior art under at least 35 U.S.C. §102(b).
4. U.S. Patent No. 5,459,824 to Kashiwazaki (EX1012), published October 17, 1995, which is prior art under at least 35 U.S.C. §102(b).

B. Statutory Grounds for Challenges

This Petition, supported by the declaration of Dr. William Michalson ("Michalson") (EX1003), requests cancellation of claims 1-20 under the Grounds listed below:

GROUND 1: Claims 1, 4-8, and 11-18 are anticipated by JP973 (EX1004) pursuant to 35 U.S.C. § 102(b);

GROUND 2: Claims 1, 2, 4-9, and 11-19 are obvious over JP680 (EX1008) in view of JP973 pursuant to 35 U.S.C. § 103(a);

GROUND 3: Claim 3 is obvious over JP680 in view of JP973 and JP706 (EX1010) pursuant to 35 U.S.C. § 103(a); and

GROUND 4: Claims 10 and 20 are obvious over JP680 in view of JP973 and Kashiwazaki (EX1012) pursuant to 35 U.S.C. § 103(a).

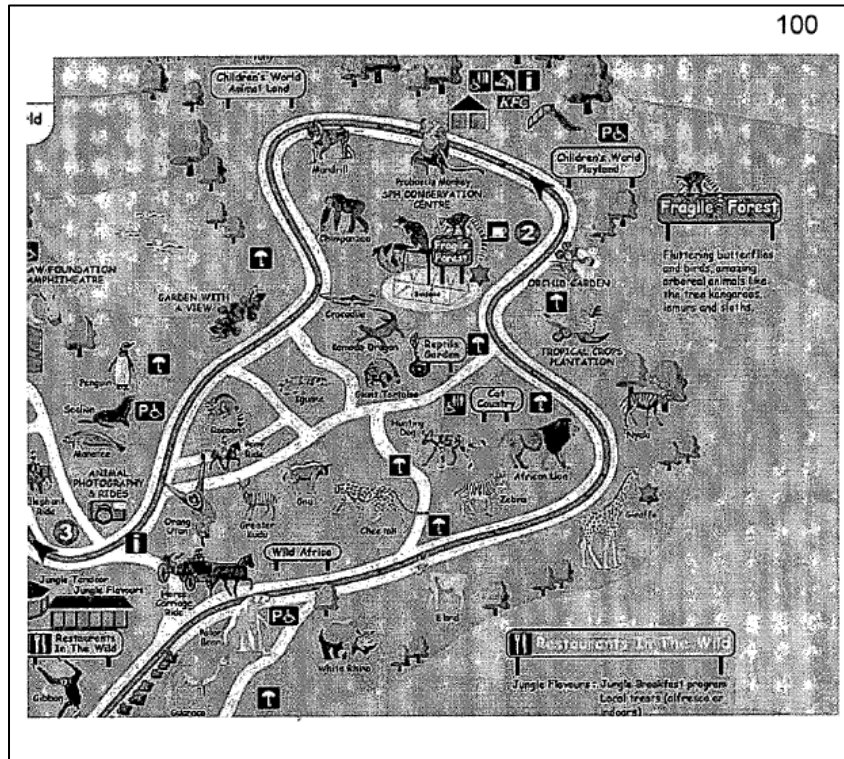
V. U.S. PATENT NO. 10,107,628

A. Summary

The '628 Patent (EX1001) is directed to a method and apparatus for providing navigational directions on artistic maps. EX1001, Title, Abstract. The specification of the '628 Patent contends that points of interest are difficult to see in prior art systems that display “actual maps” for “leisure activities, such as touring a city, a park and a zoo.” EX1001, 1:46-54. “All the user sees are the roads and unrelated landmarks until the user is getting sufficiently close to the point of interest.” *Id.*, 1:52-54. This characterization of the prior art was not accurate. *See, infra*, Sec. VIII; EX1003, ¶59.

More specifically, the '628 Patent purports to provide a solution in which “a non-linearly scaled map... [that] shows exaggeratedly points of interest... allow[s]

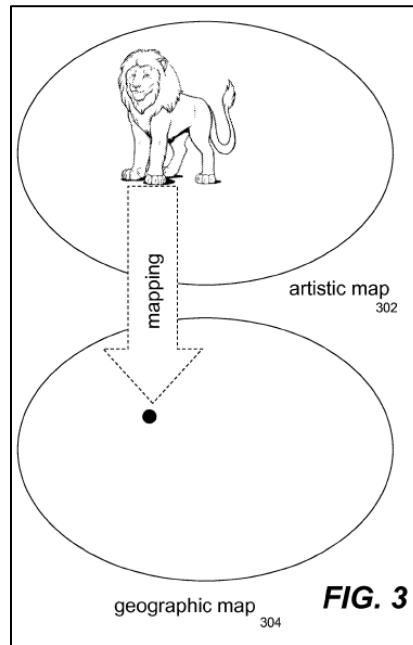
users to navigate easily from one point to another point.” EX1001, 1:55-60. Such an artistic and non-linearly scaled map is shown in FIG. 1, reproduced below:



EX1001, FIG. 1

The artistic map is received by a portable device with GPS capability, and displayed to a user. *Id.*, 5:66-6:5. “Different from a regular map, the map is artistically represented. Objects or distances are nonlinearly scaled. In one embodiment, the objects are exaggeratedly shown to illustrate respective points of interest.” *Id.*, 6:5-9. Using the displayed artistic map, a user can select an exaggerated object (point of interest) as a destination for navigation. *Id.*, 6:12-14. No matter where the user selects the object, the pixel coordinates for the point of

selection are transformed to a single pair of latitude and longitude (geographic) coordinates. *Id.*, 6:17-23. This transformation is illustrated in FIG. 3, in which the points of the exaggerated object (in this case, a lion) are translated to a single latitude/longitude coordinate pair on the geographic map. *Id.*, 4:33-50.



Id., FIG. 3

The portable device then determines navigation directions from a current location to the geographic coordinates, and maps these directions to the artistic map for presentation to the user. *Id.*, 6:23-32.

As shown in detail below with respect to claim 1, use of an artistic map to receive a user's selection of a destination on an exaggerated point of interest and to subsequently display a navigation route to that destination was well known in the art.

B. Prosecution History

The '628 Patent application was filed on August 6, 2008. The Challenged Claims were allowed in August 2018 after an examination narrowly focused on a particular prior art reference that did not provide an accurate picture of the state of the art. EX1003, ¶¶72-82.

In the first Non-Final Office Action issued on September 2, 2011, all of the pending claims 1-20 were rejected on various § 103 grounds based on U.S. Patent Application Publication No. 2007/0176932 to Salmre as a primary reference. EX1002, 62-72. The Office Action also rejected claims 1-10 on § 101 grounds. In response, the Applicant amended independent claims 1 and 11 to specify, *inter alia*, that the claimed computing device receives a non-linearly scaled map and receives a selection of one of the objects as a destination for navigational direction:

1. (*Currently amended*) A method for navigating in a particular area, the method comprising:
providing-receiving in a computing device with navigation capability a map that is non-linearly scaled, the map including various objects being exaggeratedly shown on the computing device, each of the objects represented by a plurality of points;
receiving a selection on one of the objects;
capturing coordinates of one of the points on one of the objects being selected;
transforming the coordinates to a physical point represented by a pair of latitude and longitude, wherein each of the points representing the one of the objects has different coordinates, but all of the points correspond substantially to the physical point when said transforming is performed;
detecting a current location of the computing device;
determining a navigational direction from a the current location to the one of the objects physical point when the user decides to travel to the one of the objects; and
synchronizing the navigational direction with the map being displayed.

11. (*Currently amended*) A portable device for navigating a designed place, the portable device comprising:
a display screen configured to display a map including various objects being exaggeratedly shown, each of the objects represented by a plurality of points;
a memory for storing code;
a processor executing the code to perform operations of:
capturing coordinates of one of the points on one of the objects being selected in the map being displayed;
receiving a selection on one of the objects;
capturing coordinates of one of the points on one of the objects being selected;
transforming the coordinates of the one of the points to a physical point represented by a pair of latitude and longitude, wherein each of the points representing one of the objects has different coordinates, but all of the points correspond substantially to the physical point when said transforming is performed;
detecting a current location of the computing device;
determining a direction from a the current location to the physical point;
and
synchronizing the direction with the map being displayed.

EX1002, 96, 98

In response to the § 103 rejection, the Applicant argued that Salmre does not disclose “wherein each of the points representing one of the objects has different coordinates, but all of the points correspond substantially to the physical point when said transforming is done.” EX1002, 82-83. The response argues that this feature is illustrated in FIG. 3 of the application:

As shown in FIG. 3 and described in paragraphs [0030] – [0032], one embodiment of the present invention teaches a transformation of many-to-one. As clearly shown in FIG. 3, one object (i.e., the lion) is represented by many points (e.g., pixels when displayed on a screen). All of the coordinates of these points are mapped or corresponding to a single “physical” point in a real map (represented by a pair of latitude and longitude). When a user desires to travel to a location of the object (where the lion is), no matter of where (which point) the user has selected on the object, it always means the same physical point. As a result, a navigational direction can be determined from a current position to the physical point.

EX1002, 82. According to the Applicant, Salmre discloses a “one-to-one transformation or conversion between two maps,” which is “mathematically and operationally different from the many-to-one transformation in the present invention as claimed.” *Id.*

The Examiner was unconvinced, and maintained the Salmre rejections in a Final Office Action issued February 2, 2012. *Id.*, 102-115. The Applicant then made

further amendments to the independent claim 1 (in addition to clarifying amendments to claim 11), specifying that the objects in the artistic map (“map that is non-linearly scaled”) are exaggeratedly shown “to facilitate a user using the computing device to view and select one of the objects to navigate thereto”:

1. (*Currently amended*) A method for navigating in a particular area, the method comprising:
receiving in a computing device with navigation capability a map that is non-linearly scaled, the map 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, each of the objects represented by a plurality of points on a display of the computing device;
receiving a selection on one of the objects from the user;
capturing a pair of coordinates of for one of the points on one of the objects being selected;
transforming the pair of coordinates to a physical point represented by a pair of latitude and longitude in a geographical map, wherein each of the points representing the one of the objects has having different pairs of coordinates, but all of the points corresponding substantially to the physical point when said transforming is performed;
detecting a current location of the computing device;
determining a navigational direction from the current location to the one of the objects being selected when the user decides to travel to the one of the objects; and
synchronizing the navigational direction with the map being displayed.

11. (*Currently amended*) A portable device for navigating a designed place, the portable device comprising:
a display screen configured to display an artistic map including various objects being exaggeratedly shown therein, each of the objects represented by a plurality of points;
a memory for storing code;
a processor executing the code to perform operations of:
capturing a pair of coordinates of one of the points representing on one of the objects being selected in the artistic map being displayed on the display screen;
receiving a selection on one of the objects;
capturing coordinates of one of the points on one of the objects being selected;
transforming the pair of coordinates of the one of the points to a physical point represented by a pair of latitude and longitude, wherein each of the points representing one of the objects has different pairs of coordinates, but all of the points correspond substantially to the physical point when said transforming is performed;
detecting a current location of the computing device;
determining a direction from the current location to the physical point; and
synchronizing the direction with the map being displayed.

EX1002, 121, 123-124

The Applicant substantially repeated the same arguments made in response to the Non-Final Office Action, arguing that Salmre teaches a “symmetric” and “one-to-one” correspondence between its linear and non-linear maps. *Id.*, 127-128.

In the next Non-Final Office Action, issued November 26, 2013, the Examiner rejected the claims on § 103 grounds again, adding U.S. Patent Application Publication No. 2005/0149303 to Agrawala as a secondary reference for an alleged teaching of the disputed many-to-one transformation of the claims. *Id.*, 183-194. In

response, the Applicant made various amendments to the independent claims, most notably that the geographical map is “not being shown on the display” during the transformation of coordinates:

1. (*Currently amended*) A method for navigating in a particular area, the method comprising:

- receiving ~~in displaying on a display of~~ a computing device with navigation capability a map that is non-linearly scaled, the map 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, each of the objects represented by a plurality of points on a display of the computing device;
- receiving a selection on ~~the~~ one of the objects from the user ~~as a selected object~~;
- capturing a pair of coordinates for one of the points on ~~the selected object~~ ~~one of the objects being selected~~;
- transforming the pair of coordinates to a physical point represented by a pair of latitude and longitude in a geographical map ~~not being shown on the display~~, each of the points representing the ~~one of the selected objects~~ having different pairs of coordinates, but ~~all of the different pairs of coordinates for the selected object~~ ~~all of the points~~ corresponding substantially to the physical point when said transforming is performed;
- detecting a current location of the computing device;
- determining a navigational direction from the current location to the one of the objects being selected when the user decides to travel to the one of the objects; and
- synchronizing the navigational direction with the map being displayed.

11. (*Currently amended*) A portable device for navigating a designed place, the portable device comprising:

- a display screen configured to display an artistic map including various objects being exaggeratedly shown therein, each of the objects represented by a plurality of points;
- a memory for storing code;
- a processor executing the code to perform operations of:
- capturing a pair of coordinates of one of the points representing an object being selected in the artistic map being displayed on the display screen;
- transforming the pair of coordinates of the one of the points to a physical point represented by a pair of latitude and longitude ~~in a geographical map not being shown on the display~~, wherein each of the points representing the object ~~has~~ ~~have~~ different pairs of coordinates, but all of the ~~different pairs of coordinates~~ ~~points~~ correspond substantially to the physical point when said transforming is performed;
- detecting a current location of the computing device;
- determining a direction from the current location to the physical point; and
- synchronizing the direction with the map being displayed.

EX1002, 204, 206

The Applicant argued that “Agrawala explicitly states that a search algorithm is used to facilitate the scaling” to re-size a map, “which is contradictory to the [claimed transforming].” *Id.*, 213. Further, the Application argued that “Agrawala is silent about using coordinates in one map corresponding to a pair of latitude and longitude in another map.” *Id.*

In the next Office Action issued July 14, 2014, the Examiner maintained the rejections based on the Salmre-Agrawala combination. *Id.*, 217-228. In response, the Applicant amended the claims to specify that the artistic map is not used directly

for the navigation, and that the geographical map is used to determine the navigational direction. *Id.*, 233, 235. Based on this amendment, the Applicant argued that the cited references fail to suggest that their non-linear maps are not used directly for navigation purposes. *Id.*, 240-244.

The Examiner remained unconvinced in the Final Office Action issued March 26, 2015, maintaining the rejections based on Salmre and Agrawala (as well as a § 101 “abstract idea” rejection). *Id.*, 267-280. The Applicant then amended the claims are directed to a “portable” computing device equipped with navigation capability. *Id.*, 286, 288. Based on this amendment, the Applicant argued that the claims are not directed to an abstract idea. *Id.*, 296. With respect to the § 103 rejection, the Applicant substantially repeated the same arguments as in the previous response.

In the next Office Action, the Examiner repeated the § 101 and § 103 rejections, refuting the Applicant’s traversal arguments. *Id.*, 309-321. The Applicant then proceeded with an appeal to the Board of Patent Appeals and Interferences. *Id.*, 330-353. The Board issued its decision on June 27, 2018, reversing the Examiner’s rejections. *Id.*, 389-401. In particular, the Board held that the Examiner’s Office Actions were deficient in providing a specific citation to Salmre or Agrawal for a teaching of the negative limitation that the artistic map is not used directly for navigation. *Id.*, 399. “Because the Examiner has not fully developed the record to establish how Salmre (or Agrwala) teaches or suggest the

disputed negative limitation, we find speculation would be required to affirm the Examiner on this record. ... Therefore, we are constrained by the record before us to find the Examiner erred in concluding the combination of Salmre and Agrwala renders obvious Applicants' independent claim 1." *Id.*, 400.

The claims were subsequently allowed in August 2018, and the '628 Patent issued October 23, 2018. *Id.*, 403-409, 434. The Notice of Allowance stated, as the sole basis for allowance, that the claims were allowed due to the Board's reversal of the Examiner's rejection. *Id.*, 408.

VI. PERSON OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art ("POSITA") at the filing date for the '628 Patent would have had a bachelor's degree in electrical engineering, computer science, or a related discipline, and at least two years of experience working with navigation systems, or an equivalent advanced education in the field of navigation systems. EX1003, ¶¶83-85.

VII. CLAIM CONSTRUCTION

The claim terms should be given their ordinary and customary meaning as understood by a person of ordinary skill in the art ("POSITA") in view of the specification. 37 C.F.R. § 42.100(b); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*). Moreover, "claim terms need only be construed to the extent necessary to resolve the controversy." *Wellman, Inc. v. Eastman Chem.*

Co., 642 F.3d 1355, 1361 (Fed. Cir. 2011).¹ Petitioner submits that, solely for purposes of this proceeding, no claim term requires construction beyond its plain and ordinary meaning. EX1003, ¶¶86-87.

VIII. GROUNDS CHALLENGING PATENTABILITY

The various grounds detailed below show a reasonable likelihood that claims 1-20 of the '628 Patent are unpatentable. EX1003, ¶¶88-241. The Grounds are not cumulative or redundant with those cited during the original prosecution, and rely on prior art references that were not previously of record.

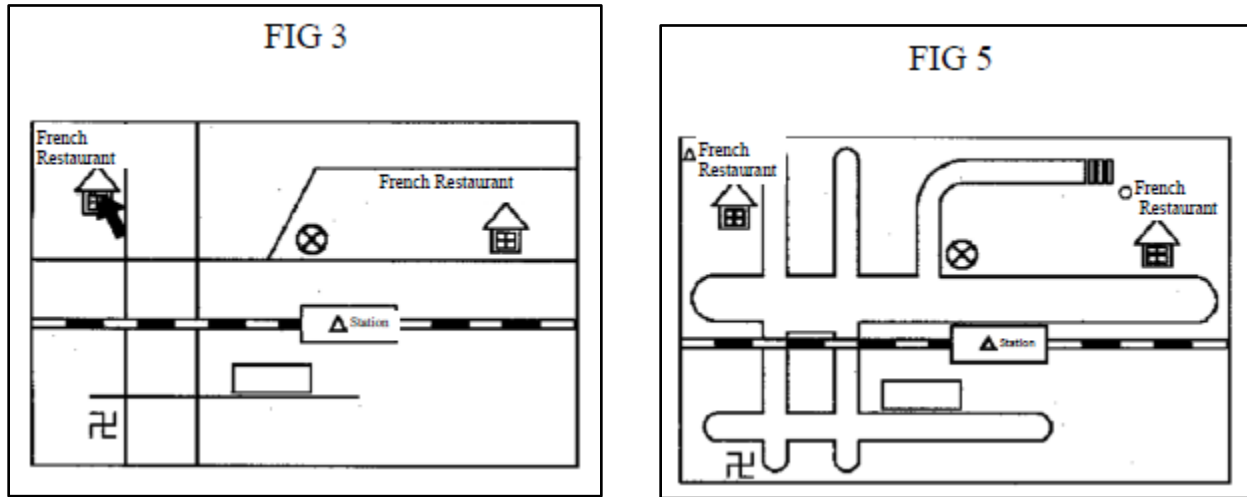
A. GROUND 1: Claims 1, 4-8, and 11-18 are anticipated by JP973 (EX1004)

i. Overview of JP973

JP973 (EX1004) is entitled “Navigation Device and Destination Setting Method and Storage Medium Thereof,” and is directed to systems for navigating to

¹ Petitioner does not concede that each claim satisfies all statutory requirements, such as §§101 and 112, or waive any arguments concerning claim scope or grounds that can only be raised in district court. For this Petition, Petitioner applies prior art in a manner consistent with Patent Owner’s allegations of infringement before the district court.

a destination selected on a raster map. EX1005², Abstract, ¶¶ [0026], [0041]. Thus, JP973 is analogous art to the '628 Patent because both are in the same field of endeavor of navigation devices and methods. EX1003, ¶¶88-91. The raster map is “a deformed... illustration map or the like that is often used in travel information magazines and sightseeing maps.” *Id.*, ¶ [0033]. Examples of the non-linearly scaled raster map are illustrated in FIGS. 3 and 5, which shows points of interest (*e.g.*, French restaurants) in an exaggerated and non-linear manner:



EX1005, FIGS. 3 (L) and 5 (R)

Upon designation by a cursor's position of a point of interest (“facility”), the system (*e.g.*, portable device) transforms the designated position to the facility's latitude/longitude coordinates. *Id.*, ¶ [0039], [0050]. In one embodiment, not relied

² EX1005 is a certified translation of JP973 and will be cited to hereinafter when referring to JP973.

on in this Petition, there is a one-to-one relationship between the pixels of the displayed point of interest (POI) and corresponding Cartesian coordinates, as explained with reference to FIG. 2. *Id.* in another embodiment, cited in the Petition, there is a many-to-one relationship between the pixels of the displayed POI and a single latitude/longitude coordinate pair of the POI, as shown in FIG. 4. *Id.* Thus, no matter the designated position on the selected POI, that position is transformed to a single representative coordinate pair (annotated red below) for the POI (annotated blue below):

FIG 4

Rectangular Image Data	Facility in image	East Longitude and North Latitude Coordinates of Facility in image
Image Data of French Restaurants Near ▲ Station	○ French Restaurant	(X a, Y a)
	△ French Restaurant	(X b, Y b)
⋮	⋮	⋮

EX1005, FIG. 4 (annotated); EX1003, ¶89

As explained in JP973, “[w]hen the destination can be set using this type of illustration map, there is an effect wherein even a person unfamiliar with the operation of the navigation device can easily set the destination.” *Id.*, ¶ [0033].

The raster map is “different from the digitized (vector) normal map data (vector map data) stored in the map database 71” of the portable device. EX1005, ¶

[0028]. Naturally, a navigation route to the destination is not determined using the raster map, which is simply bitmap data, but is determined using conventional processes based on the vector map data stored in the database 71. *Id.*, ¶ [0026] (“The navigation device searches for a travel route to the destination based on the intersection data 72 and the road data 73,” *i.e.*, the geographical vector map data). Subsequently, the determined directions are displayed on both the vector map and the raster map or, in other embodiments, on only the raster map. *Id.*, ¶¶ [0045] – [0046].

ii. Claim 1

a. 1[pre] “A method for navigating in a particular area, the method comprising:”

Even if the preamble of claim 1 was treated as a limitation (which it is not under the BRI standard), JP973 discloses the preamble of claim 1. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999). In particular, JP973 is directed to a method for navigating to a particular destination selected on a raster map. EX1005, Abstract, ¶¶ [0026], [0041]; EX1003, ¶92.

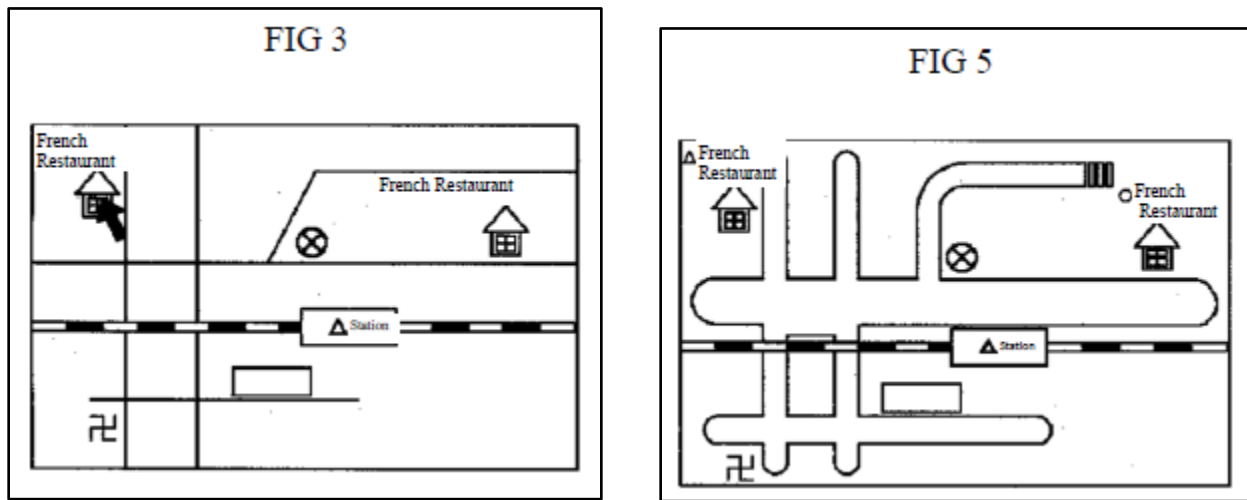
b. 1[a1] “downloading from a network into a computing device an artistic map,”

JP973 discloses this element. EX1003, ¶¶93-95. For example, JP973 discloses that its navigation device downloads raster map data (*artistic map*) from

any of “various communication networks such as the Internet, personal computer communication, and the like.” EX1005, ¶ [0021]; *see also id.*, ¶ [0030] (raster map data “imported from... the communication network 43”).

The navigation device is a computing device that includes a central processing unit (CPU 11), memory units 70, 12, 13, and various other computing elements connected via a bus. EX1005, ¶¶ [0017] – [0018].

The downloaded raster map is a non-linearly scaled and deformed artistic map with exaggerated objects. “Furthermore, for raster map data configured as in FIG. 4, even when the image data of the map displayed on the display of the image display unit 30 is not an accurate map according to scale, because a desired facility (a French restaurant in the drawings) can be designated as the destination, the rectangular image data, for example, may be configured using a deformed raster map such as that illustrated in FIG. 5. In this manner, the deformed raster map is an illustration map or the like that is often used in travel information magazines and sightseeing maps. When the destination can be set using this type of illustration map, there is an effect wherein even a person unfamiliar with the operation of the navigation device can easily set the destination.” EX1005, ¶ [0033]. Examples of the artistic raster map are shown in FIGS. 3 and 5:



EX1005, FIGS. 3 (L) and 5 (R)

- c. 1[a2] “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”

As discussed above, the artistic raster map is non-linearly scaled with exaggerated objects. EX1005, FIGS. 3 and 5, ¶ [0033] (“not... according to scale” and “deformed... illustration map”). As shown in FIG. 5, reproduced above, objects (*e.g.*, facilities or points of interest) are shown on a display screen 30 of the navigation device artistically and exaggeratedly, as well as out of scale. EX1005, ¶ [0023], [0030], FIG. 5; EX1003, ¶¶95-96. This has “an effect wherein even a person unfamiliar with the operation of the navigation device can easily set the destination.” EX1005, ¶ [0033]. Thus, the objects are exaggeratedly shown to facilitate viewing and selection thereof as a navigation destination.

**d. 1[a3] “wherein the computing device is portable,
equipped with navigation capability and provides a
traveling guidance based on a geographical map,”**

The navigation device of JP973 is a “portable navigation device[.]” EX1005, ¶ [0050]. Further, the navigation device provides traveling guidance (*i.e.*, searches and displays a driving route) using conventional vector map data stored in a memory 70 (distinct and “separate[.]” from raster map database 80). EX1005, ¶¶ [0025] – [0027]. “The navigation device searches for a travel route to the destination based on the intersection data 72 and the road data 73,” *i.e.*, geographical map data. EX1005, ¶ [0026]; EX1003, ¶97.

**e. 1[a4] “the artistic map is not used directly by the
computing device for navigation,”**

JP973’s raster map data (*artistic map*) is not used directly by the computing device for navigation, *i.e.*, to calculate a navigation route, but consists of rectangular image data in the form of bitmap images. EX1005, ¶¶ [0028] (“raster data (bitmap) format... not suitable for map matching processing of the navigation device.”), [0031]; EX1003, ¶98. Instead of the raster map data, the map data stored in the memory 70 for drawing the vector map is used to calculate the navigation route. EX1005, ¶¶ [0025] – [0026].

f. 1[a5] “each of the objects is represented by a plurality of points on a display of the computing device,”

JP973 discloses facilities (*objects*) that are displayed on the raster map as artistic two-dimensional icons. EX1005, FIG. 3. The raster map itself is a bitmap image. EX1005, ¶ [0028]. As such, each of the icons is constituted by a plurality of points (pixels); EX1003, ¶99.

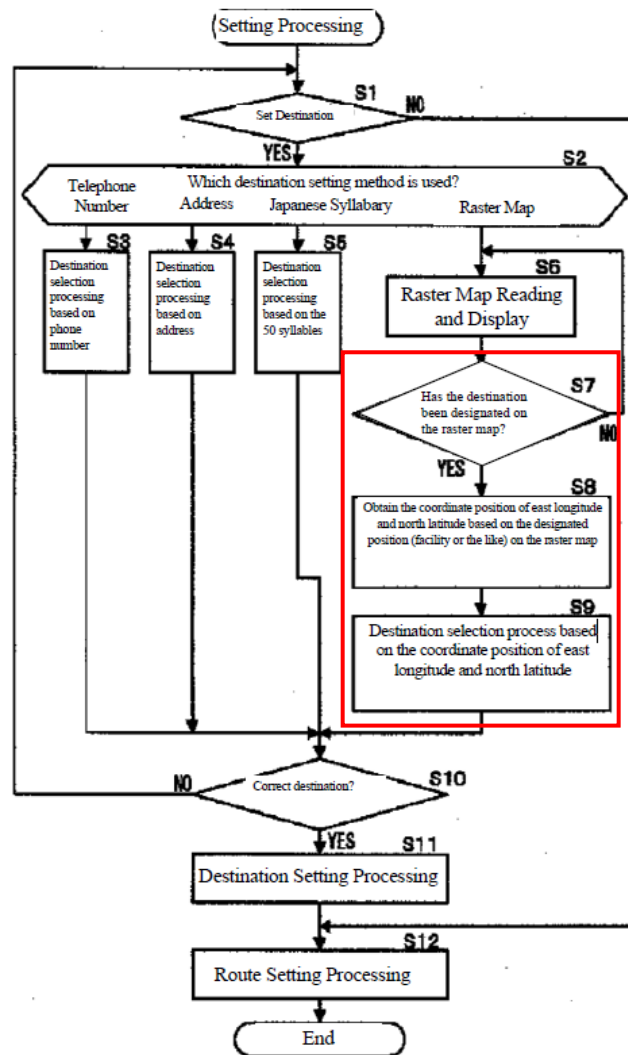
g. 1[a6] “and the geographical map is not being displayed on the display”

In various embodiments disclosed by JP973, only the raster map is displayed, and the vector map as well as its constituent road and intersection data used to determine the route are not displayed. EX1005, ¶ [0045] (“one map may be displayed” according to a setting by the user), ¶ [0046] (“the current position of the vehicle and the set route may be displayed only on the raster map”); *see also id.*, ¶ [0011] (“display[] a map based on the raster map data... instead of... a map based on the vector map data”), ¶ [0051] (“In the embodiment described above,... only the raster map [is] displayed when setting the destination”); EX1003, ¶100.

h. 1[b] “receiving in the computing device a selection on the one of the objects from the user as a selected object;”

JP973 discloses the navigation device receiving a selection of a destination by a user selecting a displayed object on the raster map as the destination. EX1005, ¶¶ [0031], [0038]; EX1003, ¶101. “[A]ny location or facility in the image can... be designated as a destination.” EX1005, ¶ [0033]. FIG. 6 of the reference is a

flowchart of a method for setting the destination. Per this method, a raster map (artistic map) may be selected for the destination selection process, which is exemplified in steps S6 to S9. EX1005, ¶ [0036]. The selected raster map is imported from a communication network 43, and displayed. EX1005, ¶ [0037]. Then, a destination is selected on the displayed map, step S7, and the coordinates of the selected object are determined, step S8. EX1005, FIG. 6, ¶¶ [0038] – [0039].



EX1005, FIG. 6 (annotated)

i. 1[c] “determining by the computing device a pair of coordinates for one of the points on the selected object;”

JP973 discloses this feature. EX1005, ¶¶ [0031] – [0033]; EX1003, ¶102. Specifically, JP973 teaches that a particular facility is selected “based on the position designated on the raster map.” EX1005, ¶ [0039]. A POSITA would have understood that this entails identifying “the position designated on the raster map,” *i.e.*, the display coordinates of the selected point, in order to identify the selected facility and the single pair of geographic (lat./long.) coordinates recorded for that facility, as shown in FIG. 4 (annotated in red below). EX1003, ¶102.

FIG 4		
Rectangular Image Data	Facility in image	East Longitude and North Latitude Coordinates of Facility in Image
Image Data of French Restaurants Near ▲ Station	○ French Restaurant	(X _a , Y _a)
	△ French Restaurant	(X _b , Y _b)
⋮	⋮	⋮

JP1005, FIG. 4 (annotated)

j. 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;”**

This claim element is indefinite under 35 U.S.C. § 112(b) as it is unclear to a POSITA as to what the metes and bounds of the relative term of degree, “substantially,” are. EX1003, ¶103. Nevertheless, as best can be understood, JP973 discloses this claim element by virtue of converting a specified touch selection position on the display to a lat./long. coordinate position of the selected facility in the process of setting a destination. EX1005, ¶¶ [0038] – [0041]; EX1003, ¶¶103-106. This process is performed while the vector map (geographical map) is “not being shown on the display.” EX1005, ¶ [0051] (“In the embodiment described above,... only the raster map [is] displayed when setting the destination”).

In further detail, JP973 discloses that the raster map data includes a single pair (Xa, Ya) of latitude and longitude coordinates (annotated in red below) representing a facility (annotated in blue below). EX1005, FIG. 4, ¶ [0033].

FIG 4

Rectangular Image Data	Facility in image	East Longitude and North Latitude Coordinates of Facility in Image
Image Data of French Restaurants Near ▲ Station	○ French Restaurant	(X _a , Y _a)
	△ French Restaurant	(X _b , Y _b)
⋮	⋮	⋮

JP1005, FIG. 4 (annotated)

This coordinate pair is used as the destination for navigation guidance, *i.e.*, the physical point in the vector map data stored in the memory 70 (*geographical map* data) used for navigation guidance. EX1005, ¶¶ [0039] – [0041]. To this end, because the facility is represented by the single physical point (FIG. 4), a POSITA would have understood that all of the display coordinates of points constituting the facility (*e.g.*, the points making up the building icon for the French restaurant) would correspond to that physical point, *i.e.*, lat./long. coordinate pair. EX1003, ¶¶105, 171-173.

Further, JP973 discloses that a cursor can designate any position of the POI object to select the object. EX1003, ¶106. For example, in the embodiment of FIG. 2, the geographical coordinates of two opposing corners of the “image data of the

[POI]” are recorded and used to determine the geographical coordinates for any selected point of the object vis-à-vis an arithmetic process “based on the east longitude and north latitude coordinates of [the] two diagonal points.” EX1005, ¶ [0031]; *see also* ¶ [0033] (“coordinate data relating to any location in the image” can be obtained by the arithmetic processing). In other words, JP973 teaches that the geographical coordinates of any selected display point within the object (*i.e.*, within the bounds of the two opposing corners) can be interpolated from the geographical coordinates of the two opposing corners. EX1003, ¶106. JP973 then discloses that, as an alternative to the interpolation, a single representative geographical coordinate value can be recorded and determined for the POI when selected. EX1005, ¶ [0032], FIG. 4. Thus, if the “any location” designated by the cursor falls within the area of the of the two-dimensional object representing the POI (*i.e.*, selects any pixel of the object), the alternative embodiment of FIG. 4 transforms that selection to the single physical point recorded for the POI. JP973 therefore discloses the many-to-one conversion in which all of the plural display pixels of the POI correspond to a single geographical coordinate pair value. *Id.*

k. 1[e] “detecting a current location of the computing device in the geographical map;”

JP973 discloses the navigation system including a “current position detection unit 60... for detecting the absolute position of the vehicle according to latitude and

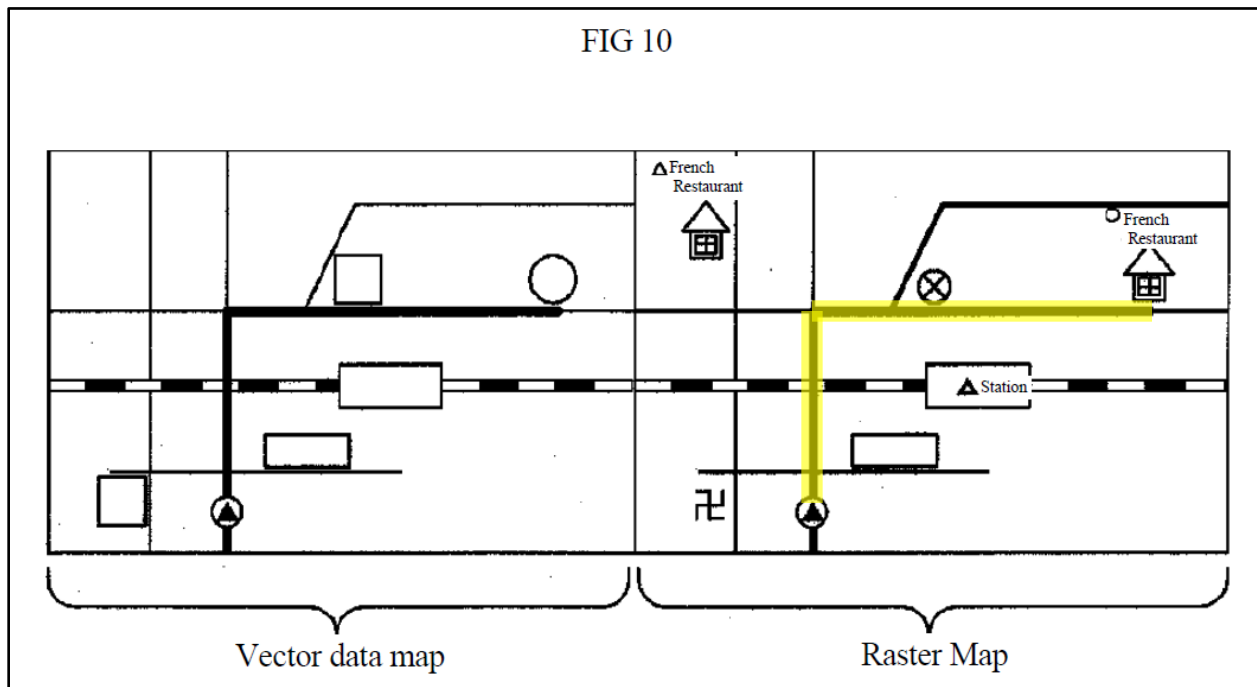
longitude.” EX1005, ¶ [0024]. Further, “map data... including the current position of the vehicle detected by the current position detection unit 60” is identified. EX1005, ¶ [0026]; EX1003, ¶107.

l. 1[f] “determining according to the geographical map a navigational direction from the current location to the one of the objects being selected; and”

“The navigation device searches for a travel route to the destination based on the intersection data 72 and the road data 73.” EX1005, ¶ [0026]. That is, JP973 discloses the geographical map data (*i.e.*, the map data stored in memory 70 and used to draw a vector map) and its absolute coordinate system (lat./long.) being used to determine the navigation from the current location to the selected facility by “processes that are similar to conventional processes.” EX1005, ¶ [0041]; EX1003, ¶108.

m. 1[g] “showing the navigational direction on the artistic map being displayed.”

JP973 discloses that the set route and an encircled triangle pointing in the direction of the route is displayed on the raster map (*artistic map*). EX1005, ¶¶ [0045] – [0046]; EX1003, ¶109. An example is shown in FIG. 10, reproduced below with the displayed route annotated in yellow:



EX1005, FIG. 10 (annotated)

While FIG. 10 shows that both the vector map and the raster map are displayed, other embodiments display only the raster map. EX1005, ¶ [0045] (“one map may be displayed” according to a setting by the user); *see also id.*, ¶ [0011] (“display[] a map based on the raster map data... instead of... a map based on the vector map data”), ¶ [0051] (“In the embodiment described above,... only the raster map [is] displayed when setting the destination”); EX1003, ¶110.

iii. Claim 4

- a. “The method as recited in claim 1, wherein said showing the navigational direction on the artistic map being displayed comprises transforming in the computing device the navigational direction based on the geographical map to a navigation direction based on the artistic map.”**

JP973 discloses this feature. EX1003, ¶¶111-112. Namely, the reference discloses that the navigational direction (“travel route” or “set route”) is determined using the geographical map data (vector map) yet displayed on the artistic map (raster map). EX1005, ¶¶ [0026], [0045] – [0046]. A POSITA would have therefore understood that JP973 transforms the set route from the coordinate system of the vector map to that of the raster map. EX1003, ¶111.

In detail, “[t]he navigation device searches for a travel route to the destination based on the intersection data 72 and the road data 73.” EX1005, ¶ [0026]. Thus, JP973 discloses the geographical map data (i.e., the map data stored in memory 70 and used to draw a vector map) and its absolute coordinate system (lat./long.) being used to determine the navigational direction from the current location to the selected facility by “processes that are similar to conventional processes.” EX1005, ¶ [0041]. This navigational direction, in turn, is displayed on the “deformed” and out-of-scale raster map. EX1005, ¶¶ [0045] – [0046]. In order to do so, the navigational direction is transformed from the vector map to the raster map. EX1003, ¶112.

iv. Claim 5

- a. “The method as recited in claim 4, further comprising determining a set of instructions of how to move from the current location to the physical point as a destination.”**

JP973 discloses this feature, by determining the route guidance to a set destination. EX1005, ¶¶ [0026], [0045] – [0046]; EX1003, ¶113. JP973, for example, discloses conventional navigation guidance in which the step-by-step directions (or instructions) are provided for moving from a current location to the set destination. EX1005, ¶ [0043].

v. Claim 6

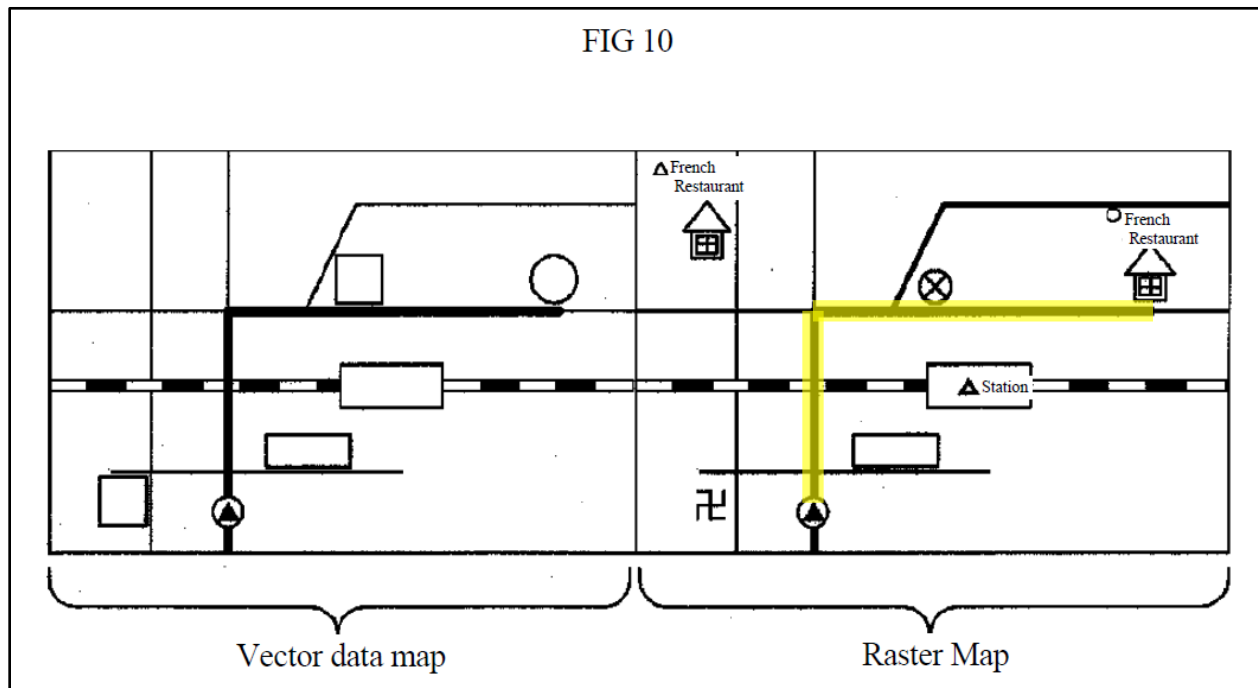
- a. “The method as recited in claim 5, wherein said showing the navigational direction on the artistic map being displayed comprises: transforming the instructions with respect to the geographical map to the artistic map being displayed.”**

JP973 discloses this feature, as discussed above with reference to claim 4. Namely, JP973 calculates the route using the geographical map data (vector map data) but displays it on the artistic map (raster map). EX1005, ¶¶ [0026], [0041], [0045] – [0046]. A POSITA would therefore understand that this transforms the route from the geographical map data by which it is calculated to the artistic map on which it is displayed. EX1003, ¶114.

vi. Claim 7

- a. “The method as recited in claim 6, wherein the navigational direction shows how to move from the current location to the destination among a route, points of the route belonging to a road network, so pixel coordinates of each of the points are used to transform geographic coordinates of the points to image coordinates of the points”**

JP973 shows the route guidance (navigational direction) on a road network:



EX1005, FIG. 10 (annotated)

“The navigation device searches for a travel route to the destination based on the intersection data 72 and the road data 73,” *i.e.*, a road network. EX1005, ¶ [0026]. Further, as discussed above with reference to claim 4, JP973 transforms or converts the route from geographical map data to artistic map data. EX1003, ¶¶115-116.

vii. Claim 8

- a. “The method as recited in claim 7, further comprising connecting the pixel coordinates of the points to show the route on the map.”**

JP973 discloses the route being shown by connecting pixel coordinates of points of the route. EX1005, FIG. 10; EX1003, ¶117.

viii. Claim 11

- a. 11[pre] “A portable device for navigating a designated place, the portable device comprising:”**

See Claim 1[pre] and 1[a3].

- b. 11[a1] “a display screen configured to display an artistic map downloaded from a network,”**

See Claim 1[a1] and 1[a2].

- c. 11[a2] “the artistic map being non-linearly scaled and including various objects being exaggeratedly shown therein,”**

See Claim 1[a2].

- d. 11[a3] “each of the objects represented by a plurality of points,”**

See Claim 1[a5].

- e. 11[a4] “wherein the portable device is equipped with navigation capability and provides a traveling guidance based on a geographical map,”**

See Claim 1[a3].

- f. 11[a5] “the artistic map is not used directly by the portable device for navigation,”**

See Claim 1[a4].

- g. 11[a6] “and wherein the geographical map is not being shown on the display screen;”**

See Claim 1[a6].

h. 11[b] “a memory for storing code;”

JP973 discloses its portable device including a memory (*e.g.*, ROM) storing programs (code). EX1005, ¶¶ [0017] – [0019]; EX1003, ¶125.

i. 11[c] “a processor executing the code to perform operations of:”

JP973 discloses a processor (arithmetic processing unit 10 including a CPU 11) that performs the various navigation processes disclosed therein in accordance with programs (code) stored in memory (*e.g.*, ROM). EX1005, ¶¶ [0017] – [0019]; EX1003, ¶126.

j. 11[d] “determining a pair of coordinates of one of the points representing an object being selected in the artistic map being displayed on the display screen;”

See Claim 1[b] and 1[c].

k. 11[e] “transforming the pair of coordinates of the one of the points to a physical point represented by a pair of latitude and longitude in the geographical map not being shown on the display, wherein the points representing the object have different pairs of coordinates, but all of the different pairs of coordinates correspond substantially to the physical point;”

See Claim 1[d].

l. 11[f] “detecting a current location of the computing device in the geographic map;”

See Claim 1[e].

- m. 11[g] “determining according to the geographical map a direction from the current location to the physical point; and”**

See Claim 1[f].

- n. 11[h] “showing the direction in the artistic map being displayed.”**

See Claim 1[g].

ix. Claim 12

- a. “The portable device as recited in claim 11, wherein the selected object is represented by a plurality of pairs of coordinates, all of the pairs of coordinates are substantially transformed to the physical point represented by the latitude and longitude.”**

See Claim 1[a5] and 1[d].

x. Claim 13

- a. “The portable device as recited in claim 12, wherein the artistic map is non-linearly scaled, where the physical point is located in the geographical map in accordance with the latitude and longitude.”**

See Claim 1[a2] and 1[d].

xi. Claim 14

- a. “The portable device as recited in claim 13, wherein the determining of the direction from the current location to the physical point is carried out by the portable device in accordance with the geographical map.”**

See Claim 1[f].

xii. Claim 15

- a. **“The portable device as recited in claim 14, where the operations further comprises determining a set of instructions of how to move from the current location to the physical point as a destination.”**

JP973 discloses this feature, by determining the route guidance to a set destination. EX1005, ¶¶ [0026], [0045] – [0046]; EX1003, ¶135. The reference, for example, discloses conventional navigation guidance in which the step-by-step directions (or instructions) are provided for moving from a current location to the set destination. EX1005, ¶ [0043].

xiii. Claim 16

- a. **“The portable device as recited in claim 15, wherein said showing the direction in the artistic map being displayed comprises: transforming the direction with respect to the geographical map to the artistic map being displayed; and transforming the instructions with respect to the geographical map to the artistic map being displayed.”**

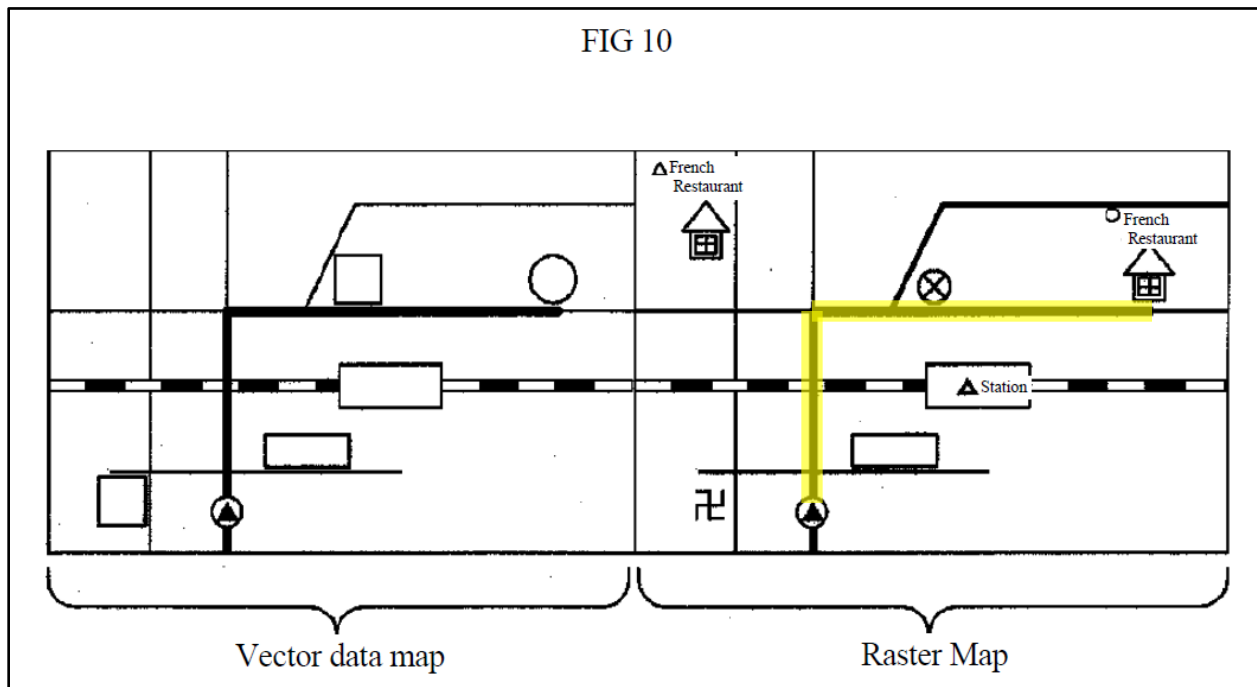
JP973 discloses the features of claim 16. EX1003, ¶¶136-137. Namely, the reference discloses that the navigational direction and instructions (“set route” and the encircled triangle pointing north in FIG. 10) are determined using the geographical map data (vector map) yet displayed on the artistic map (raster map). EX1005, ¶¶ [0026], [0045] – [0046]. A POSITA would have therefore understood that JP973 transforms the set route from the coordinate system of the vector map to that of the raster map. EX1003, ¶136.

In detail, “[t]he navigation device searches for a travel route to the destination based on the intersection data 72 and the road data 73.” EX1005, ¶ [0026]. Thus, JP973 discloses the geographical map data (i.e., the map data stored in memory 70 and used to draw a vector map) and its absolute coordinate system (lat./long.) being used to determine the navigational direction from the current location to the selected facility by “processes that are similar to conventional processes.” EX1005, ¶ [0041]. This navigational direction, in turn, is displayed on the “deformed” and out-of-scale raster map. EX1005, ¶¶ [0045] – [0046]. In order to do so, the navigational direction is transformed from the vector map to the raster map. EX1003, ¶137.

xiv. Claim 17

- a. “The portable device as recited in claim 16, wherein the direction shows how to move from the current location to the destination among a route, points of the route belong to a road network, so pixel coordinates of every of the points are used to transform geographic coordinates of the points to image coordinates of the points.”**

JP973 shows the route guidance (navigational direction) on a road network:



EX1005, FIG. 10 (annotated)

“The navigation device searches for a travel route to the destination based on the intersection data 72 and the road data 73,” *i.e.*, a road network. EX1005, ¶ [0026]; EX1003, ¶¶138-139.

xv. Claim 18

- a. “The portable device as recited in claim 17, wherein the operations further comprises connecting the pixel coordinates of the points to show the route in the artistic map.”**

JP973 discloses the route being shown by connecting pixel coordinates of points of the route. EX1005, FIG. 10. EX1003, ¶140.

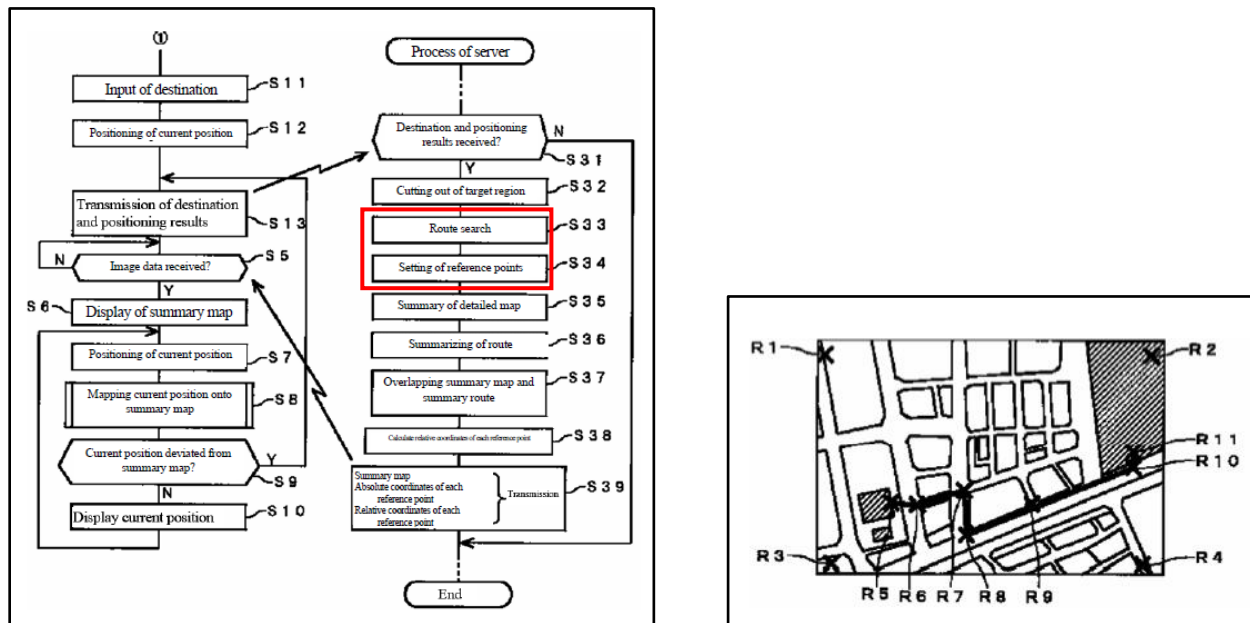
B. GROUND 2: Claims 1, 2, 4-9, and 11-19 are obvious over JP680 (EX1008) in view of JP973

i. Overview of JP680

JP680 (EX1008) is entitled “Map Display Terminal, Map Display Device, and Wireless Terminal and Map Server Thereof,” and is directed to navigation systems “that can achieve high visibility even on a small screen of a mobile telephone or the like.” EX1009³, Abstract, ¶ [0052]. Thus, JP680 is analogous art to the ’628 Patent because both are in the same field of endeavor of navigation devices and methods. EX1003, ¶¶141-144.

In further detail, JP680 discloses a non-linearly scaled “summary” map in which route guidance is displayed on a portable navigation device, and a backend detailed geographical map that is not displayed and via which navigation routes are calculated in the portable navigation device. EX1009, Abstract, ¶¶ [0040] – [0041], [0048] (“it is also possible to incorporate all functions into [a] wireless terminal”). An optimal route is calculated and determined by a “route search means” using the backend “detailed map” (*i.e.*, geographical map), and reference points of the route are thereby set on this geographical map as shown in FIG. 12. EX1009, ¶ [0041].

³ EX1009 is a certified translation of JP680 and will be cited to hereinafter when referring to JP680.



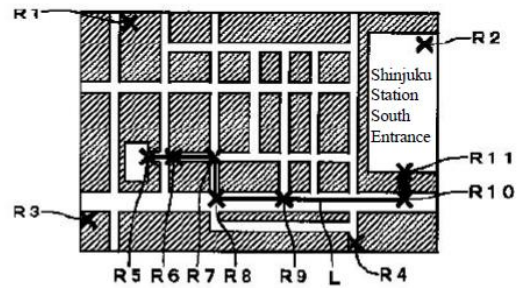
EX1009, FIG. 6 (L, annotated), FIG. 12 (R)

Subsequently, the determined route is converted to the relative coordinate system of the summary map by converting the coordinates of the reference points from the first coordinate system (“absolute coordinates”) of the geographic map (detailed map) to the second coordinate system (“relative coordinates”) of the artistic map (summary map). EX1009, ¶¶ [0043] – [0044]. Specifically, “as illustrated in FIG. 14, the relative coordinates of the nine reference points R1 to R11 are found by the reference point coordinate conversion means 210.” EX1009, ¶ [0044].

[FIG. 12]

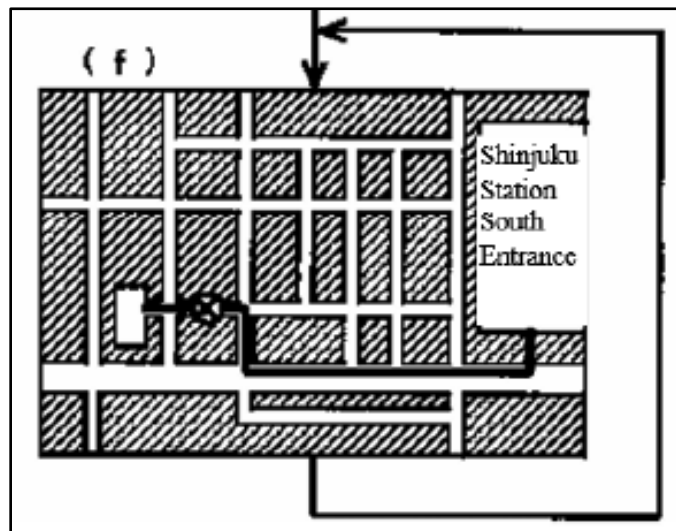


[FIG. 14]



EX1009, FIG. 12 (L), FIG. 14 (R)

The converted route is then superimposed and displayed on the summary
(artistic) map:



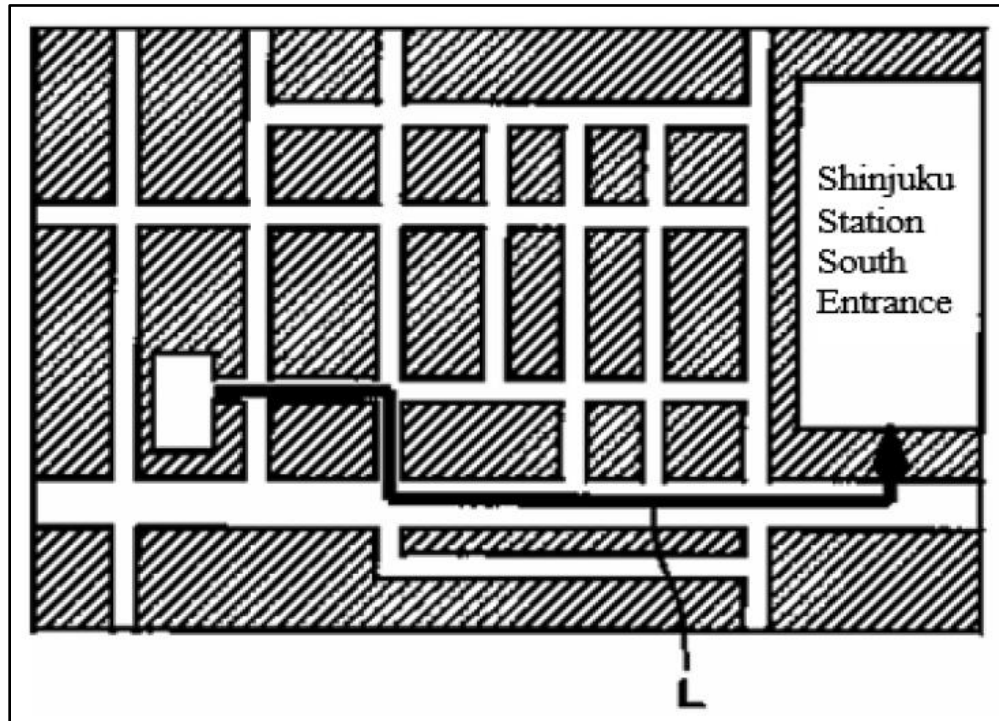
EX1009, FIG. 8(f)

ii. **Claim 1**

a. 1[pre] **“A method for navigating in a particular area, the method comprising:”**

Even if the preamble of claim 1 was treated as a limitation (which it is not under the BRI standard), JP680 discloses the preamble of claim 1. *See Pitney Bowes,*

182 F.3d at 1305; EX1003, ¶¶145-146. In particular, JP680 discloses a navigation method as a “route search to destination” process shown in FIG. 6. EX1009, ¶ [0040]. Namely, a user can select the “route search to destination” function from the menu screen shown in FIG. 8(a), and then input a destination as shown in FIG. 8(d). A mapping server or a portable wireless terminal 1 then determines the optimal route and displays the optimal route on a summary map as shown in FIG. 13. EX1009, FIG. 6:S33, ¶¶ [0040], [0043].



EX1009, FIG. 13

In the example disclosed in FIG. 6, the “particular area” is Shinjuku Station South Exit, and the method navigates thereto by displaying the route and the current position superimposed on the summary map, with the displayed current position

“chang[ing] in synchronization with movement of the current position as illustrated in FIG. 8(f).” EX1009, ¶ [0046].

JP973 also discloses the preamble of claim 1. See Ground 1, Claim 1[pre].

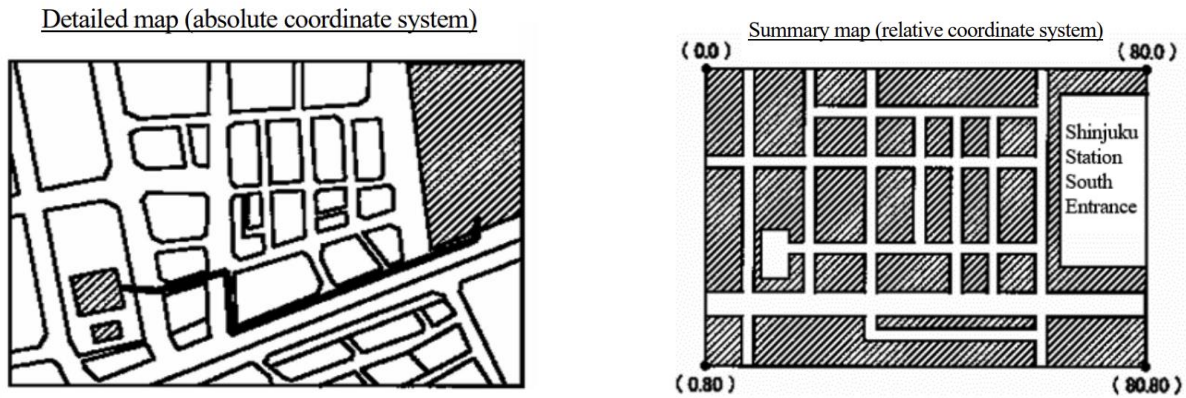
b. 1[a1] “downloading from a network into a computing device an artistic map,”

JP680 discloses downloading its summary map (*artistic map*) from a network (“a map server 2... via a wireless base station”). EX1009, ¶ [0014]; EX1003, ¶148. “Returning to the wireless terminal 1, summary map acquisition means 103 acquire a summary map (or a summary route map) returned from the map server 2.” *Id.*, ¶ [0024]. The “summary map” is an example of an “artistic map.”

JP973 also discloses this feature. See Ground 1, Claim 1[a1].

c. 1[a2] “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”

JP680 discloses this feature. EX1003, ¶¶149-153. Specifically, the summary map (*artistic map*) in JP680 is non-linearly scaled and includes objects (landmarks) in an exaggerated manner. The non-linear scaling can be seen in the comparison between the geographic (“detailed”) map in FIG. 3 and the summary map in FIG. 4:



EX1009, FIG. 3 (L) and FIG. 4 (R)

As can be seen above, the non-linear scaling is realized by the deformation and normalization of roads and objects (*e.g.*, Shinjuku Station). EX1003, ¶151. In detail, “FIG. 4 is a diagram illustrating one example of the summary map, and among the roads described according to the actual road width and orientation on the detailed map piece of FIG. 3, narrow roads are omitted, and all roads within a predetermined range of road widths are described having the same width. Moreover, the directions of the roads are unified in horizontal or vertical directions, and all the blocks are simplified into rectangles.” EX1009, ¶ [0020].

The objects in the summary map include destinations/landmarks (*e.g.*, Shinjuku Station) that are exaggerated by being “deformed and displayed emphasized and enlarged for a mobile wireless terminal.” EX1009, ¶ [0005]; EX1003, ¶152.

Further, JP680 discloses the wireless terminal 1 receiving a user input of a destination: “the destination (here, Shinjuku Station) is input from the destination input means 102.” EX1009, ¶ [0040].

To the extent that JP680 does not explicitly disclose that selecting an object on the artistic (summary) map, such a method to designate a destination was well known in the art. For example, JP973 discloses selecting a landmark object on a non-linearly scaled artistic map, *i.e.*, its “deformed” raster map. EX1005, FIGS. 3 and 5, ¶¶ [0033], [0020], [0030]; *see also* Ground 1, Claim 1[a2]; EX1003, ¶154. A POSITA would have been motivated to incorporate this selection technique into the destination input means of JP680 for the very reason explicitly taught by JP973: “When the destination can be set using this type of illustration map, there is an effect wherein even a person unfamiliar with the operation of the navigation device can easily set the destination.” EX1005, ¶ [0033]; EX1003, ¶154.

A POSITA would have also found it obvious to incorporate JP973’s selection technique into JP680 as no more than a simple substitution of one known element for another to obtain predictable results. EX1003, ¶155. As stated above, this feature was known in the art as evidenced by at least JP973. EX1005, FIGS. 3 and 5, ¶¶ [0033], [0020], [0030]; *see also* Ground 1, Claim 1[a2].

Further, a POSITA could have substituted the known object selection method of JP973 for the destination selection means of JP680 with predictably successful

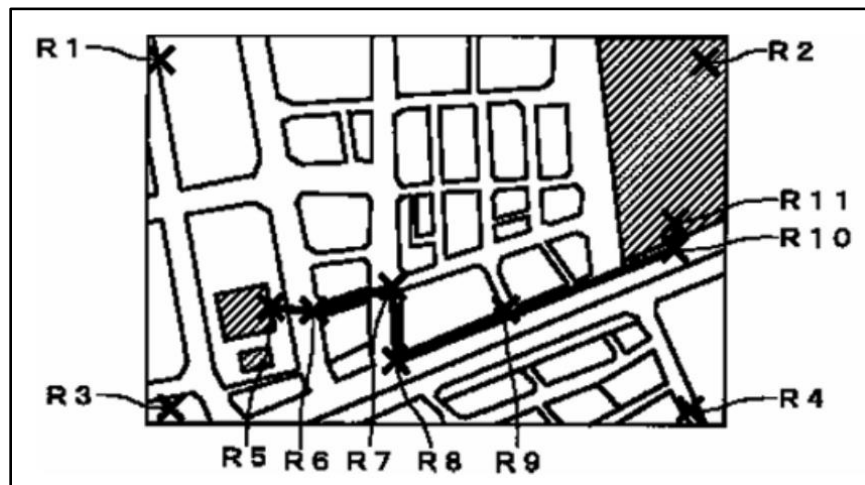
results, namely, the selecting of a displayed object on a displayed map to designate its single recorded geographical coordinates as the destination for navigation. EX1003, ¶156. To this end, a POSITA would have no reason to doubt that this simple functionality as taught by JP973 would be equally operable and successful in selecting JP680's POI (and its single geographical coordinate pair value) as a destination. *Id.* Both references disclose out-of-scale and deformed artistic maps including exaggerated objects, and both references disclose a single geographical coordinate pair value represented by each of the exaggerated landmark objects. EX1009, ¶¶ [0016], [0017], [0020] [0041], FIG. 4; EX1005, FIGs. 3-5, ¶¶ [0023], [0030], [0033], [0036], [0038] – [0039]. Moreover, the relevant functionalities of the portable devices in both references are substantially identical: determining navigation directions using geographical map data that is not displayed (EX1005, ¶¶ [0026], [0041], [0045], [0051]; EX1009, ¶¶ [0040]-[0041], [0048]) and displaying the resulting route on a distinct artistic map (EX1005, ¶¶ [0045] – [0046]; EX1009, ¶¶ [0043] – [0044]). Integrating JP973's destination selection techniques into JP680 would therefore not alter the respective functions of either the POI selection and route calculation method of JP973 or the route calculation and display method of JP680. EX1003, ¶156. The results would have been recognized as desirable, and the implementation predictable by a POSITA: enabling any user, including those

“unfamiliar with the operation of the navigation device,” to “easily set the destination.” EX1005, ¶ [0033]; *see also* ¶ [0052]; EX1003, ¶156.

**d. 1[a3] “wherein the computing device is portable,
equipped with navigation capability and provides a
traveling guidance based on a geographical map,”**

JP680 discloses a portable wireless terminal such as a cellular phone to perform the disclosed map and route display methods. EX1009, ¶¶ [0005] – [0006]; EX1003, ¶¶157-158.

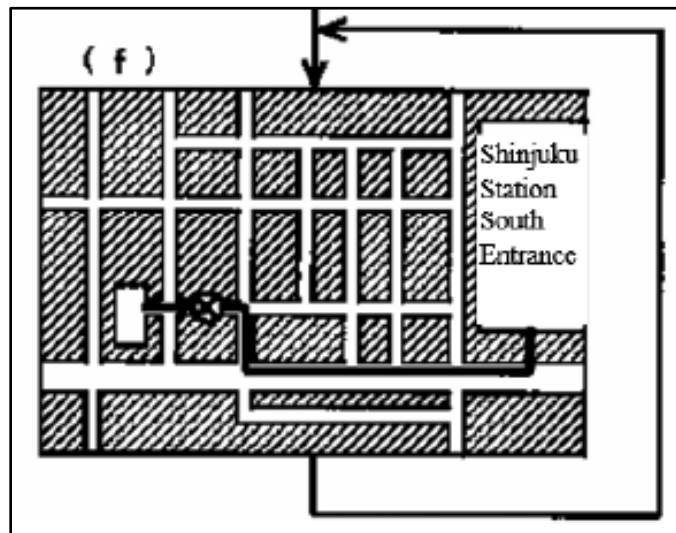
The traveling guidance in JP680 is exemplified in the flowchart of FIG. 6, whereby an optimal route is calculated and determined by a “route search means” with reference to a geographic map (“detailed map”), and reference points of the route on the geographic map are set. EX1009, ¶ [0041]. This is shown in FIG. 12, in which the route is provided based on the geographical map and reference points R5-R11 are set along this route:



EX1009, FIG. 12

The determined route is then converted to the coordinate system of the summary map by converting the coordinates of the reference points from the first coordinate system (“absolute coordinates”) of the geographic map (detailed map) to the second coordinate system (“relative coordinates”) of the artistic map (summary map). EX1009, ¶¶ [0043] – [0044]; EX1003, ¶159. Specifically, “as illustrated in FIG. 14, the relative coordinates of the nine reference points R1 to R11 are found by the reference point coordinate conversion means 210.” EX1009, ¶ [0044].

As shown in FIG. 8(f), the summary map on which the route is superimposed is displayed by the wireless terminal 1. EX1003, ¶160.



EX1009, FIG. 8(f)

In an embodiment, “all functions” can be incorporated into a wireless terminal. EX1009, ¶ [0048]. In other words, the entire mapping and routing processes can be performed in the portable wireless terminal 1. EX1003, ¶161

JP973 also discloses this claim element. *See* Ground 1, Claim 1[a3].

e. 1[a4] “the artistic map is not used directly by the computing device for navigation,”

JP680 discloses this feature. EX1003, ¶163. As described above for Claim 1[a3], the artistic map (summary map) is not directly used for calculating the navigation route. Rather, the calculated navigation route in JP680 is based on the detailed (geographic) map and then converted for display on the summary map.

JP973 also discloses this claim element. *See* Ground 1, Claim 1[a4].

f. 1[a5] “each of the objects is represented by a plurality of points on a display of the computing device,”

This feature is plainly taught by JP680. EX1003, ¶165. That is, the landmarks (*e.g.*, Shinjuku station) in JP680 are each objects that are represented by a plurality of points constituting “rectangles” on the display of the portable wireless terminal. EX1009, ¶ [0020].

JP973 similarly discloses this feature. *See* Ground 1, Claim 1[a5].

g. 1[a6] “and the geographical map is not being displayed on the display”

JP680 discloses this feature. Specifically, only the summary map is displayed on the portable wireless terminal; the detailed map is not displayed. EX1009, ¶¶ [0005] – [0006], FIG. 8(a) – 8(f); EX1003, ¶167.

JP973 also discloses this feature. *See* Ground 1, Claim 1[a6].

h. 1[b] “receiving in the computing device a selection on the one of the objects from the user as a selected object;”

JP680 alone or in combination with JP973 discloses this claim feature, or renders it obvious. *See* Claim 1[a2]; *see also* Ground 1, Claim 1[b]; EX1003, ¶169.

i. 1[c] “determining by the computing device a pair of coordinates for one of the points on the selected object;”

As discussed above, JP680 discloses the wireless terminal 1 receiving a user input of a destination: “the destination (here, Shinjuku Station) is input from the destination input means 102.” EX1009, ¶ [0040]; EX1003, ¶181. To the extent that JP680 does not explicitly disclose that the destination can be input by selecting a point (or pixel) of the displayed object, such a selection was known in the art. EX1003, ¶181. JP973, for example, discloses a selection of a displayed landmark object on a raster map, where that object is represented by a plurality of pixels. EX1005, FIGS. 3 and 5, ¶¶ [0031] - [0033], [0039]; *see also* Ground 1, Claim 1[c]. Accordingly, JP973 determines the display coordinates, *i.e.*, “the position designated on the raster map, of the point at which the landmark object is selected. *Id.* A POSITA would have found it obvious to incorporate this destination selection technique of JP973 into JP680 for the reasons set forth above with respect to Claim 1[a2]; EX1003, ¶181. For example, a POSITA would have been motivated to incorporate the destination selection teachings of JP973 to enable a user to more

“easily set the destination,” particularly where an artistic map that is out of scale is used. EX1005, ¶ [0033]; *see also* ¶ [0052]; EX1003, ¶181.

- j. 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;”**

JP680 identifies one pair (Q (x, y)) of absolute coordinates (physical point) represented by a pair of “latitude and longitude” for the selected destination. EX1009, ¶¶ [0016], [0017], [0041]; EX1003, ¶170. The absolute coordinates are in relation to the geographic map. EX1009, ¶¶ [0009] (“detailed map managed in the first coordinate system,” *i.e.*, “absolute coordinate system”), [0018] (“A detailed map created on the basis of the absolute coordinate system”). The destination is visualized by a rectangle (plurality of points/pairs of coordinates) on the summary map. *Id.*, FIG. 4. Thus, all of the points of the landmark displayed on the summary map correspond to the same physical point of the destination. EX1003, ¶170.

Nevertheless, to the extent that JP680 does not suggest transforming a coordinate pair of a point (or pixel) of the displayed object selected by a user to the single pair of absolute coordinates for that object, such a transforming was known in the prior art. EX1003, ¶171. As discussed above, JP973 for example discloses

this claim element. *See* Ground 1, Claim 1[d]. Specifically, JP973 obtains a single lat./long. physical point of a selected facility in response to a user selecting “any location” of a two-dimensional display object representing that facility. EX1005, ¶¶ [0031] – [0033]. In other words, all of the display points of the object correspond to the single physical point recorded for the facility represented by the object. EX1005, ¶¶ [0038] – [0041].

A POSITA would have found it obvious to incorporate this destination selection technique of JP973 into JP680 for the reasons set forth above with respect to Claim 1[a2]. EX1003, ¶172. For example, a POSITA would have been motivated to incorporate the destination selection teachings of JP973 to enable a user to more “easily set the destination,” particularly where an artistic map that is out of scale is used. EX1005, ¶ [0033]; *see also* ¶ [0052].

Additionally, a POSITA would have found it obvious to incorporate JP973’s destination selection technique into JP680 as a combination of prior art elements according to known methods to yield predictable results. EX1003, ¶173. **First**, JP973 discloses that the landmark object as a whole, constituted by a plurality of points (or pixels), corresponds to a single geographic coordinate pair (*i.e.*, physical point), and that any selection of the landmark object is transformed to that single geographic coordinate pair. EX1005, ¶¶ [0031] – [0033], [0038] – [0041]. Indeed, selecting a display object at any point to select the singular function of that object

was well known in the art. *See, e.g.*, EX1013, 12:19-25, 12:39-42 (conventionally, a GUI object's boundaries define its activation/control area). **Second**, a POSITA could have combined this teaching of JP973 into JP680 by known methods, *e.g.*, such as using color consistency among pixels of the object to detecting that a selected point belongs to the object, EX1007, ¶¶ [0038], [0053], or using the boundaries of the displayed object to define its activation area, EX1013, 12:19-25, 12:39-42. **Third**, integrating JP973's destination selection techniques into JP680 would not alter the respective functions of either the POI selection and route calculation method of JP973 or the route calculation and display method of JP680. **Fourth**, the results would have been recognized as desirable, and the implementation predictable by a POSITA: enabling any user, including those "unfamiliar with the operation of the navigation device," to "easily set the destination." EX1005, ¶ [0033]; *see also* ¶ [0052].

k. 1[e] "detecting a current location of the computing device in the geographical map;"

JP680 discloses that the wireless terminal detects its current position "on a first coordinate system (hereinafter expressed as absolute coordinate system) on the basis of latitude and longitude." EX1009, ¶ [0016]. This first coordinate system, also referred to as the absolute coordinate system, is the coordinate system of the detailed map (geographic map). EX1009, ¶¶ [0009], [0018]. The absolute

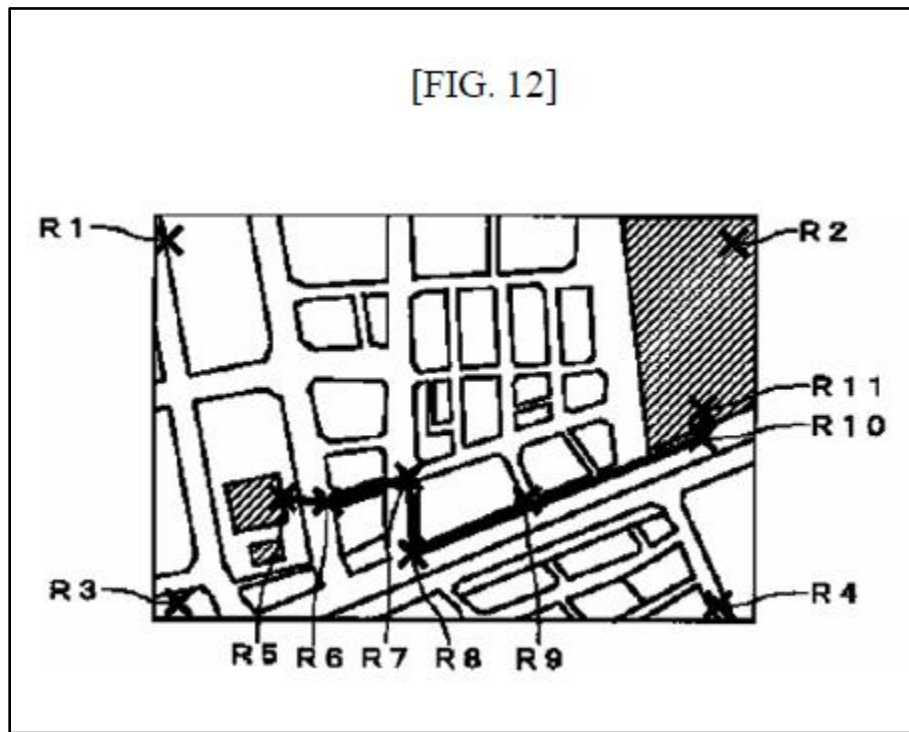
coordinates P (x, y) of the current position is located on the geographical map in order to determine the relevant portion (“cut-out”) of the geographical map from which to generate the summary map. EX1009, ¶ [0018]; EX1003, ¶174.

JP973 also discloses this feature. *See* Ground 1, Claim 1[e].

l. 1[f] “determining according to the geographical map a navigational direction from the current location to the one of the objects being selected; and”

JP680 discloses this feature. EX1003, ¶¶176-177. As described above, Claim 1[a3], the route guidance (navigational direction) from the current location to the selected destination is calculated using the geographic (detailed) map in JP680.

This is exemplified in the flowchart of FIG. 6, whereby an optimal route is calculated and determined by a “route search means” with reference to a geographic map (“detailed map”), and reference points of the route on the geographic map are set. EX1009, ¶ [0041]. As shown in FIG. 12, the route is provided based on the geographical map and reference points R5-R11 are set along this route:



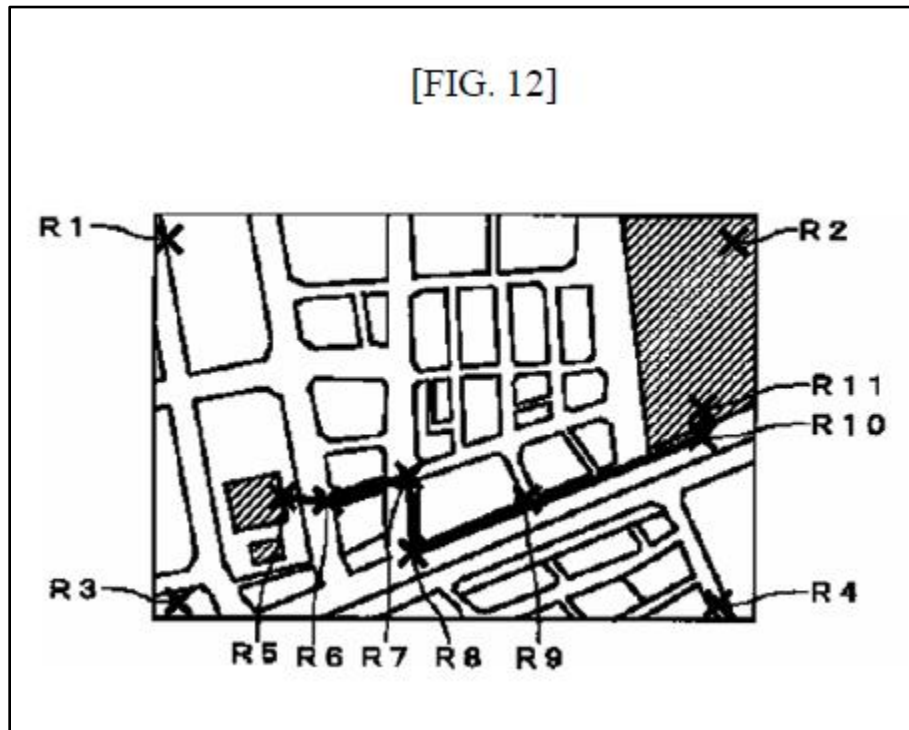
EX1009, FIG. 12

JP973 also discloses this claim element. See Ground 1, Claim 1[f].

m. 1[g] “showing the navigational direction on the artistic map being displayed.”

JP680 discloses both of a “summary” map (*artistic map*) in which route guidance is displayed on a portable navigation device, and a backend detailed geographical map that is not displayed and in which navigation routes are calculated in the portable navigation device. EX1009, Abstract, ¶¶ [0040] – [0041], [0048] (“all functions” can be incorporated into a wireless terminal); EX1003, ¶¶ 179-181. This is exemplified in the flowchart of FIG. 6, whereby an optimal route is calculated and determined by a “route search means” with reference to a geographical map

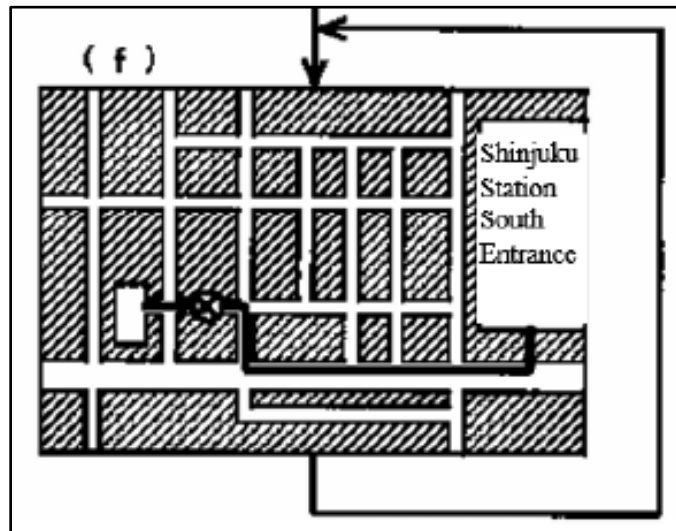
(“detailed map”), and reference points of the route on the geographical map are set. EX1009, ¶¶ [0040] – [0041]. As shown in FIG. 12, the route is determined based on the geographical map and reference points R5-R11 are set along this route:



EX1009, FIG. 12

The determined route is then converted to the relative coordinate system of the summary map by converting the coordinates of the reference points from the first coordinate system (“absolute coordinates”) of the geographic map (detailed map) to the second coordinate system (“relative coordinates”) of the artistic map (summary map). EX1009, ¶¶ [0043] – [0044]; EX1003, ¶180. Specifically, “as illustrated in FIG. 14, the relative coordinates of the nine reference points R1 to R11 are found by the reference point coordinate conversion means 210.” EX1009, ¶ [0044].

As shown in FIG. 8(f), the route (including a navigation directional arrow) is superimposed and shown on the summary map displayed by the wireless terminal 1.



EX1009, FIG. 8(f)

JP973 also discloses this claim element. *See* Ground 1, Claim 1[g].

iii. Claim 2

- a. “The method as recited in claim 1, wherein the artistic map is a theme park map, each of the objects represents an attraction.”**

JP680 discloses an artistic “summary map,” but does not specify that the map is a theme park map. A theme park map, however, was certainly known in the art. JP973, for example, discloses that its raster map (*artistic map*) may be an illustration map such as a “sightseeing map[.]” EX1005, ¶ [0033]; *see also* ¶ [0029] (raster map data may be “in a magazine” such as a “travel information magazine[.]” including “facilities and stores”). A POSITA would have understood that a sightseeing map

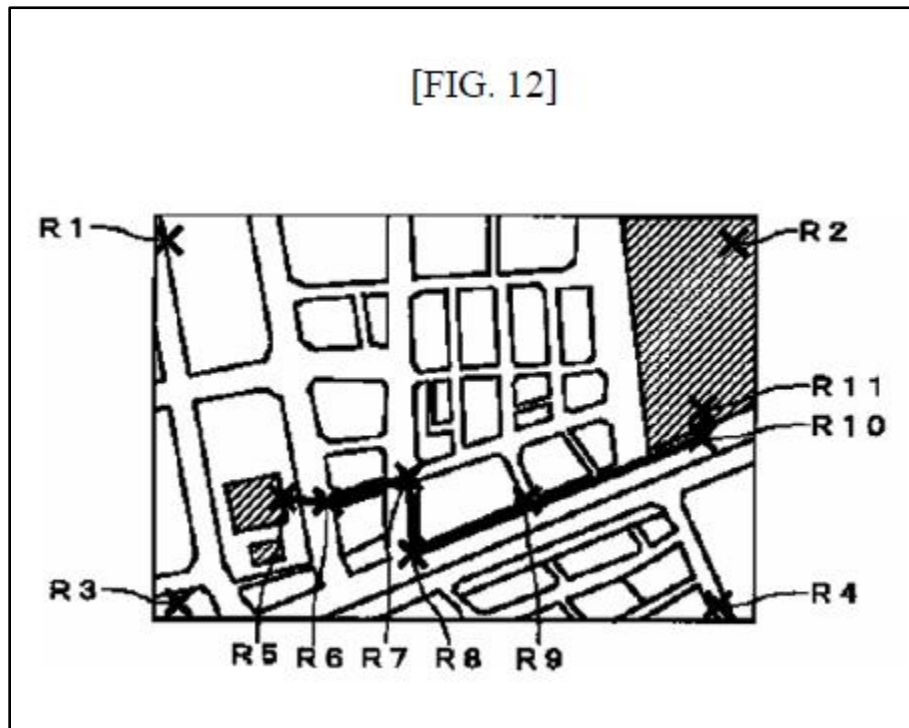
would include a theme park map in which the objects or points of interest are attractions. EX1003, ¶183. At the least, a POSITA would have found it obvious to use a theme park map as the artistic map in either JP680 or JP973, as nothing more than the simple substitution of one known element for another to obtain predictable results. First, JP680 and JP973 disclose the claimed method, but do not explicitly state that their artistic maps are a theme park map. Second, a theme park map was known in the art. *Id.*; EX1001, FIG. 1, 1:46--54. Third, a POSITA could have substituted a theme park map for either reference's artistic map, with predictable results. For example, JP973 discloses that its raster map includes sightseeing maps. EX1005, ¶ [0033]. There is no basis to believe that either reference's maps could not be applied to a theme park.

iv. Claim 4

- a. “The method as recited in claim 1, wherein said showing the navigational direction on the artistic map being displayed comprises transforming in the computing device the navigational direction based on the geographical map to a navigation direction based on the artistic map.”**

JP680 plainly discloses a transformation of route guidance from a backend and detailed geographical map to a deformed and displayed artistic (summary) map. EX1009, Abstract, ¶¶ [0040] – [0041], [0048] (“all functions” can be incorporated into a wireless terminal); EX1003, ¶184. As described in relation to the flowchart

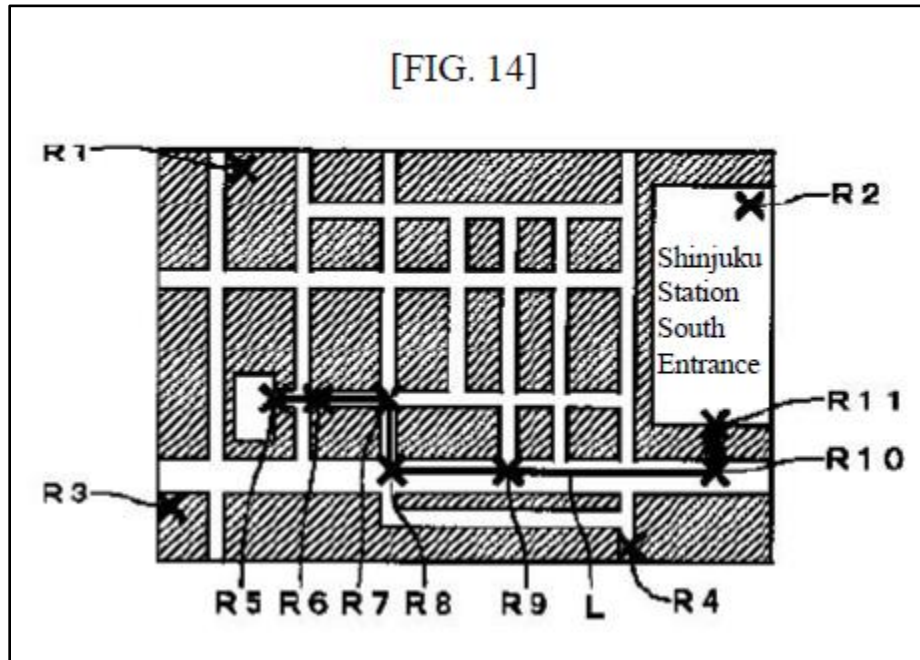
of FIG. 6, an optimal route is calculated and determined by a “route search means” with reference to a geographical map (“detailed map”), and reference points of the route on the geographical map are set. EX1009, ¶ [0040]. As shown in FIG. 12, the route is determined based on the geographical map and reference points R5-R11 are set along this route:



EX1009, FIG. 12.

The determined route is then transformed from the absolute coordinate system of the geographical map (FIG. 12) to the relative coordinate system of the artistic map (FIG. 14, reproduced below) by converting the coordinates of the reference points from the first coordinate system (“absolute coordinates”) of the geographic map (detailed map) to the second coordinate system (“relative coordinates”) of the

artistic map (summary map). EX1009, ¶¶ [0043] – [0044]; EX1003, ¶185. Specifically, “as illustrated in FIG. 14, the relative coordinates of the nine reference points R1 to R11 are found by the reference point coordinate conversion means 210.” EX1009, ¶ [0044].



EX1009, FIG. 14

JP973 also discloses this feature. *See, supra*, Ground 1, Claim 4.

v. **Claim 5**

- a. **“The method as recited in claim 4, further comprising determining a set of instructions of how to move from the current location to the physical point as a destination.”**

Both JP973 and JP680 disclose this feature, by determining the route guidance to a set destination. EX1005, ¶¶ [0026], [0045] – [0046]; EX1009, Abstract, ¶¶

[0040] – [0041]; EX1003, ¶187. JP680, for example, determines reference points along turns, intersections, and junctions along the route. EX1009, [0042]. JP973 discloses conventional navigation guidance in which the step-by-step directions (or instructions) are provided for moving from a current location to the set destination. EX1005, ¶ [0043].

vi. Claim 6

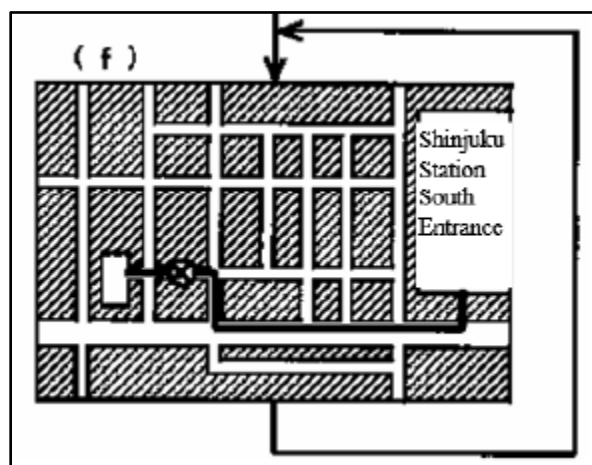
- a. “The method as recited in claim 5, wherein said showing the navigational direction on the artistic map being displayed comprises: transforming the instructions with respect to the geographical map to the artistic map being displayed.”**

JP680 and JP973 both disclose this feature, as discussed above with reference to claim 4.

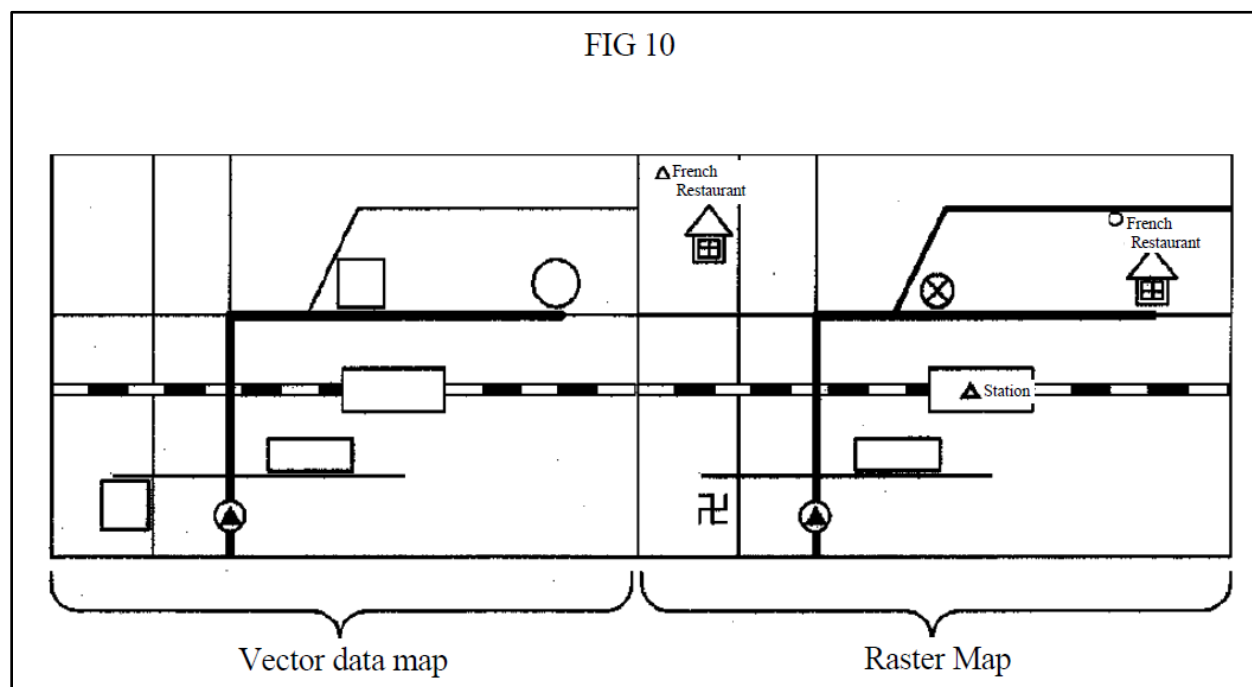
vii. Claim 7

- a. “The method as recited in claim 6, wherein the navigational direction shows how to move from the current location to the destination among a route, points of the route belonging to a road network,”**

JP680 and JP973 both disclose this feature. EX1003, ¶189. That is, both references show the route guidance (navigational direction) on a road network:



EX1009, FIG. 8(f)



EX1005, FIG. 10; *see also* Ground 1, Claim 7.

- b. “so pixel coordinates of each of the points are used to transform geographic coordinates of the points to image coordinates of the points.”

As discussed above with reference to claim 4, both JP680 and JP973 transform or convert the route from geographical map data to artistic map data. EX1003, ¶190. JP680, for example, explicitly discloses that this transformation is from the coordinates of the reference points in the first coordinate system (“absolute coordinates”) of the geographic map (detailed map) to the second coordinate system (“relative coordinates”) of the artistic map (summary map). EX1009, ¶¶ [0043] – [0044]. Specifically, “as illustrated in FIG. 14, the relative coordinates of the nine reference points R1 to R11 are found by the reference point coordinate conversion means 210.” EX1009, ¶ [0044]. Here, the relative coordinates correspond to pixel coordinates on the displayed summary image. EX1009, ¶¶ [0035] – [0037], FIG. 15. Thus, JP680 plainly discloses the pixel coordinates of the points being used in the transformation between coordinate systems.

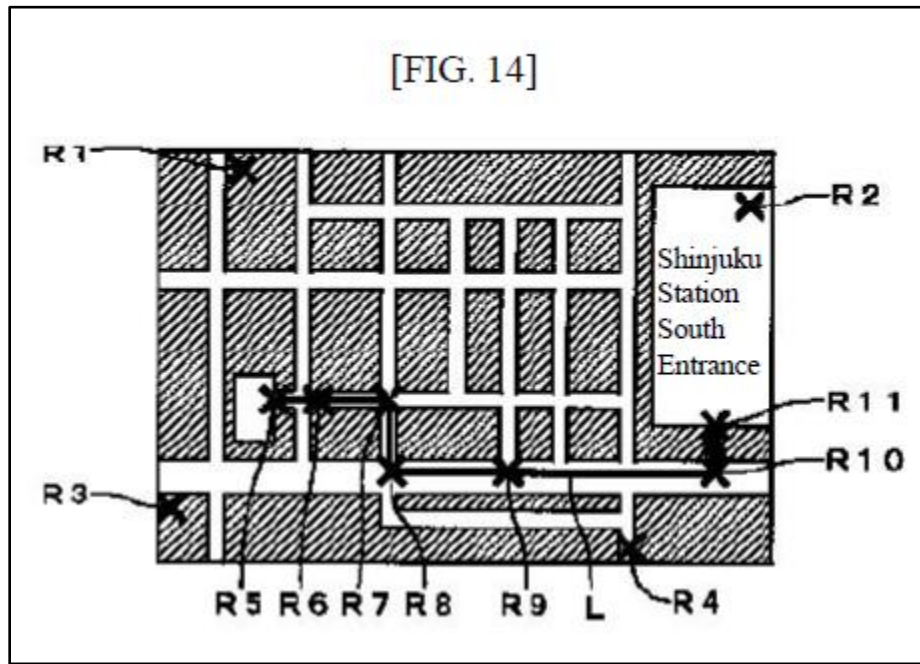
viii. Claim 8

a. “The method as recited in claim 7, further comprising connecting the pixel coordinates of the points to show the route on the map.”

JP680 and JP973 both disclose the route being shown by connecting pixel coordinates of points of the route. EX1009, FIG. 14; EX1005, FIG. 10; EX1003, ¶191. For example, JP680 describes a process in which reference points converted from the absolute coordinate system of the geographical map are determined in the

relative coordinate system of the artistic map, and connected to show the route.

EX1009, ¶¶ [0040] – [0045], FIG. 14.



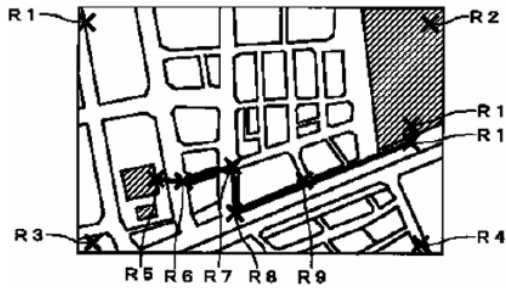
EX1009, FIG. 14.

ix. Claim 9

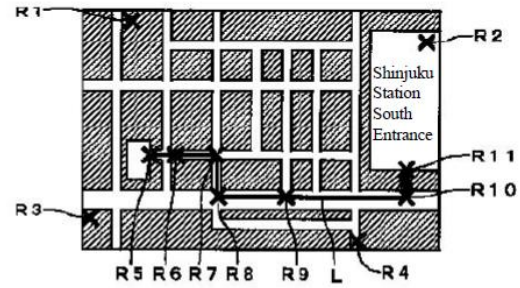
- a. **“The method as recited in claim 5, wherein said showing the navigational direction on the artistic map being displayed is carried out according to a transformation derived from a deformation of the geographical map to the artistic map being displayed.”**

JP680 clearly discloses this feature. EX1003, ¶192. Namely, JP680 explicitly states that its artistic map (summary map) is generated from a deformation of its geographical map (detailed map). EX1009, ¶¶ [0005], [0010], [0019] – [0024].

[FIG. 12]



[FIG. 14]



EX1009, FIG. 12 (L), FIG. 14 ®

The coordinate conversion between the two maps is based on a correspondence of reference points therebetween. EX1009, ¶¶ [0012] – [0013], FIG. 15; EX1003, ¶193.

[FIG. 15]

Reference point	Absolute coordinates	Relative coordinates
R 1	139.693, 35.690	10, 5
R 2	139.700, 35.690	78, 10
R 3	139.693, 35.688	3, 70
R 4	139.700, 35.688	60, 80
R 5	139.697, 35.689	35, 38

EX1009, FIG. 15

x. Claim 11

- a. 11[pre] “A portable device for navigating a designated place, the portable device comprising:”**

See Claim 1[pre] and 1[a3].

- b. 11[a1] “a display screen configured to display an artistic map downloaded from a network,”**

See Claim 1[a1] and 1[a2].

- c. 11[a2] “the artistic map being non-linearly scaled and including various objects being exaggeratedly shown therein,”**

See Claim 1[a2].

- d. 11[a3] “each of the objects represented by a plurality of points,”**

See Claim 1[a5].

- e. 11[a4] “wherein the portable device is equipped with navigation capability and provides a traveling guidance based on a geographical map,”**

See Claim 1[a3].

- f. 11[a5] “the artistic map is not used directly by the portable device for navigation,”**

See Claim 1[a4].

- g. 11[a6] “and wherein the geographical map is not being shown on the display screen;”**

See Claim 1[a6].

- h. 11[b] “a memory for storing code;”**

JP680 discloses its portable device including a memory and that all functions are installed in the device. EX1009, ¶ [0050]; EX1003, ¶201.

i. 11[c] “a processor executing the code to perform operations of:”

JP680 discloses its portable device may be a mobile telephone, a mobile PC, or a personal digital assistant (PDA), all of which include a processor to execute the functions. EX1009, ¶ [0050]; EX1003, ¶202.

JP973 also discloses a processor (arithmetic processing unit 10 including a CPU 11) that performs the various navigation processes disclosed therein in accordance with programs (code) stored in memory (*e.g.*, ROM). EX1005, ¶¶ [0017] – [0019]; EX1003, ¶203.

j. 11[d] “determining a pair of coordinates of one of the points representing an object being selected in the artistic map being displayed on the display screen;”

See Claim 1[b] and 1[c].

k. 11[e] “transforming the pair of coordinates of the one of the points to a physical point represented by a pair of latitude and longitude in the geographical map not being shown on the display, wherein the points representing the object have different pairs of coordinates, but all of the different pairs of coordinates correspond substantially to the physical point;”

See Claim 1[d].

l. 11[f] “detecting a current location of the computing device in the geographic map;”

See Claim 1[e].

- m. 11[g] “determining according to the geographical map a direction from the current location to the physical point; and”**

See Claim 1[f].

- n. 11[h] “showing the direction in the artistic map being displayed.”**

See Claim 1[g].

xi. Claim 12

- a. “The portable device as recited in claim 11, wherein the selected object is represented by a plurality of pairs of coordinates, all of the pairs of coordinates are substantially transformed to the physical point represented by the latitude and longitude.”**

See Claim 1[a5] and 1[d].

xii. Claim 13

- a. “The portable device as recited in claim 12, wherein the artistic map is non-linearly scaled, where the physical point is located in the geographical map in accordance with the latitude and longitude.”**

See Claim 1[a2] and 1[d].

xiii. Claim 14

- a. “The portable device as recited in claim 13, wherein the determining of the direction from the current location to the physical point is carried out by the portable device in accordance with the geographical map.”**

See Claim 1[f].

xiv. Claim 15

- a. “The portable device as recited in claim 14, where the operations further comprises determining a set of instructions of how to move from the current location to the physical point as a destination.”**

See Claim 5.

xv. Claim 16

- a. “The portable device as recited in claim 15, wherein said showing the direction in the artistic map being displayed comprises: transforming the direction with respect to the geographical map to the artistic map being displayed; and transforming the instructions with respect to the geographical map to the artistic map being displayed.”**

See Claim 4.

xvi. Claim 17

- a. “The portable device as recited in claim 16, wherein the direction shows how to move from the current location to the destination among a route, points of the route belong to a road network, so pixel coordinates of every of the points are used to transform geographic coordinates of the points to image coordinates of the points.”**

See Claim 7.

xvii. Claim 18

- a. “The portable device as recited in claim 17, wherein the operations further comprises connecting the pixel coordinates of the points to show the route in the artistic map.”**

See Claim 8.

xviii. Claim 19

- a. “The portable device as recited in claim 15, wherein the synchronizing of the direction with the artistic map being displayed is carried out according to a transformation derived from a deformation of the geographical map to the map being displayed.”**

See Claim 9.

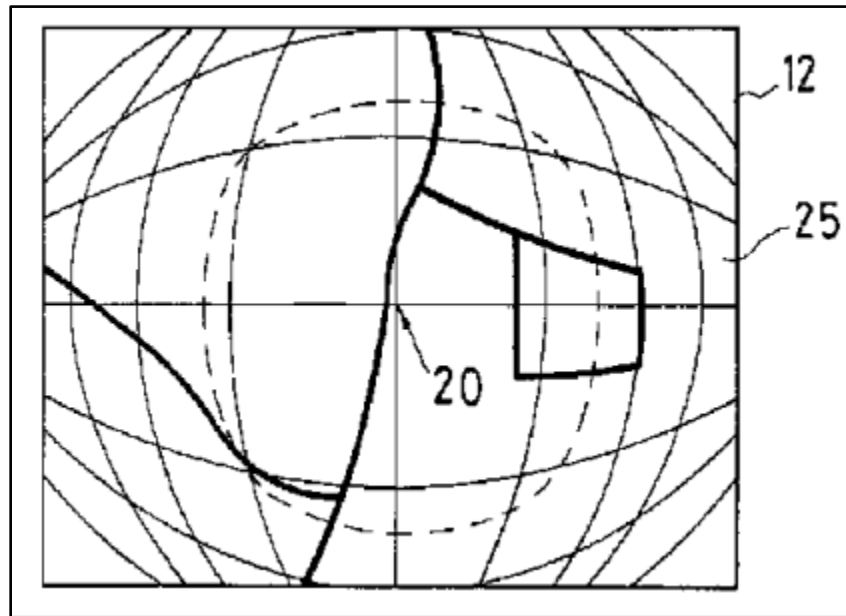
C. GROUND 3: Claim 3 is obvious over JP680 in view of JP973 and JP706

i. Claim 3

- a. “The method as recited in claim 1, wherein the map is presented in such a way that a display resolution of the map goes lower from a center of the display to an edge of the display.”**

JP680 discloses a summary map (*artistic map*) that is non-linearly scaled and includes objects (landmarks) in an exaggerated manner. EX1009, FIG. 4; EX1003, ¶217. In detail, “FIG. 4 is a diagram illustrating one example of the summary map, and among the roads described according to the actual road width and orientation on the detailed map piece of FIG. 3, narrow roads are omitted, and all roads within a predetermined range of road widths are described having the same width. Moreover, the directions of the roads are unified in horizontal or vertical directions, and all the blocks are simplified into rectangles.” EX1009, ¶ [0020]. JP973, too, discloses a non-linearly scaled map that is deformed and out of scale. EX1005, FIGS. 3 and 5, ¶ [0033] (“not... according to scale” and “deformed... illustration map”).

Neither reference, however, explicitly states that its map is displayed such that a resolution decreases from the center outward. Such a non-linear scaling of a navigation map, however, was well known at the time of the invention. EX1003, ¶218. For example, JP706 (EX1010) discloses a navigation system in which a resolution of a displayed map decreases, *i.e.*, a scale increases, from a center of the display outward. EX1011⁴, ¶ [0014]; FIG. 5; *see also* ¶¶ [0023], [0036]–[0037].



EX1011, FIG. 5

A POSITA would have found it obvious to incorporate the non-linear scaling of JP706 into the non-linear map display of JP680 (or JP973); the prior art provides

⁴ EX1009 is a certified translation of JP706 and will be cited to hereinafter when referring to JP706.

an explicit motivation for the combination: “making the destination setting operation easy.” EX1011, ¶ [0014]; *see also* ¶¶ [0023], [0036]–[0037]. A POSITA would have reasonably expected that the modification would successfully allow a destination to be accurately set. *Id.*, ¶ [0037]; EX1003, ¶219.

D. GROUND 4: Claims 10 and 20 are obvious over JP680 in view of JP973 and Kashiwazaki (EX1012)

i. Claim 10

- a. “The method as recited in claim 1, wherein there is a color map to define a color of each of the objects in the artistic map, and the method further comprising: adjusting the color for the each of objects in the artistic map, and generating a color definition map.”**

Neither JP680 nor JP973 explicitly discloses the use of a color map to define a color of each of the objects in the artistic map, or the process to adjust the color for the each of objects in the artistic map and generate a color definition map. Nevertheless, a POSITA would have found such a modification to have been obvious in view of Kashiwazaki (EX1012). EX1003, ¶¶220-223. Kashiwazaki is directed to a “navigation apparatus capable of changing color scheme of a displayed picture.” EX1012, Title. Thus, Kashiwazaki is analogous art to the ’628 Patent because both are in the same field of endeavor of navigation devices and methods.

Kashiwazaki discloses a color scheme that assigns colors and palette numbers to contents of a map, such as background, rivers, seas, green tracts, roads, and the

like. EX1012, 3:18-4:4. In other words, the prior art discloses “a color map to define a color of each of the objects” in the navigation map. Kashiwazaki further teaches a process to choose the palette number for displaying the map (*i.e.*, adjust the specific color), and a process to adjust the color scheme when the display device being used to display the map has different characteristics from the display device used by the user to set the desired color scheme. EX1012, 5:17-28, 6:5-14.

Notably, the claimed “generating a color definition map” is described in the ’628 Patent as a process for generating a map with adjusted color:

[T]he artificial [sic] map presents an artificial [sic] scene including all the objects ... When the artificial [sic] scene is displayed on a particular GPS receiver, the manufacturer [sic] of the GPS receiver can adjust the respective colors to suit the display screen of the GPS receiver. The revised artificial [sic] map is referred to as a color-definition map.

EX1001, 7:27-56. Kashiwazaki, therefore, discloses generating a color definition map no differently than the ’628 Patent.

A POSITA would have found it obvious to incorporate the color map and generating of a color definition map of Kashiwazaki into the map display of JP680 (or JP973); the prior art provides an explicit motivation for the combination, to “provid[e] a navigation apparatus which can adjust a color scheme to one preferred by a user, and which can easily change a scheme setting so that it becomes suitable for a display device actually used.” EX1003, ¶223. A POSITA would have

reasonably expected that the modification would “provide[] improved legibility” of the displayed map (*e.g.*, depending on time of day/ambient light) and “support a drive effectively.” EX1012, 6:5-15; *see also* 1:9-37, 3:47-4:4; EX1003, ¶223.

ii. Claim 20

- a. “The portable device as recited in claim 11, wherein colors of various objects are displayed thereon in accordance with a color definition map that is generated after an adjustment of the colors originally produced according to a color map.”**

See Claim 10.

IX. DISCRETIONARY CONSIDERATION

Petitioner stipulates that, if the Board institutes trial, Petitioner will cease asserting in the district court any grounds raised in this petition or reasonably could have been raised in this petition. Petitioner therefore respectfully submits that the Board should not exercise its discretion under 35 U.S.C. §§ 314(a) to deny this Petition.

X. CONCLUSION

For at least the foregoing reasons, Petitioner requests that the Patent Office order institution of *inter partes review* for claims 1-20 and then cancel these claims as unpatentable.

Respectfully submitted,

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Date: MARCH 29, 2024

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Petitioner hereby certifies that the present paper contains 12,344 (as counted by the “Word Count” feature of Microsoft Word™). This word count excludes the table of contents, table of authorities, table of exhibits, certificate of word count, and certificate of service.

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CERTIFICATE OF SERVICE

The undersigned certifies that on March 29, 2024, in accordance with 37 C.F.R. §§ 42.105 and 42.6, a complete and entire copy of this Petition for *Inter Partes* Review and all supporting exhibits were provided via Priority Mail Express to the Patent Owner, by serving the correspondence address of record as follows:

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