

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

RAFQA STAR, LLC,

Patent Owner.

Case No. IPR2023-00812
U.S. Patent No. 11,145,215

PETITION FOR *INTER PARTES* REVIEW

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LIST OF EXHIBITS

Exhibit	Description
Ex. 1001	U.S. Patent No. 11,145,215 (“the ’215 patent”)
Ex. 1002	File History of U.S. Patent No. 11,145,215
Ex. 1003	Declaration of David H. Williams
Ex. 1004	CV of David H. Williams
Ex. 1005	U.S. Patent Application Publication No. 2011/0199479 to Waldman (“Waldman”)
Ex. 1006	U.S. Patent Application Publication No. 2011/0141141 to Kankainen (“Kankainen”)
Ex. 1007	U.S. Patent Application Publication No. 2006/0190168 to Ohnishi et al. (“Ohnishi”)
Ex. 1008	U.S. Patent Application Publication No. 2010/0123737 to Williamson et al. (“Williamson”)
Ex. 1009	U.S. Patent Application Publication No. 2009/0125234 to Geelen et al. (“Geelen”)
Ex. 1010	U.S. Patent No. 8,698,843 to Tseng (“Tseng”)
Ex. 1011	U.S. Patent Application Publication No. 2010/0070173 to Sakamoto (“Sakamoto”)
Ex. 1012	U.S. Patent Application Publication No. 2006/0004512 to Herbst et al. (“Herbst”)
Ex. 1013	U.S. Patent Application Publication No. 2009/0216446 to Ma et al. (“Ma”)
Ex. 1014	Waldman As-filed U.S. Patent Application No. 12/705,558
Ex. 1015	<i>Rafqa Star, LLC v. Google LLC</i> , No. 6:22-cv-01207-ADA, Dkt. 29, Scheduling Order (W.D. Tex. Mar. 7, 2023)

Exhibit	Description
Ex. 1016	(RESERVED)
Ex. 1017	<i>Rafqa Star, LLC v. Google LLC</i> , No. 6:22-cv-01207-ADA, Dkt. 9, Return of Service (W.D. Tex. Nov. 30, 2022)
Ex. 1018	U.S. District Courts—National Judicial Caseload Profile, <i>available at</i> https://www.uscourts.gov/sites/default/files/data_tables/fcms_na_disprofile1231.2022.pdf (retrieved June 20, 2023)
Ex. 1019	<i>Rafqa Star, LLC v. Google LLC</i> , No. 6:22-cv-01207-ADA, Dkt. 34, Certificate of Service, Dkt. 34 (W.D. Tex. Mar. 14, 2023)

I. Relief Requested

Petitioner Google LLC requests *inter partes* review under 35 U.S.C. § 311 of claims 1-22 of U.S. Patent No. 11,145,215, assigned to Patent Owner Rafqa Star, LLC, and cancellation of claims 1-22 based on the following grounds:

Ground	Claim(s) Challenged	35 U.S.C. §	References
1	1-11 and 14-22	103	Waldman and Kankainen
2	12 and 13	103	Waldman, Kankainen, and Ohnishi
3	1-7 and 14-22	102 or 103	Kankainen
4	8-11	103	Kankainen and Geelen
5	12 and 13	103	Kankainen and Ohnishi

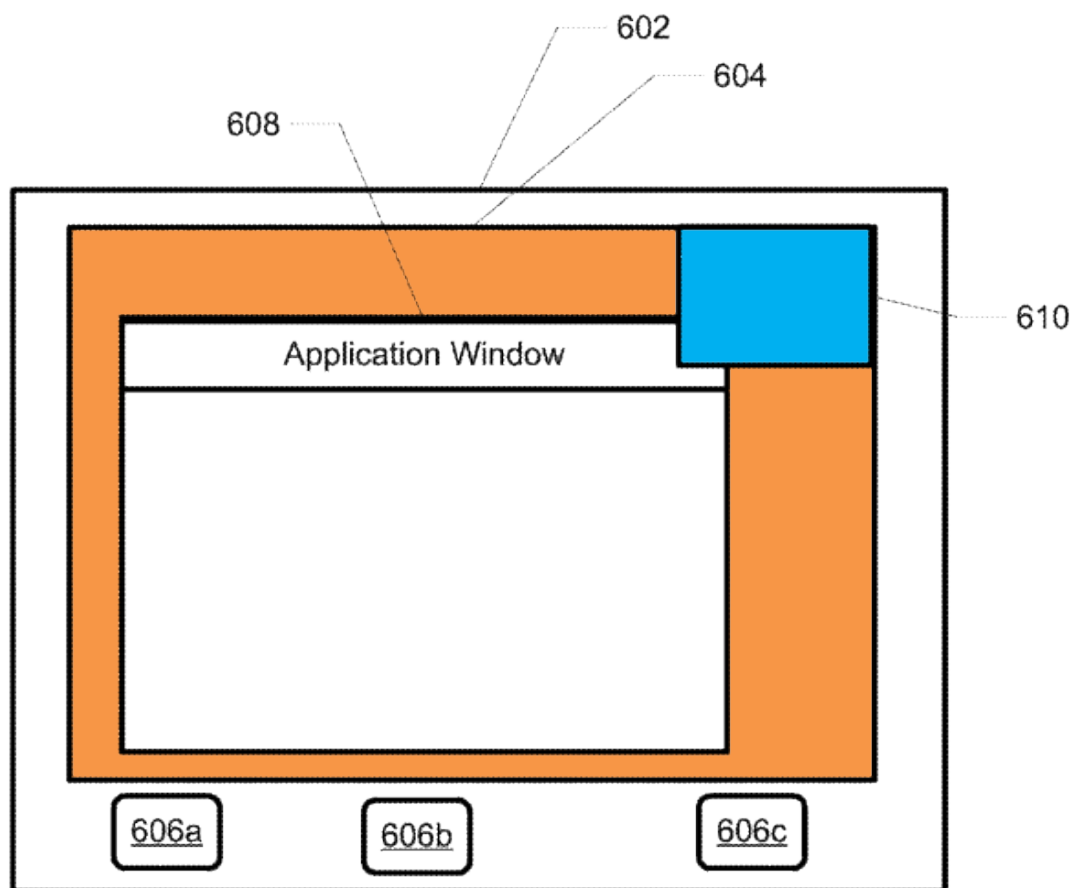
II. The '215 Patent

The '215 patent¹ describes methods for directing a user to a first object, such as a point of interest, using a portable electronic device (“PED”). Ex. 1001, 2:20-

¹ Petitioner assumes, for purposes of this proceeding only, a priority date of March 11, 2011, making pre-AIA law applicable. If the Board finds that AIA law applies,

26. The method detects the PED's movement, receives visual input using a "video capture device[]," and augments a video output to include an "attention output," which is a coined phrase for a conventional annotation. *Id.*, 12:26-31, 12:54-62, 25:2-26, 27:57-59, 28:59-61, 29:37-39, FIG. 2. Figure 6 shows a screen ("presentation space 604") (**orange**) displaying the video ("application window 608") (white), and annotation ("[a]ttention output 610") (**blue**) directing the user "to look up and to the right." *Id.*, 28:42-50, 29:1-6, 29:31-37, FIG. 6.

all prior art cited in this Petition is prior art under AIA 35 U.S.C. § 102(a)(1) and (a)(2).



Id., FIG. 6.²

² All colored annotations added unless otherwise specified.

III. Claim Construction

No terms need to be construed to resolve unpatentability.³ *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019).

IV. Level of Ordinary Skill

A person of ordinary skill in the art (“POSITA”) of the ’215 patent would have had at least a bachelor’s degree in electrical engineering, computer science, or related engineering disciplines, and at least two years of experience in navigation or location-based services and interfaces for their use. Relevant work experience can substitute for formal education and additional education could substitute for work experience. Ex. 1003, Williams Declaration (“Williams”), ¶ 68.

V. Claims 1-22 Are Unpatentable and Should Be Cancelled

A. Prior Art

1. Waldman

Waldman was filed February 12, 2010, and published August 18, 2011, making Waldman prior art under at least 35 U.S.C. § 102(e). Waldman, cover.

³ Petitioner reserves all rights to raise claim construction and other arguments in district court, and to address claim construction in this proceeding if raised by the Board or Patent Owner.

Waldman discloses a “method of augmenting a video stream of a [handheld communication] device’s present surrounding with navigational information.”

Waldman, [0005], [0011], [0047]. “[A] user points a handheld communication device to capture and display a real-time video stream” Waldman, [0010]. The user selects a point of interest (“POI”) to visit, and the device “visually augments the captured video stream with a directional map to a selected point of interest” Waldman, [0010]. For example, the user selects Buena Vista Park (POI, **green**) and the device “visually augment[s] the captured image 302 [video stream] with a directional map 310” to show “a direction 312 [(**red**)] that the user must travel on Dolores St. to begin travelling to reach ‘Buena Vista Park’” and “a turn 314 [(**blue**)] that the user must take, i.e., a turn left onto Duboce Ave. from Dolores St.” Waldman, [0031]. “As the user and associated device progress along a route, the overlaid directions can automatically update to show the updated path.” Waldman, [0007], [0052], claim 7.

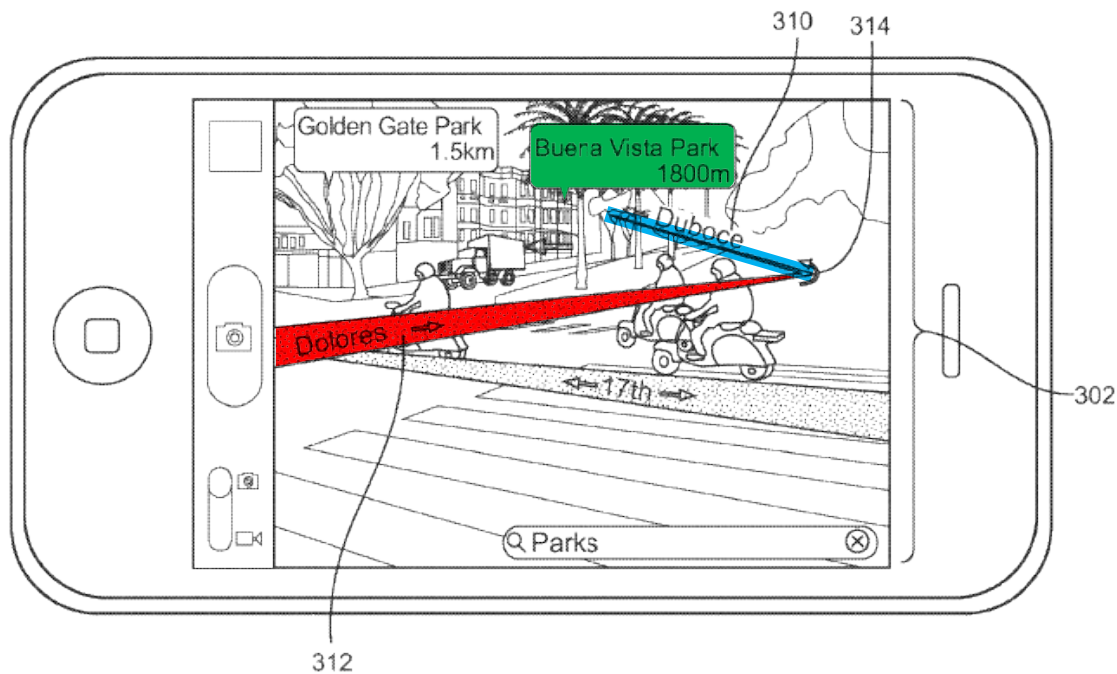


FIG. 3

Waldman, FIG. 3.

2. Kankainen

Kankainen was filed December 14, 2009, and published June 16, 2011, making Kankainen prior art under at least 35 U.S.C. § 102(e). Kankainen, cover.

Kankainen utilizes “augmented reality or augmented virtuality (e.g., using 3D models and 3D mapping information) to insert rich content information relevant to...[a] POI...in [a] live image view in a real time manner.” Kankainen, [0039], [0075]. When the user requests walking directions to a POI, like the International Monetary Fund (“IMF”) building, “the system 100 retrieves location data (e.g., an address, GPS coordinates, etc.) of the IMF, ... then maps a route from the current location (e.g., the METRO Station) to the designated POI, and

presents the route on a digital map to the user.” Kankainen, [0034]. “While the user is walking along the route, the system 100 presents a live image view of the surrounding location on the screen.” *Id.* Kankainen utilizes “augmented reality or augmented virtuality (e.g., using 3D models and 3D mapping information) to insert rich content information relevant to the POI (e.g., drawn from the Internet) in the live image view in a real time manner,” including “turning points” and other annotations (**green**), for directing the user to the POI. Kankainen, [0039], [0073], [0075]. The augmented stream is updated as the user walks along the route. Kankainen, [0075], [0077], [0080], FIGS. 6C-6D, 6H.

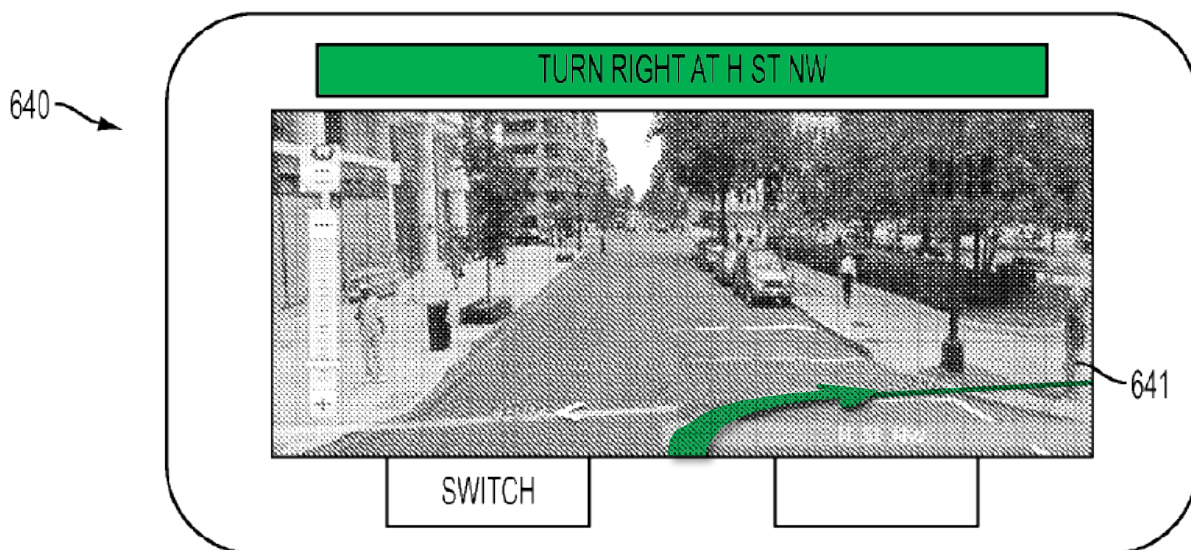


FIG. 6C

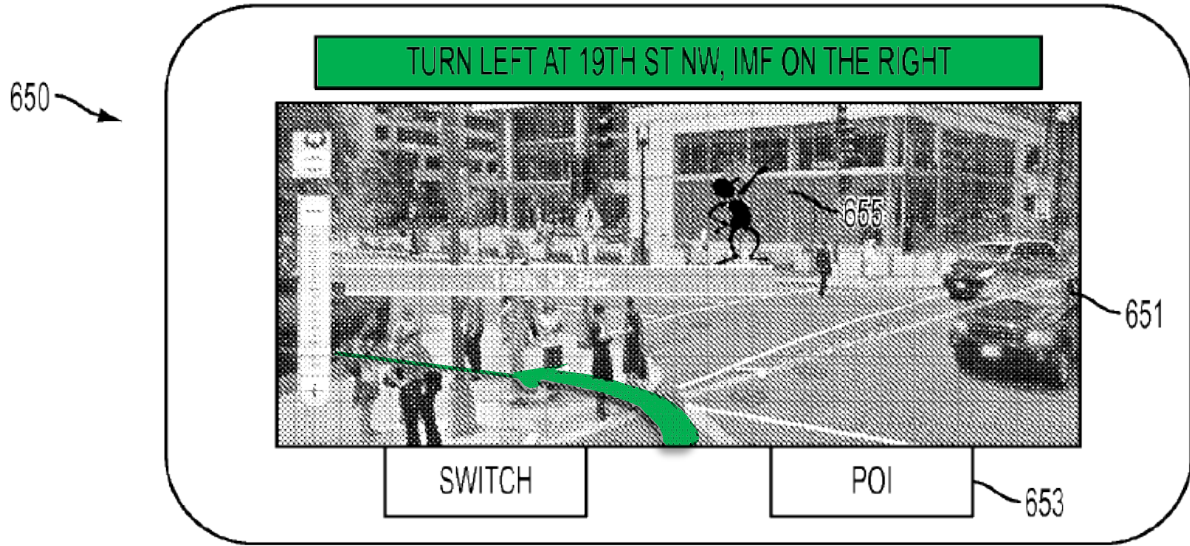


FIG. 6D

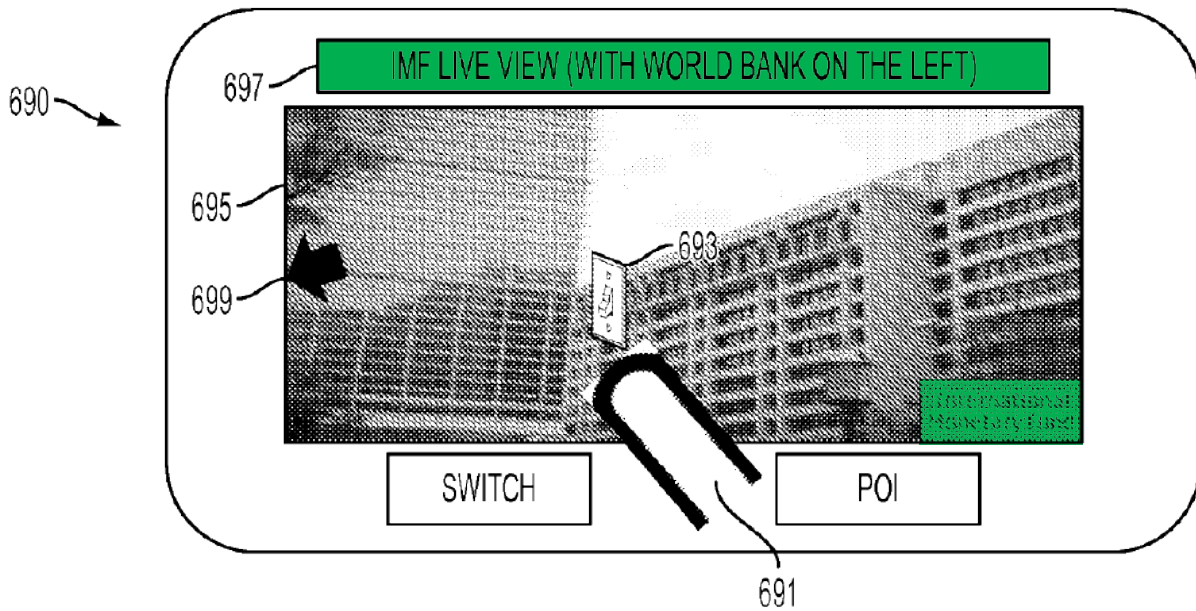


FIG. 6H

Kankainen, FIGS. 6C-6D, 6H.

3. Ohnishi

Ohnishi published August 24, 2006, making Ohnishi prior art under 35 U.S.C. § 102(a)-(b). Ohnishi, cover.

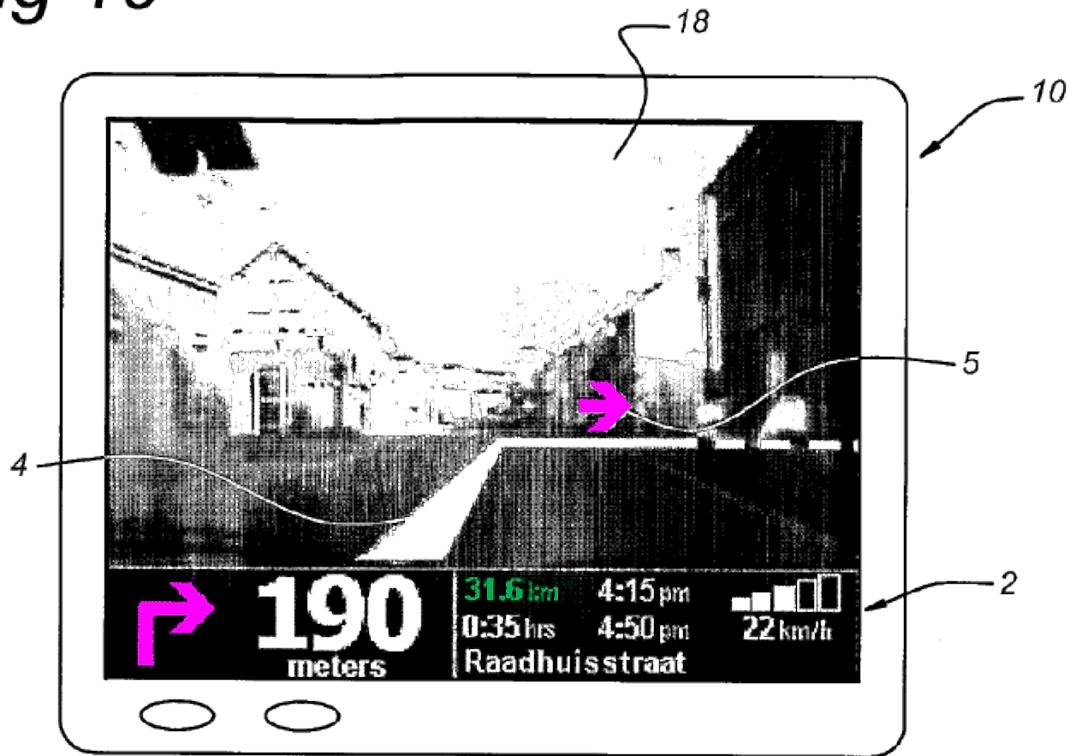
Ohnishi discloses a pedestrian navigation device that provides tactile feedback, for example, a “vibration pattern,” as the user approaches a “guide point” along the route and when the user arrives at “the destination.” Ohnishi, [0117], [0119], [0128], [0144].

4. Geelen

Geelen published May 14, 2009, making Geelen prior art under 35 U.S.C. § 102(a)-(b). Geelen, cover.

Geelen provides navigation directions “for walkers” using a “real time” video feed on a portable electronic device by superimposing “the navigation directions over the camera image.” Geelen, [0002], [0017], [0061], [0071]. Geelen’s superimposed navigation directions include direction indicators (pink), e.g., “an arrow indicating a right turn,” and an indicator of the “distance to the destination 26” (green). Geelen, [0017], [0064], FIGS. 10, 12.

Fig 10



Geelen, FIG. 10.

5. Waldman, Kankainen, Ohnishi, and Geelen are analogous art

Waldman, Kankainen, Ohnishi, and Geelen are analogous art to the '215 patent because each reference, like the '215 patent, is directed to the same field of endeavor: methods for using a portable electronic device to direct a user to a destination by detecting movement of the portable electronic device. *Compare* Ex. 1001, 2:20-26, *with* Waldman, [0005], [0010], [0039], [0052]; Kankainen, [0034], [0039], [0073], [0075]; Ohnishi, [0117], [0119], [0128], [0144]; Geelen, [0002], [0017], [0061], [0071]; Williams ¶ 80. Like the '215 patent, Waldman,

Kankainen, Ohnishi, and Geelen are each directed to methods and devices for directing a user to a destination using visual and/or tactile output(s). *Compare* Ex. 1001, 29:1-11, *with* Waldman, [0010], [0031], FIG. 3; Kankainen, [0039], [0065], [0073], [0075], FIGS. 6C-6D, 6H; Ohnishi, [0010], [0016], [0061]; Geelen, [0017], [0061], [0064], FIGS. 10, 12; Williams ¶ 80.

B. Ground 1: Waldman and Kankainen Render Obvious Claims 1-11 and 14-22

1. Independent Claim 1

Waldman discloses or renders obvious, alone or over Kankainen, each element of claim 1. Williams ¶¶ 84-106.

a. [1Preamble] “A method, comprising:”

To the extent the preamble is limiting,⁴ Waldman discloses [1Preamble]. Waldman discloses methods for “displaying augmented reality maps” and “augmenting a video stream of a device’s present surrounding with navigational information.” Waldman, [0005], [0011]; Williams ¶ 85.

⁴ Petitioner does not concede the preamble is limiting.

- b. [1a] “detecting a movement of a portable electronic device in a first direction, that results from a user walking with the portable electronic device in the first direction;”

Waldman, or Waldman and Kankainen, renders obvious [1a]. Williams ¶¶ 86-95.

Waldman discloses a “handheld electronic device” or “handheld communication device” for navigating from a current location to a POI along a prescribed route. Waldman, Abstract, [0031], [0045], [0047], FIGS. 3-4. The device’s location and movement may be detected using “GPS coordinates” or “triangulation methods” so that the device continuously receives “updated location and directional information” as the “user and associated device progress [move] along a route.” Waldman, [0007], [0024], [0052]; Williams ¶ 87.

In one example, Waldman’s POI is Buena Vista Park (**green**). The device’s display shows a prescribed route in a first direction (**red**) along Dolores St. Waldman, [0031]-[0032]. “As the user follows the specified direction to the selected points of interest,” the device’s movement along the path is detected, and the device “update[s] the illustrated portion of the route as the GPS location of the

video capture device changes with movement [of the device] along the route” in the first direction. Waldman, [0031]-[0032], [0052], claim 7;⁵ Williams ¶ 88.

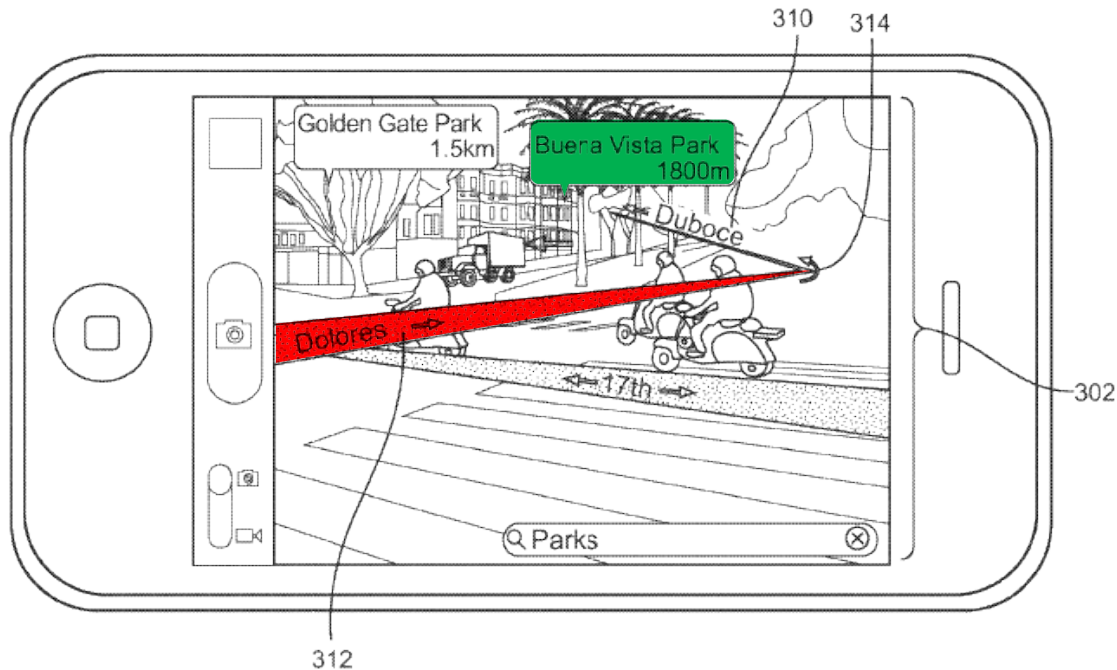


FIG. 3

Waldman, FIG. 3.

i. Obviousness over Waldman

To the extent Waldman does not expressly teach or disclose [1a], a POSITA would have understood that “automatically” updating the route/directions “[a]s the user and associated device progress along a route,” by detecting the device’s “movement,” suggests or renders obvious detecting the movement resulting from the user walking because users routinely walk to destinations, like parks and

⁵ Waldman’s as-filed claim 7 recites the same language. Ex. 1014, 29.

nearby locations, while holding handheld devices. Waldman, [0007], claim 7; Williams ¶ 89.

(a) Motivation

A POSITA would have been motivated to detect movement of Waldman’s handheld electronic device that results from a user walking in the first direction to provide useful navigation guidance to the user while on foot—particularly navigation in walkable cities, such as San Francisco, and to walkable destinations (e.g., Buena Vista Park). Waldman, FIGS. 2-3 (showing proximity of POIs in San Francisco, including Buena Vista Park, 1800m from user); Kankainen, [0023]. A POSITA would have been motivated to include this detection to provide real-time, continuous navigation so that the user can track their progress and have access to “automatically update[d]” navigation directions “[a]s the user and associated device progress” (e.g., walk) “along a route,” which improves the user’s experience of following the directions. Waldman, [0007]; Williams ¶ 90.

(b) Expected Success

A POSITA would have had a reasonable expectation of success in detecting movement of Waldman’s device that results from the user walking with the device because it was conventional in the art to use Waldman’s locating techniques (e.g., GPS, triangulation) to detect such movement. Williams ¶ 91; Waldman, [0007], [0024], [0031], [0032], claim 7; Kankainen, [0042], [0075] (GPS detects device

movement “[w]hen the user starts walking” in a direction towards POI); Ex. 1008 (Williamson), [0014], [0050], [0123], [0125], [0159], FIG. 7 (GPS detects mobile device’s movement resulting from user “walking,” “biking,” or driving); Ex. 1009 (Geelen), [0058], [0061] (GPS detects a handheld device’s movement when “walker[]” follows navigation directions to POI); Ex. 1013 (Ma), FIGS. 2-3, [0093] (providing overlaid video navigation directions to POI, where the prescribed route is restricted to “pedestrian walkways, sidewalks, [and] paved paths”). Thus, using Waldman’s locating techniques to detect device movement that results from the user walking in a first direction would have only required the application of known, conventional techniques (GPS or triangulation) to yield predictable results (detecting device movement while the user walks in a direction) as evidenced by Kankainen, Williamson, Geelen, and Ma. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007); *Slot Speaker Techs., Inc. v. Apple Inc.*, 680 F. App’x 932, 943-44 (Fed. Cir. 2017).

ii. Obviousness over Waldman and Kankainen

To the extent Waldman alone does not render obvious detecting movement “that results from a user walking,” Kankainen does. Williams ¶¶ 92-93.

Kankainen discloses a method for directing a user “walking along [a] route” from a “current location,” such as Farragut West Metro Station, “located at 900 18th St. NW” in Washington, D.C., to a POI, such as the IMF “located at 700 19th

St. NW[,] Washington D.C.,” using an augmented mapping and navigation application on a handheld electronic device, e.g., a “mobile terminal,” “portable terminal,” or “user equipment (UE).” Kankainen, [0034], [0042], [0047], [0073], [0075]. Kankainen teaches that “an inherent property of an augmented reality user interface is that the display follows the movement and pointing of the UE” so that, “[w]hen the user starts walking on the route,” the UE’s movement is detected by the UE’s GPS and “a live image view of the surrounding location” is presented on the UE’s screen. Kankainen, [0034], [0071], [0075]. “As the user continues walking along the route” in a first direction, such as along H St. in Kankainen, the walking movement is detected and the “application displays the live image” of the route including the cross section at 19th and H Streets. Kankainen, [0034], [0075]. The application continues to update the live image and route as the user walks in a second direction, left onto 19th St. Kankainen, [0034], [0075]; Williams ¶ 93.

(a) Motivation

Kankainen teaches that “walking directions” are desirable “[i]f a user wants to find out how to walk” from one point to another. Kankainen, [0023]. Thus, a POSITA would have been motivated to detect movement “that results from a user walking” to facilitate walking navigation to the desired POI on foot, as taught by Kankainen, in cities where walkability is common. Williams ¶ 94; *supra* § V.B.1.b.i(a) (“Motivation”).

(b) Expected Success

Like Waldman, Kankainen uses GPS to locate and track the mobile device. Kankainen, [0034]. Thus, a POSITA would have had a reasonable expectation of success in using Waldman's GPS to detect device movement resulting from the user walking, as taught by Kankainen, which would have required using only known components performing the ordinary and expected functions, for the reasons discussed above. *Supra* § V.B.1.b.i(b) ("Expected Success"); Williams ¶ 95.

c. [1b] "receiving video data captured in a first direction by a video capture device during the movement,"

Waldman discloses [1b]. Williams ¶¶ 96-99.

Element [1b] recites "a first direction," which could mean at least (1) the direction the user is walking in [1a] or (2) the direction the video capture device is pointing, which may be different "first direction[s]." ⁶ Waldman teaches either

⁶ Petitioner reserves the right to argue in the district court that "a first direction" is indefinite because a POSITA could not have reasonably ascertained which of the term's alternative meanings should apply. This argument does not preclude the Board finding the claims unpatentable because the prior art presented in this Petition satisfies both meanings. *See Cochlear Bone Anchored Sols. AB v. Oticon*

meaning because the user, while en route in a first direction on Dolores St., “points” the smartphone “to capture [receive] and display a real-time video stream of [the device’s] view” using the device’s “onboard camera” or “video capture device.” Waldman, [0010], [0011] (“The user can instruct the device to initiate a live video feed using an onboard camera and display the captured video images on a display.”), [0018], [0031], [0034] (“capturing and displaying a video stream on a handheld communication device”), claim 7; Williams ¶¶ 97-98. Thus, when the user “points” the device’s camera in the same direction the user is walking (a first potential interpretation) or a different direction (a second potential interpretation) while the user “begin[s] travelling” to Buena Vista Park, video is captured during the movement in each respective direction, satisfying either interpretation. Waldman, [0010], [0011], [0018], [0025], [0031], [0034], [0052]; Williams ¶¶ 97-98.

Med. AB, 958 F.3d 1348, 1360 (Fed. Cir. 2020) (“Here, even if claim 10 is indefinite, such a conclusion would not imply that it is incapable of being compared to the prior art to determine if one of its alternatives is anticipated or would have been obvious on the grounds asserted.”).

A POSITA would have understood that Waldman’s captured “real-time video stream” includes video data because it includes real-time images and information captured using the device’s “onboard camera”—a video capture device. Waldman, [0010], [0011], claim 7. Thus, when the user “points” the device’s camera in the first direction (red) down Dolores St. and “follows the specified direction” along Dolores St., the device receives video data captured in the first direction along Dolores St. by the camera during the movement. Waldman, [0010], [0018] [0025], [0031], [0034], [0052]; Williams ¶ 99.

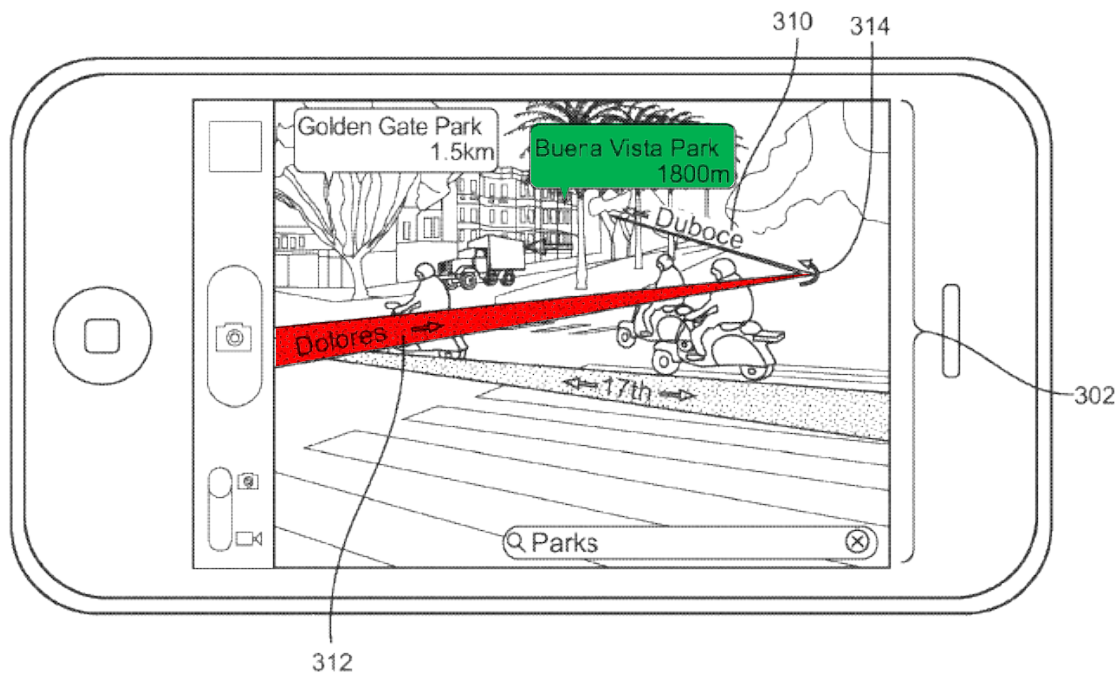


FIG. 3

Waldman, FIG. 3.

d. [1c] “where a first object is in a second direction;”

Waldman discloses [1c]. Williams ¶¶ 100-102.

Waldman discloses that the user's POI/destination, "Buena Vista Park" (green)—a first object⁷—is located in a second direction (blue), away from Dolores St. Waldman, [0031], FIG. 3. The second direction is identified by a turning point 314 and direction line telling the user to make "a left turn onto Duboce Ave. [(blue)] from Dolores St. [(red)]," to proceed towards Buena Vista Park (green). Waldman, [0031], FIG. 3; Williams ¶ 101.

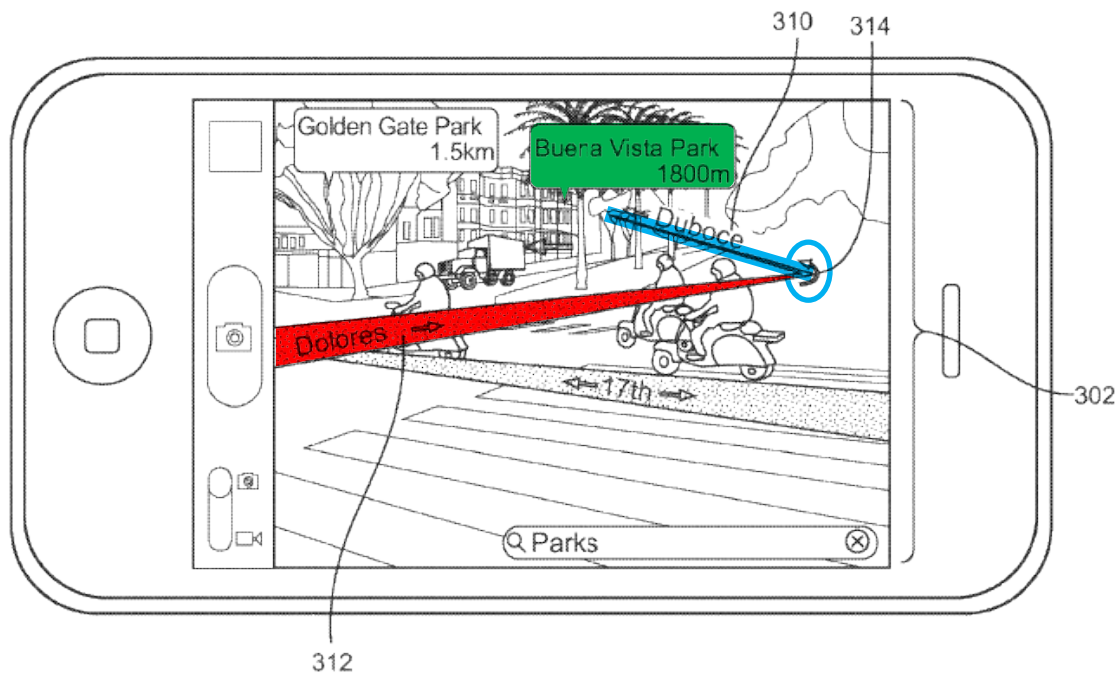


FIG. 3

Waldman, FIG. 3.

⁷ According to applicant's representations during prosecution, the claims cover "situations where the [first] object is stationary ... and the portable electronic device" is moving. Ex. 1002, 442.

- e. **[1d] “and presenting a video by a display device of the portable electronic device that is viewable to the user for directing the user in a second direction towards the first object.”**

Waldman discloses [1d]. Williams ¶¶ 103-106.

As discussed in [1b], Waldman captures video using an “onboard camera.” Waldman, [0010], [0011]. Waldman uses the handheld device’s “screen” (e.g., display 634), a display device, to “display a real-time video stream of a view” that is viewable to the user. Waldman, [0006], [0010], [0025], [0031], [0050], [0051], claims 8, 17, FIGS. 3, 6; Williams ¶ 104.

Element [1d] recites directing the user in “a second direction,” which could mean at least (1) a second direction that the user is walking in, (2) a second direction that the camera is pointing, or (3) a second direction for navigating the user towards the first object (e.g., turn left).⁸ Williams ¶ 106. Waldman teaches each interpretation.

Waldman discloses that, while walking in the first direction down Dolores St., the user “points” the smartphone and “follows [walks in] the specified

⁸ Petitioner reserves the right to argue that “a second direction” is indefinite for similar reasons to “a first direction,” but this does not preclude the Board finding the claims unpatentable. *Cochlear*, 958 F.3d at 1360.

direction,” such as down Dolores St., to navigate to Buena Vista Park, and the device displays the video in that direction (satisfying interpretations (1) and (2)).

Waldman, [0010], [0011], [0018], [0025], [0031], [0034], [0052], claim 7;

Williams ¶ 106.

Waldman also discloses using the presented, viewable video to direct the user in a second direction (blue) away from Dolores St. onto Duboce Ave. towards the first object, Buena Vista Park (green), using visual augmentations (satisfying interpretation (3)). Waldman, [0010], [0018], [0031]. In FIG. 3, for example, the displayed video is augmented “with a directional map 310 to the selected [POI], i.e., ‘Buena Vista Park,’” including “a turn 314 that the user must take, i.e., a turn left onto Duboce Ave. [second direction (blue)] from Dolores St.” Waldman, [0031]; Williams ¶¶ 105-106.

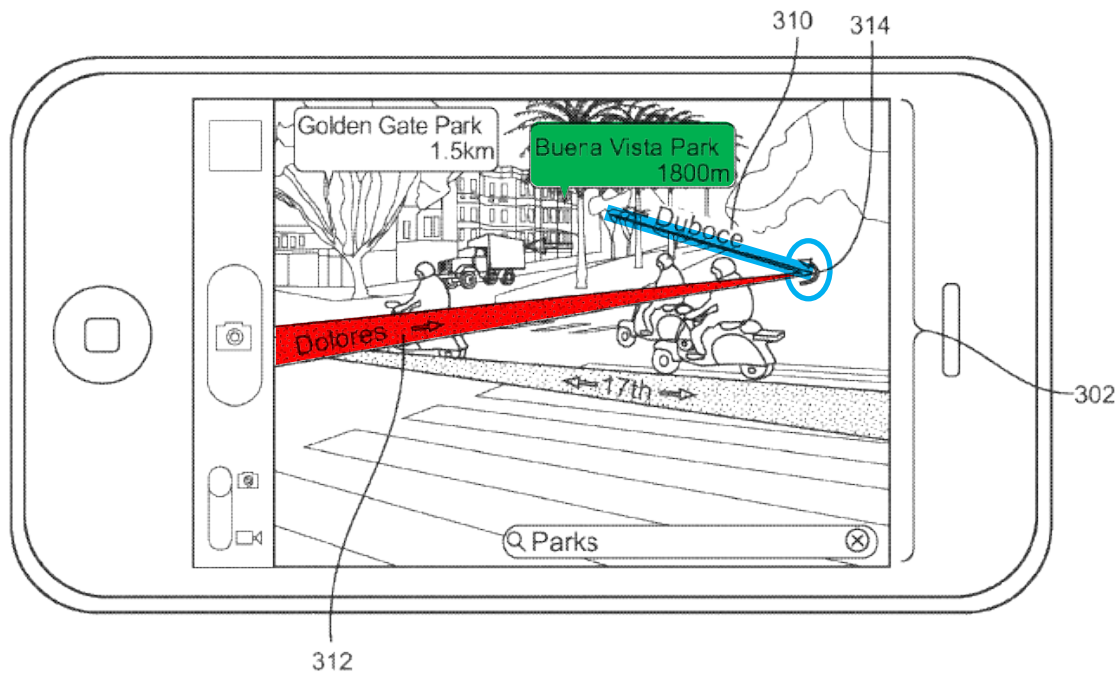


FIG. 3

Waldman, FIG. 3.

2. [Claim 2] “The method of claim 1 wherein information is integrated with the video, the information for directing an attention of the user to the first object.”

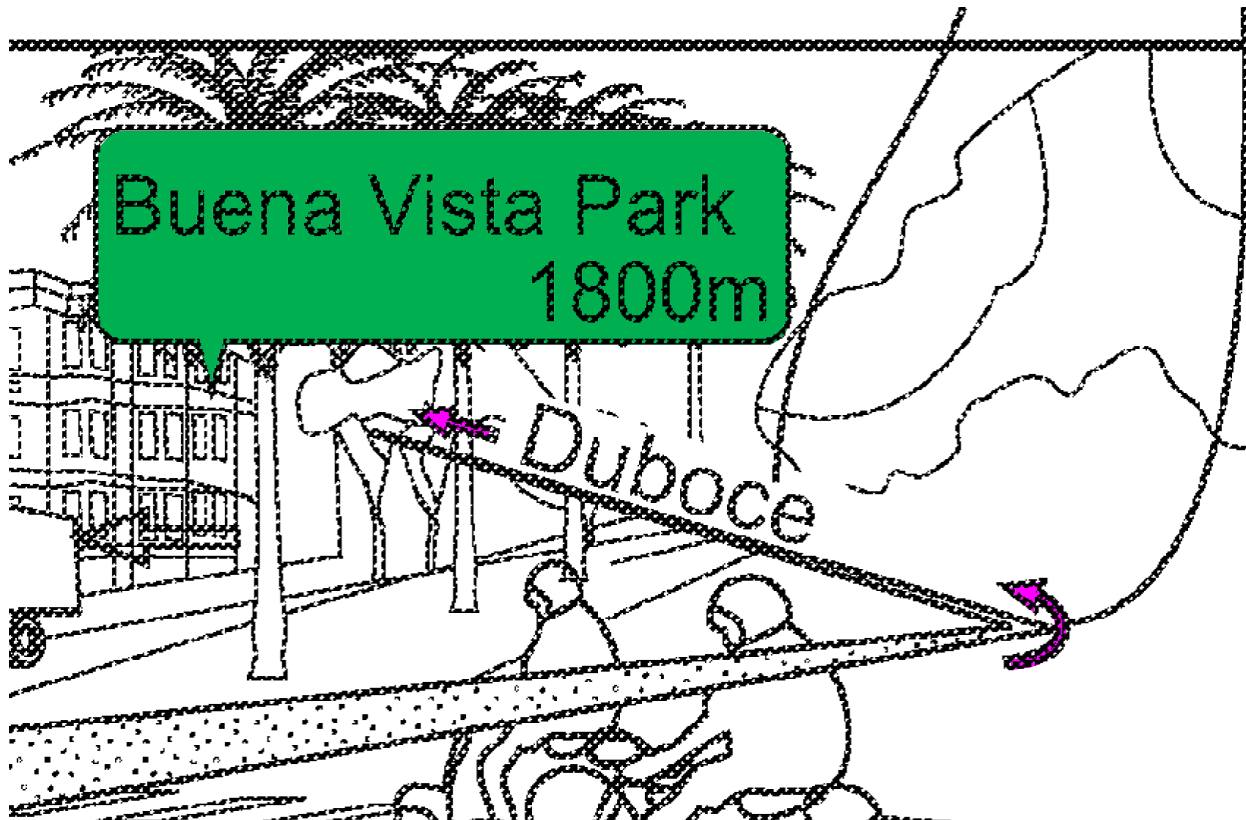
Waldman discloses the additional limitations of claim 2. Williams ¶¶ 107-112.

Waldman discloses presenting a video directing the user towards Buena Vista Park (first object). *Supra* § V.B.1.e ([1d]); Waldman, [0010], [0031]; Williams ¶ 109.

Waldman further discloses integrating information, such as indicator graphics, with the video for directing the user’s attention to Buena Vista Park by “visually augment[ing] the captured video stream.” Waldman, [0010], [0018],

[0031], [0040]. FIG. 3 shows, for example, “a direction 312 [(pink)] that the user must travel on Dolores St. to begin travelling to reach ‘Buena Vista Park’” and “a turn 314 [(pink)] that the user must take, i.e., a turn left onto Duboce Ave. from Dolores St.” Waldman, [0031], FIG. 3. The indicator “Duboce” is also overlaid onto Duboce Ave. Waldman, FIG. 3. Like the attention output discussed in the ’215 patent,⁹ this information directs the user’s attention to Buena Vista Park by providing a visual representation of the route, including direction arrows and the street name directing the user’s attention to the park. Waldman, [0031], FIG. 3; Williams ¶¶ 110-111.

⁹ Attention output includes “visual pattern[s]” that “may direct attention and/or otherwise alter an attribute of attention of a user,” including “direct[ing] a user to change direction” or location. Ex. 1001, 29:31-39.



Waldman, FIG. 3 (excerpted).

3. [Claim 3] “The method of claim 1 wherein information is integrated with the video, the information for instructing the user to direct an attention to the first object.”

Waldman discloses the additional limitations of claim 3. Williams

¶¶ 113-118.

As discussed for claim 2, Waldman discloses integrating information with the video for directing the user’s attention to Buena Vista Park by “visually augment[ing] the captured video stream.” Waldman, [0010], [0018], [0021], [0031], [0040]; Williams ¶ 115.

The integrated information also instructs the user to direct their attention to Buena Vista Park, like the “attention output[s]” described in the ’215 patent and as discussed in claim 2. *Supra* § V.B.2. The direction and turn arrows 312, 314 (pink) instruct the user to direct their attention to Buena Vista Park because they provide visual means for instructing the user how to get there. Waldman, [0031], FIG. 3. That is, the straight arrow extending along Dolores St. tells (instructs) the user to go straight, while curved arrow 314 instructs the user to turn left onto Duboce Ave. Waldman, [0031], FIG. 3; Williams ¶ 116.

The integrated bubble (green) also instructs the user to direct their attention to Buena Vista Park because it provides visual means for telling the user the park’s “relative geographic position” by the bubble location, the small point of the bubble pointing to the park’s location, and the user’s proximity (1800m) to it, thereby “allow[ing] the user to determine a general direction” to a POI. Waldman, [0021], FIG. 3; Williams ¶¶ 117-118.

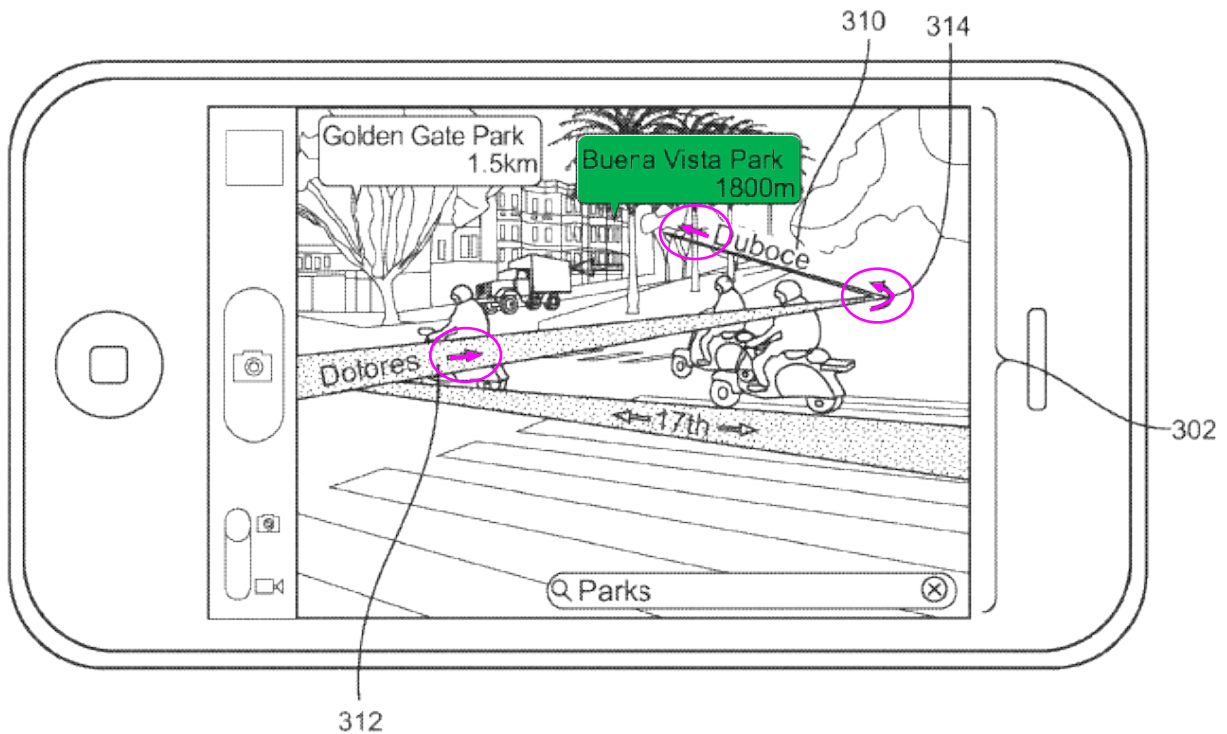


FIG. 3

Waldman, FIG. 3.

4. [Claim 4] “The method of claim 1 wherein information is integrated with the video, the information indicating a location of the first object.”

Waldman discloses the additional limitations of claim 4. Williams

¶¶ 119-123.

As discussed for claims 2-3, Waldman discloses integrating information with the video for directing the user to Buena Vista Park. Waldman, [0010], [0018], [0021], [0031], [0040]; Williams ¶ 121.

The integrated bubble (green) identifies a location (Buena Vista Park) by name and indicates a location of the first object because it “allows the user to determine a general direction to a point of interest” and “show[s] the relative geographic position” of the park within the live image view.¹⁰ Waldman, [0021], [0031], FIG. 3; Williams ¶¶ 122-123.



Waldman, FIG. 3 (excerpted).

¹⁰ The '215 patent does not define “location” or require that information indicating a location have any required specificity. *See generally* Ex. 1001.

5. [Claim 5] “The method of claim 1, wherein information is integrated with the video, the information including directional information indicating directions to the first object.”

Waldman discloses the additional limitations of claim 5. Williams ¶¶ 124-128.

As discussed for claims 2-3, Waldman discloses integrating information with the video for directing the user to Buena Vista Park. Waldman, [0010], [0018], [0031], [0040]; Williams ¶ 126.

The integrated information indicates directions to Buena Vista Park because the straight arrow overlaying Dolores St. corresponds to “a direction 312 that the user must travel on Dolores St. to begin travelling to reach ‘Buena Vista Park’”; the curved arrow corresponds to “a turn 314 that the user must take, i.e., a turn left onto Duboce Ave. from Dolores St.”; and the straight arrow on Duboce Ave. corresponds to the direction the user must continue walking on Duboce Ave. to reach Buena Vista Park. Waldman, [0031], FIG. 3. That is, the arrow 312 directs the user to go straight on Dolores St., arrow 314 directs the user to turn left onto Duboce Ave., and the second straight arrow directs the user to continue on Duboce Ave. Waldman, [0031], FIG. 3; Williams ¶ 127.

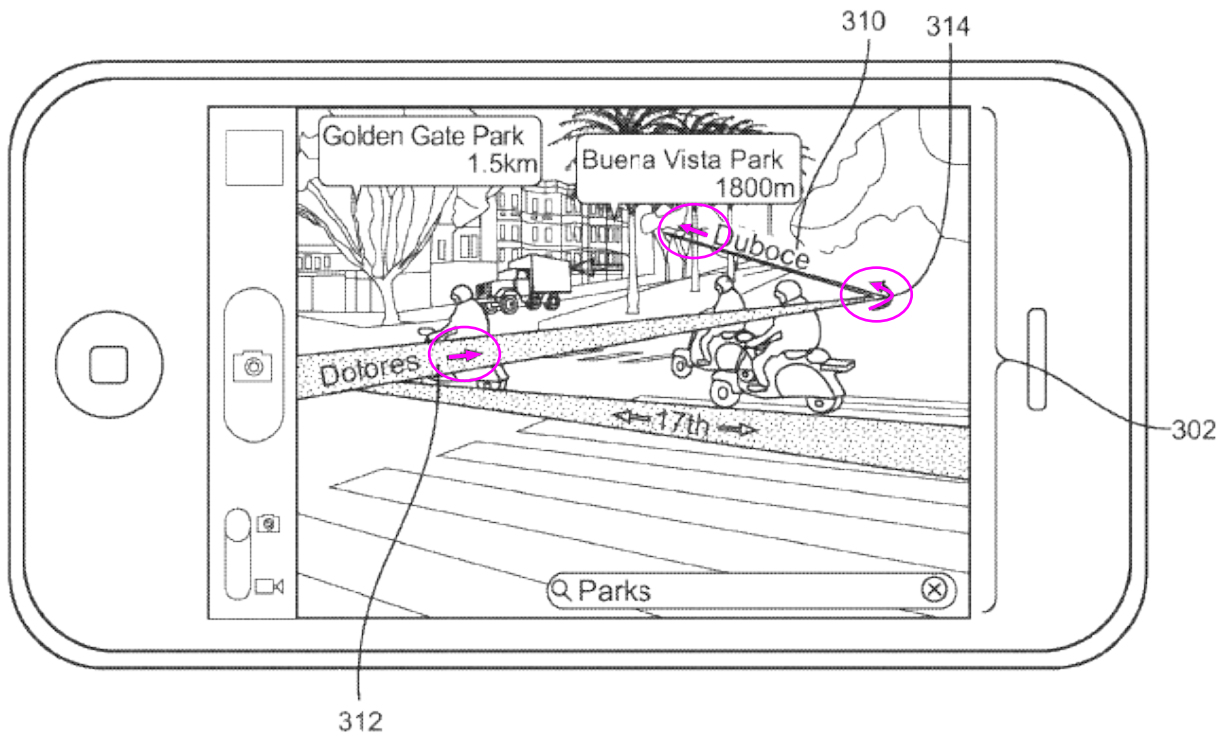


FIG. 3

Waldman, FIG. 3.

The indicator “Duboce” overlaid onto Duboce Ave. also indicates directions to Buena Vista Park because it directs the user to proceed on Duboce Ave. and only appears when the video “has been visually augmented with route data.”

Waldman, [0014], [0031], FIG. 3; Williams ¶ 128.

6. [Claim 6] “The method of claim 1 wherein indicia is integrated with the video, the indicia including directional information indicating directions to the first object.”

Waldman discloses the additional limitations of claim 6. Williams

¶¶ 129-132.

As discussed for claims 2-3 and 5, Waldman discloses information “integrated with the video,” including arrows 312 and 314 (pink) and the indicator “Duboce” overlaid onto Duboce Ave., indicating directions to Buena Vista Park (first object, green). *Supra* §§ V.B.2-V.B.3, V.B.5; Waldman, [0031], FIG. 3. The arrows are indicia because they are “visual augmentation[s]” representing a “directional map” indicating “direction[s]” to reach Buena Vista Park. Waldman, [0010], [0018], [0031], [0039]; Williams ¶¶ 131-132.

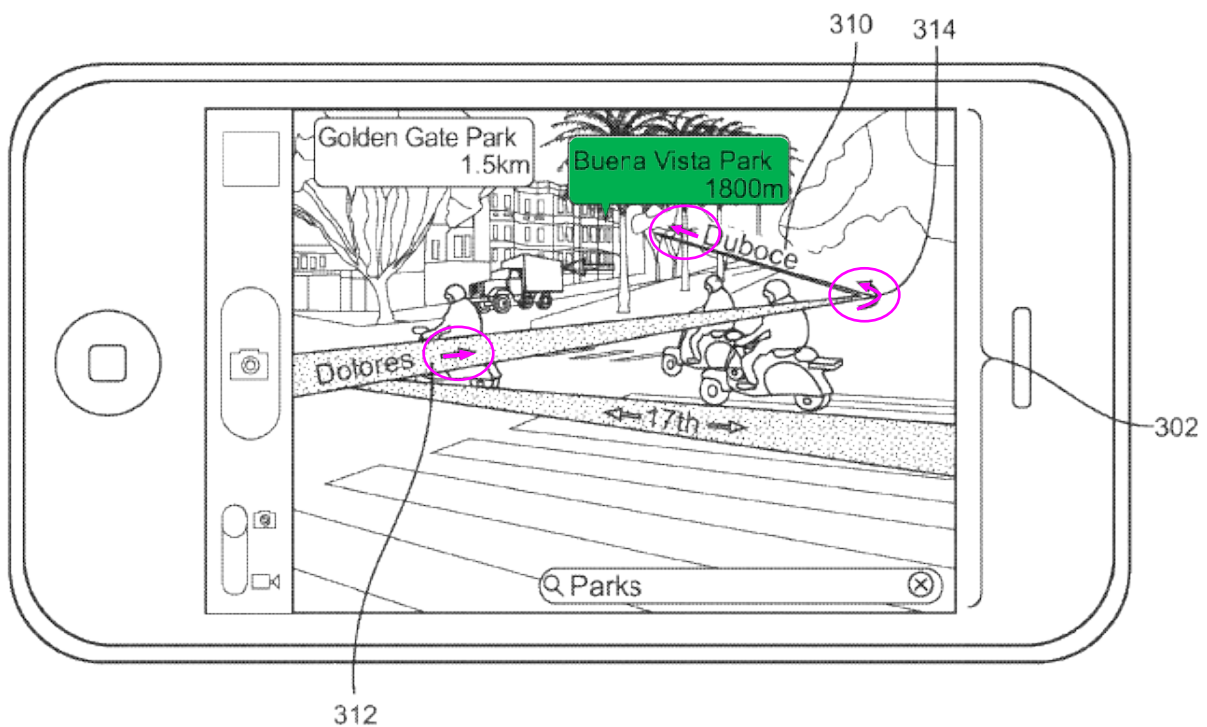


FIG. 3

Waldman, FIG. 3.

7. **[Claim 7] “The method of claim 1 wherein indicia is integrated with the video, the indicia indicating directions to the first object, where a location of the indicia on the display device of the portable electronic device is based on a relative position between the first object and the portable electronic device.”**

Waldman discloses the additional limitations of claim 7. Williams

¶¶ 133-137.

As explained for claim 6, Waldman discloses indicia integrated with the video and for indicating directions to Buena Vista Park, such as the arrow for direction 312 and turn arrow 314. Waldman, [0018], [0031], [0039]; Williams ¶ 135.

The arrow’s location on the augmented video shown on the screen (display device) is based on a relative position between the first object and the portable electronic device because it indicates and depends on the direction the user “must travel” to reach the destination. Waldman, [0031]. Thus, when the user “points” the smartphone’s camera down Dolores St. “to begin travelling” to Buena Vista Park, the indicia 312 is overlaid onto (located on) Dolores St. between the smart phone and Buena Vista Park, and the arrow 314 is overlaid at the location of the turn onto Duboce Ave. Waldman, [0010], [0025], [0031]; Williams ¶¶ 136-137.

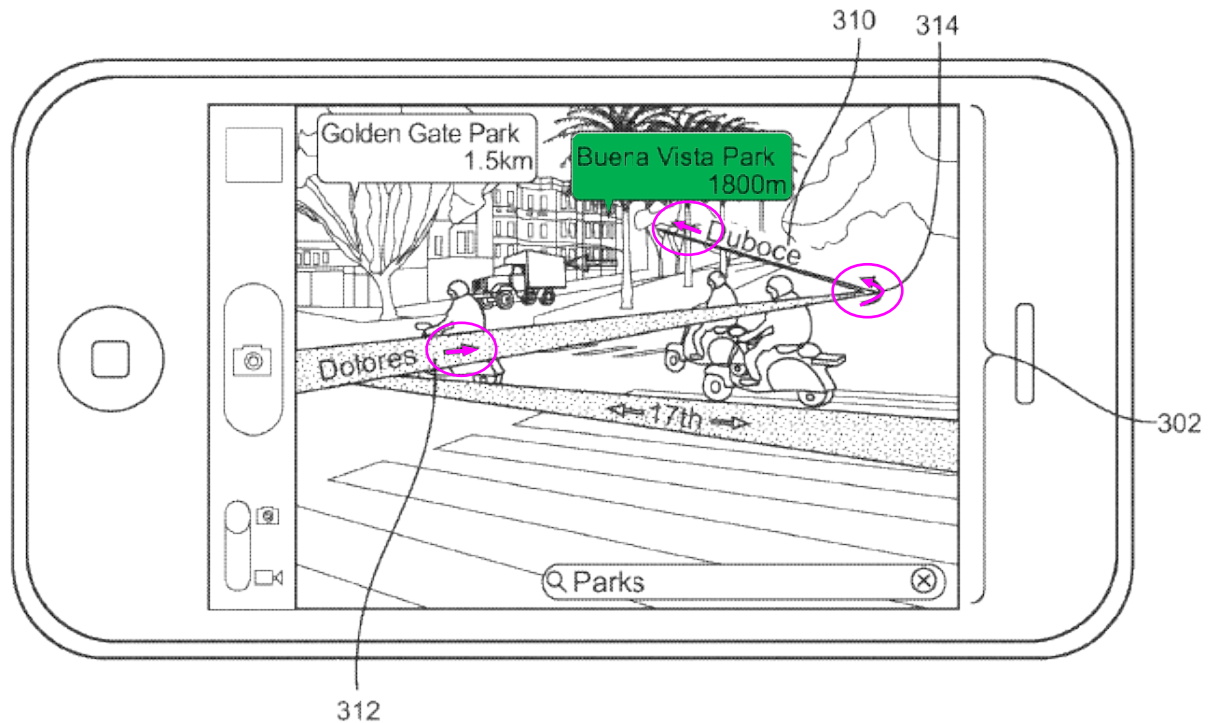


FIG. 3

Waldman, FIG. 3.

- 8. [Claim 8] “The method of claim 1 wherein first indicia and second indicia are integrated with the video, the first indicia indicating directions to the first object, the second indicia indicating a distance to the first object.”**

Waldman discloses the additional limitations of claim 8. Williams

¶¶ 138-141.

As explained for claims 6-7, Waldman discloses indicia (first indicia) integrated with the video and for indicating directions to Buena Vista Park, such as direction and turn arrows 312, 314 and the street name “Duboce.” Waldman, [0018], [0031], [0039], FIG. 3; Williams ¶ 140.

As discussed for claims 2-3, Waldman's "bubble" is integrated with the video stream and shows the "relative geographic position" and the distance from the user/device to first object (Buena Vista Park). Waldman, [0021], [0031], [0038], FIG. 3. The "bubble" (green) comprises second indicia because it indicates the distance ("1800m") to Buena Vista Park. Waldman, [0021], [0031], FIG. 3; Williams ¶ 141.

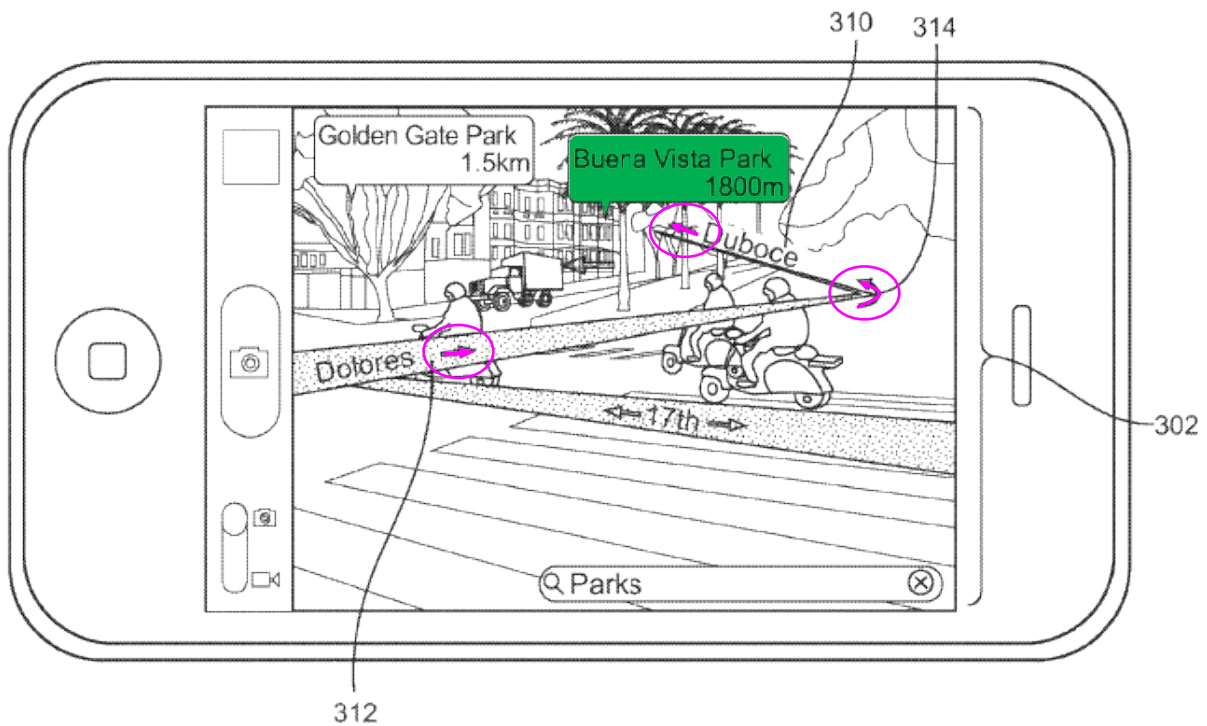
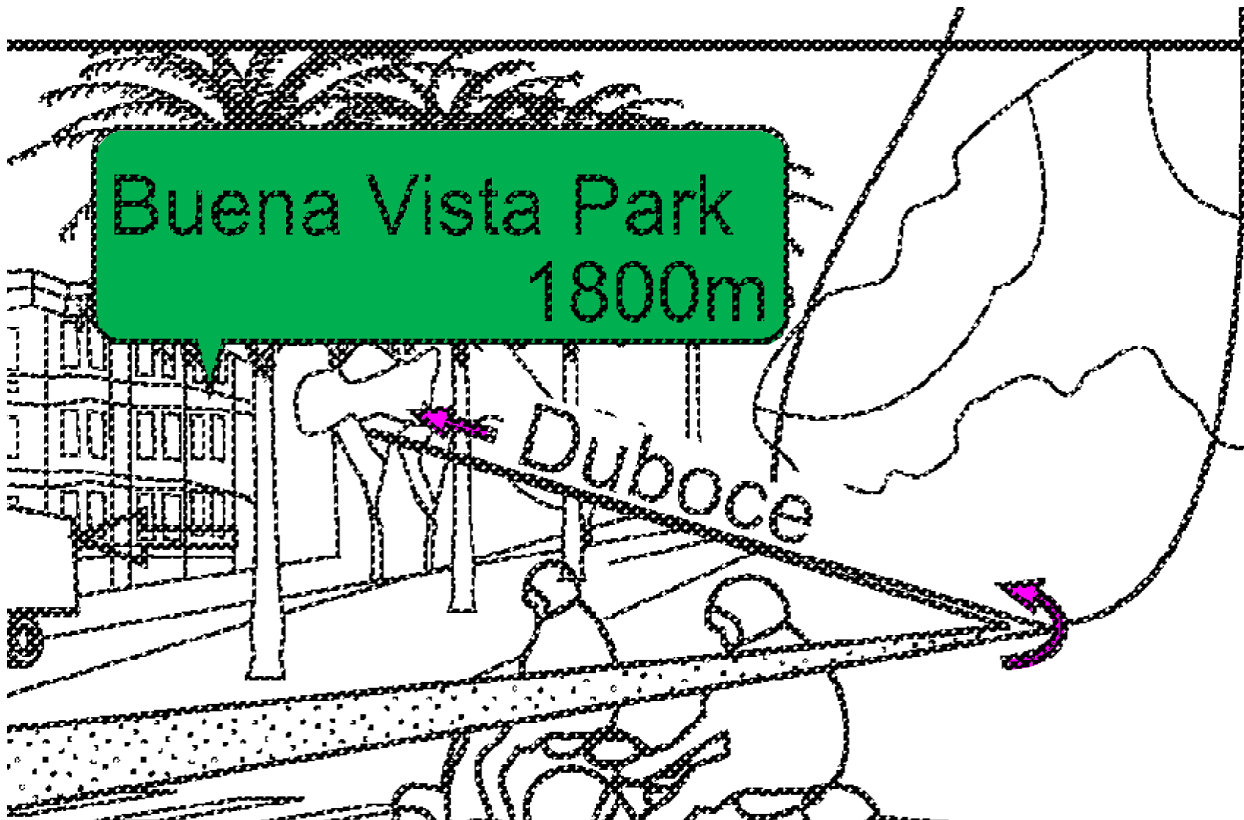


FIG. 3

Waldman, FIG. 3.



Waldman, FIG. 3 (excerpted).

9. [Claim 9] “The method of claim 8 wherein the first indicia and the second indicia are updated based on the movement of the device.”

Waldman renders obvious the additional limitations of claim 9. Williams ¶¶ 142-148.

As explained for claim 8, Waldman discloses integrating first indicia (e.g., arrows 312, 314) and second indicia (bubble) with the video. Waldman, [0018], [0021], [0031], [0039], FIG. 3; Williams ¶ 144.

Waldman discloses or renders obvious updating the first and second indicia based on the movement of the device because Waldman discloses that the device’s

processor “continue[s] to ... update the overlaid route” shown on the screen “[a]s the user follows the specified direction[s].” Waldman, [0052], claim 7 (“updat[ing] the illustrated portion of the route as the GPS location of the video capture device changes with movement along the route”); Williams ¶ 145. “As the user and associated device progress along a route, the overlaid directions can automatically update to show the updated path.” Waldman, [0007].

A POSITA would have understood that “automatically” updating “the overlaid directions” (the “illustrated portion of the route”) as “the user and associated device progress along a route” (during the movement) includes updating the arrows (first indicia) and bubble (second indica) to reflect the user’s location relative to the first object because they are part of the “route data” constituting the overlaid navigation. Waldman, [0007], [0021], [0031], [0052], claim 7. Williams ¶¶ 145-146. Updates would have included removing and/or repositioning the arrows in augmented video after the user “turn[s] left onto Duboce Ave.,” changing the distance in the bubble, and/or updating the size of the indicia based on the “user[’s] and associated device[’s] progress along [the] route.” Waldman, [0007], [0031], Williams ¶ 146.

a. Motivation

To the extent Patent Owner argues that Waldman does not disclose claim 9, a POSITA reading Waldman would have been motivated to update the first and

second indicia because updating the overlaid/illustrated directions/portion of the route including the location and/or content of the arrows and bubble (first and second indicia) would have improved user experience by providing real-time directions and proximity to the destination. Williams ¶ 147.

b. Expected Success

A POSITA would have had a reasonable expectation of success in updating the first and second indicia based on the device's movement because such an implementation would have merely required using existing components and techniques, such as Waldman's augmented reality application and GPS, to perform routine functions (overlaying an augmented route based on the user's updated location). Kankainen, [0075], [0080], FIGS. 6C-6H (updating directional arrows on the overlaid route based on the user's movement along the route); Geelen, [0096] (superimposed navigation directions "correspond to the actual location of the change in direction as shown on the feed from the camera"); Ma, [0050], [0061], [0076], [0079] (using a navigation device's GPS and "program" to track objects where "their locational data may be shown on the view screen as a plurality of arrows 112, labels 113, distances 114 and marks 115," wherein "the size of the indicator/mark may be related to the actual distance between the [objects]," so "the size of the indicator/mark may change as the distance between [objects] changes"); Williams ¶ 148.

10. [Claim 10] “The method of claim 8 wherein the first indicia includes a direction indicator.”

Waldman discloses the additional limitations of claim 10. Williams

¶¶ 149-151.

As explained for claim 8, Waldman discloses that the first indicia includes a direction indicator, such as direction and turn arrows 312, 314, which “shows a direction 312 that the user must travel” to reach Buena Vista Park. Waldman, [0018], [0031], [0039], FIG. 3; Williams ¶ 151.

11. [Claim 11] “The method of claim 8 wherein the first indicia includes a label.”

Waldman discloses the additional limitations of claim 11. Williams ¶¶ 152-154.

As explained for claim 8, Waldman discloses the first indicia, such as arrows 312, 314 and the street name “Duboce.” The arrows and/or street name include a label because they are overlaid onto the video and describe how the user should proceed along the route (e.g., straight, left, right) or identify the navigation points by name. Waldman, [0018], [0031], [0039]; Williams ¶ 154.

12. [Claim 14] “The method of claim 1 wherein the video includes data reflecting a video capture of surroundings of the first object.”

Waldman discloses the additional limitations of claim 14. Williams

¶¶ 155-159.

As discussed for claim 2, Waldman discloses information “integrated with the video,” including a bubble, street name, and arrows for directing the user towards the first object. *Supra* § V.B.2; Waldman, [0021], [0031], FIG. 3; Williams ¶ 157.

Waldman’s augmented video includes data reflecting a video capture of surroundings of Buena Vista Park because the data, such as street names and directions, reflects the video capture by the “onboard camera” and the first object’s (Buena Vista Park) relative geographical location with respect to the device and its field of view. Waldman, [0010], [0025], [0031], FIGS. 2-3; Williams ¶ 158. When the user “points” the device’s camera down Dolores St. “to begin travelling” to Buena Vista Park, data is overlaid onto the corresponding video, which includes the surroundings¹¹ of Buena Vista Park. Waldman, [0010], [0025], [0031], FIGS. 2, 3. The same is true when the user turns onto Duboce Ave., where the video shows the surroundings of Buena Vista Park as the user approaches the park. Waldman, [0010], [0025], [0031]; Williams ¶ 159.

¹¹ The ’215 patent does not define “surroundings.” *See generally* Ex. 1001.

13. [Claim 15] “The method of claim 1 wherein the first object includes a location.”

Waldman discloses the additional limitations of claim 15. Williams

¶¶ 160-162.

As explained in [1c], Buena Vista Park (first object) is a “point of interest” or “location,” as shown in FIG. 2, because it is a geographic position that the user can navigate to. Waldman, [0031], FIGS. 2-3; Williams ¶ 162.

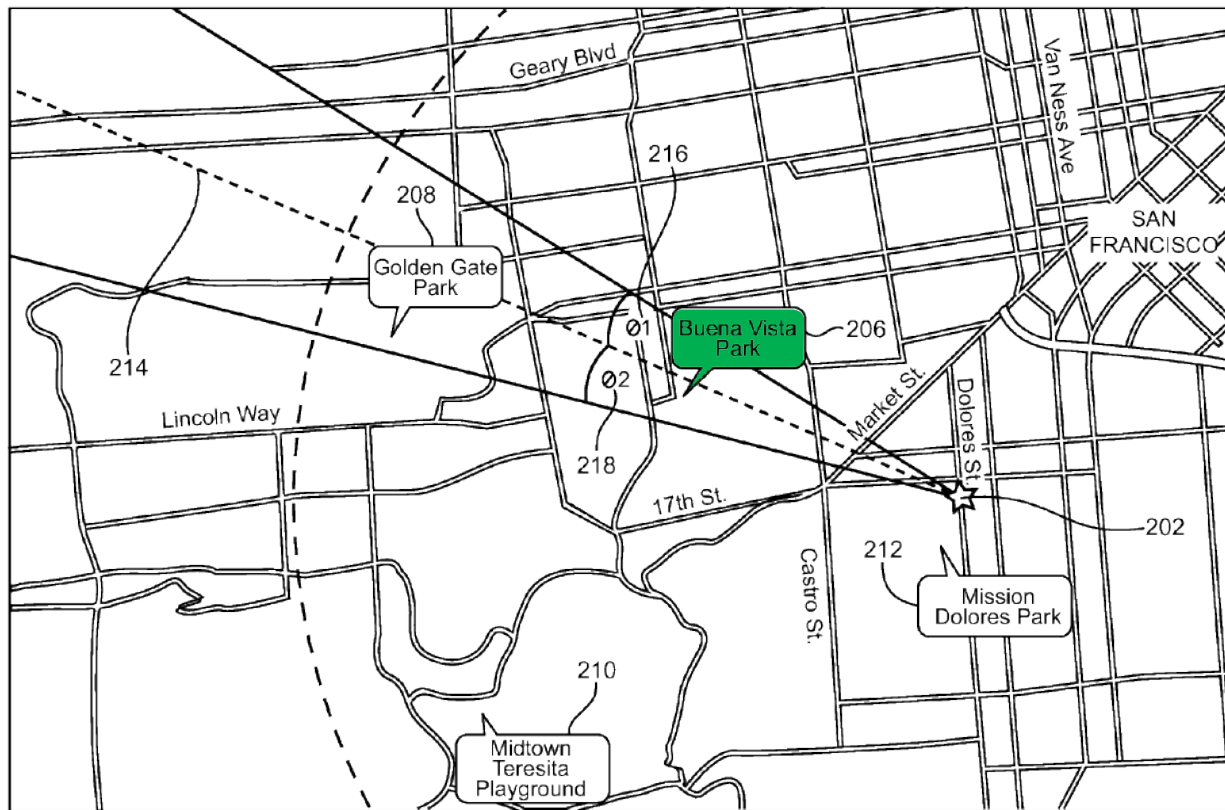


FIG. 2

Waldman, FIG. 2.

- 14. [Claim 16] “The method of claim 1 and further comprising: detecting a change in the movement of the portable electronic device; in response to detecting the change in the movement of the portable device, updating the presentation of the video by the display device of the portable electronic device.”**

Waldman discloses the additional limitations of claim 16. Williams

¶¶ 163-165.

As explained for claims 1 and 9, Waldman detects a change in movement “[a]s the user and associated device progress along a route” and “automatically update[s]” the video and corresponding visual augmentations “to show the updated path” and “overlaid directions.” Waldman, [0007], [0052]. The updated presentation of the video (the updated overlaid directions/visual augmentations) is shown on the device’s screen display. *Supra* §§ V.B.1, V.B.9; Williams ¶ 165.

- 15. [Claim 17] “The method of claim 1 wherein the video is conditionally presented by the display device of the portable electronic device, based on a detected position of the portable electronic device.”**

Waldman discloses the additional limitations of claim 17. Williams

¶¶ 166-169.

As explained for [1b] and claim 9, Waldman’s device “capture[s] and display[s] a real-time video stream of [the device’s] view” on the display using location information of the device, such as while the user is en route to Buena Vista Park. Waldman, Abstract, [0010], [0011], [0025], [0031]; Williams ¶ 168.

Waldman’s displayed video—both the video itself and visual augmentations—is conditionally presented based upon a detected position of the device because the video changes based on the device’s “geographic position,” facing direction, and location along the prescribed route. Waldman, [0010], [0025], [0031], [0052]. For example, when the user faces the device down Dolores St. “to begin travelling” to Buena Vista Park, the position is detected, the video shows Dolores St., and the live view is augmented “[u]sing map data that describes the area surrounding the present location [position] of the device and the points of interest located in the surrounding area.” Waldman, [0010], [0020], [0025], [0031]. And when the user “turn[s] left onto Duboce Ave.,” the video conditionally changes based on “updated location and directional information” to “update the overlaid route” or “automatically update to show the updated path.” Waldman, [0007], [0010], [0025], [0031], [0052]; Williams ¶ 169; *see also* Waldman, [0040] (explaining “no route” is displayed if the user is facing the wrong direction).

16. **[Claim 20] “The method of claim 1 wherein the user is directed in the second direction towards the first object which is not initially presented in the video, so that the user is directed to walk in the second direction for directing an attention of the user to the first object.”**

Waldman discloses the additional limitations of claim 20. Williams ¶¶ 170-173.

As discussed for [1d], Waldman discloses directing the user in a second direction (left, blue) from Dolores St. onto Duboce Ave. and towards Buena Vista Park by “visually augment[ing] the captured video stream” with an indicator (e.g., pink arrow 314) on the directional map to Buena Vista Park. Waldman, [0010], [0031], FIG. 3. As explained for claim 2, this directional map, including the arrow at “turn 314” in the second direction, provides a visual representation of the route, thereby directing the user’s attention to Buena Vista Park. Waldman, [0031], FIG. 3; Williams ¶ 172.

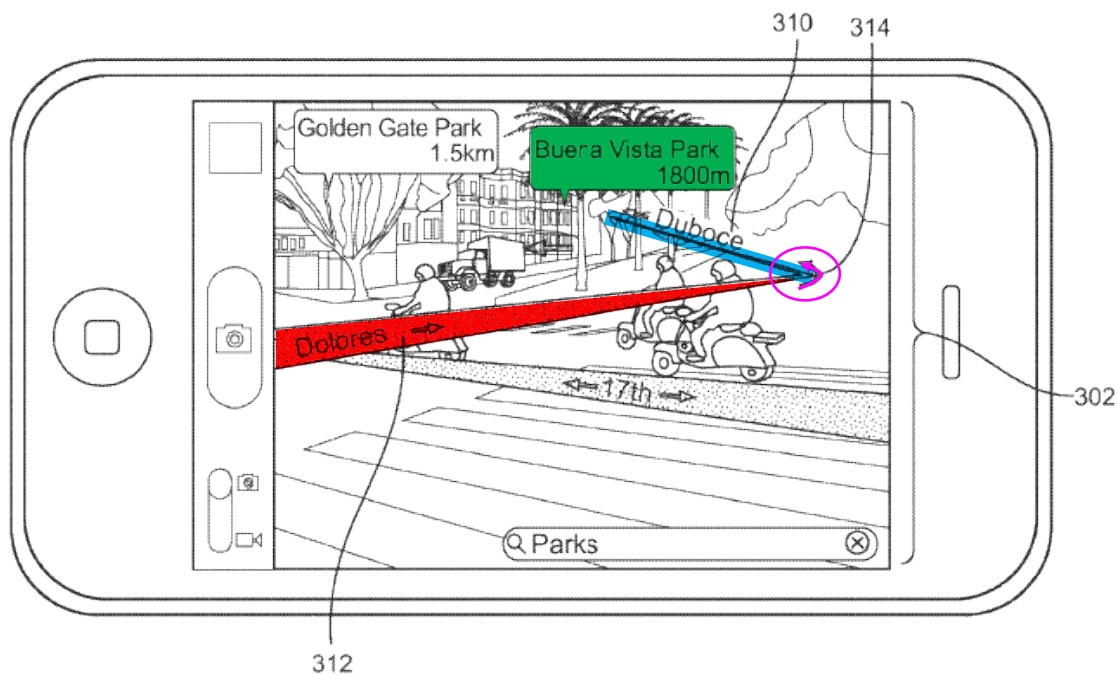


FIG. 3

Waldman, FIG. 3.

Waldman further discloses that Buena Vista Park is not initially presented in the video because the park is “obstructed by other in-screen objects” and therefore not within the viewfinder when the user requests directions. Waldman, [0020]; Williams ¶ 173.

17. [Claim 21]

a. [21Preamble] “The method of claim 1 and further comprising:”

Waldman, or Waldman and Kankainen, renders obvious additional limitations of claim 21. Williams ¶¶ 174-188.

b. [21a] “detecting additional movement of the portable electronic device in the second direction, that results from the user walking with the portable electronic device in the second direction;”

As explained in [1b], Waldman, or Waldman and Kankainen, renders obvious detecting device movement that results from the user walking. Waldman, [0031], [0032]; Kankainen, [0023]; Williams ¶¶ 176-178.

Waldman further discloses detecting additional movement of the device (e.g., walking) in the second direction when the user “turn[s] left onto Duboce Ave. from Dolores St.” because the device “continue[s] to receive updated location and directional information and video input,” as explained in claims 9 and 16. *Supra* §§ V.B.9, V.B.14; Waldman, [0011], [0020], [0031], [0048], [0052], claim 7; Williams ¶ 177.

Waldman, or Waldman and Kankainen, renders obvious detecting “additional movement” resulting from the user walking for the reasons discussed in [1b]. For example, Kankainen discloses detecting additional movement in the second direction along 19th St. as “the user continues walking along the route” “[w]hen the user is walking on ... 19th St.,” and “[w]hen the user walks close to the IMF.” Kankainen, [0075], [0077], [0079], [0080]. A POSITA would have been motivated to combine Waldman and Kankainen and had a reasonable expectation of success in doing so, as discussed in [1a]. *Supra* § V.B.1.b.ii Kankainen, [0075], [0077], [0079], [0080]; Williams ¶ 178.

c. [21b] “receiving additional video data, that includes the first object, captured by the video capture device during the additional movement of the portable electronic device in the second direction;”

Waldman discloses continuously receiving updated (additional) video data input, captured by the device’s “onboard camera” “[a]s the user follows the specified direction[s],” during the additional movement along Duboce Ave. Waldman, [0011], [0031], [0052], claim 7. Thus, “[a]s the user and associated device progress along a route, the overlaid directions can automatically update to show the updated path” in the displayed video. Waldman, [0007].

Waldman receives additional video data, including video of Buena Vista Park, as the user continues along the prescribed route down Duboce Ave. in the

second direction and the park enters the device's field of view. Waldman, [0007], [0031], [0032], [0052]; Williams ¶ 179.

To the extent Patent Owner argues that Waldman does not disclose [21b], Kankainen renders [21b] obvious. Williams ¶¶ 180-181.

Kankainen discloses receiving additional video data, including the IMF (first object), as the user walks in a second direction along 19th St. (after turning from H St.) such that, “[w]hen the user walks close to the IMF, the user can see the IMF [(green)] on the right hand side” of the displayed video. Kankainen, [0079], FIG. 6H.

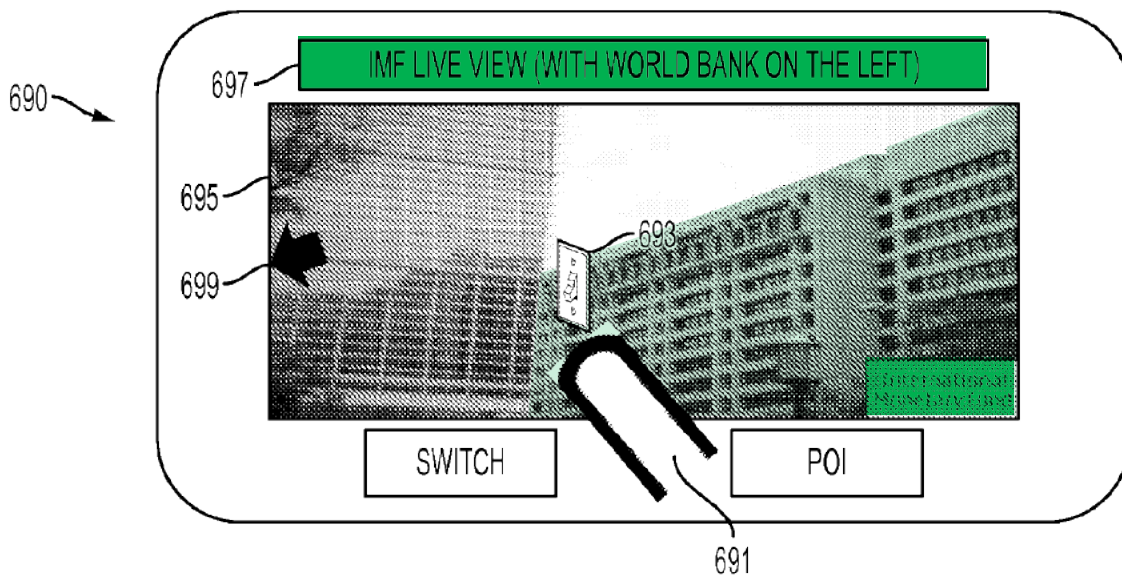


FIG. 6H

Kankainen, FIG. 6H.

i. Motivation

A POSITA would have found it obvious, and would have been motivated, to modify Waldman to receive additional video data, including the first object (e.g., Buena Vista Park), to show the user the chosen destination. Such modification would have improved the user's experience by providing visual confirmation of the user's arrival and making the destinations more easily identifiable, as discussed for claim 9. Williams ¶ 182.

ii. Expected Success

A POSITA would have reasonably expected the modification to succeed because it would have merely required using existing components and techniques, such as Waldman's augmented reality application and GPS, to perform routine functions (presenting additional video data (overlaid route) based on the user's updated location), as discussed for claim 9. Williams ¶ 183.

d. [21c] “and utilizing the additional video data, presenting additional video by the display device of the portable electronic device that is viewable to the user for directing an attention of the user in connection with the first object that is presented in the additional video.”

Waldman discloses [21c]. Williams ¶¶ 184-188.

Waldman discloses presenting additional viewable video on the device's screen using additional video data, as explained for claims 9 and 16 and elements [21a]-[21b]. Waldman, [0007], [0052], claim 7. The updated overlaid route data,

including the bubble identifying the first object and direction arrows to the first object, directs an attention of the user in connection with the first object (Buena Vista Park), as explained for claim 2. Waldman, [0021], [0031]; Williams ¶ 185.

To the extent Patent Owner argues that Waldman does not disclose [21c], Kankainen renders [21c] obvious. Kankainen presents and augments additional video of the IMF building shown in the “live image view” with an icon reading “International Monetary Fund” in the lower corner and a direction bar at the top of the video (**green**), which direct the attention of the user in connection with the first object by verifying the arrival at the first object, as shown in FIG. 6H. Kankainen, [0080]; Williams ¶ 186.

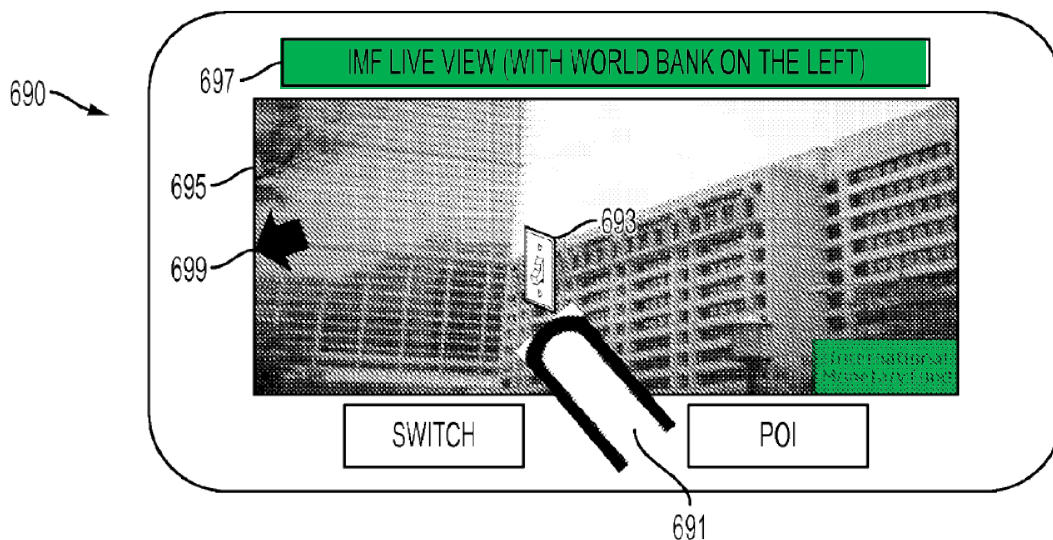


FIG. 6H

Kankainen, FIG. 6H.

i. Motivation

A POSITA would have found it obvious to modify Waldman to present additional video including Buena Vista Park and for directing the user's attention in connection with Buena Vista Park for the reasons discussed for [21b]. *Supra* § V.B.17.c.i; Williams ¶ 187.

ii. Expected Success

A POSITA would have had a reasonable expectation in making the modification for the reasons discussed for [21b]. *Supra* § V.B.17.c.ii; Williams ¶ 188.

18. [Claim 22] “The method of claim 1 wherein information is integrated with the video, the information being received via a data store including location information for objects with fixed locations.”

Waldman discloses the additional limitations of claim 22. Williams ¶¶ 189-192.

As discussed for claims 2-3, Waldman discloses integrating information with the video, e.g., a street name and the first object's “relative geographic position” (bubble) that have fixed locations, for directing the user towards the first object. Waldman, [0021]; Williams ¶ 191.

Waldman also discloses receiving the information from a “map database,” which is a data store, that includes the location information of fixed locations, such

as Buena Vista Park, Golden Gate Park, Dolores St., and Dubose Ave. Waldman, [0021], [0027], [0028], [0036], [0037].

When the user searches for “Parks,” the “device sends a request for data related to nearby parks” to a data store such as a “map database,” which may be on a “server” or in memory on the device, and “return[s] search results for points of interest related to the search term that are also within a defined radius of the handheld communication device.” Waldman, [0027], [0028], [0036], [0046].

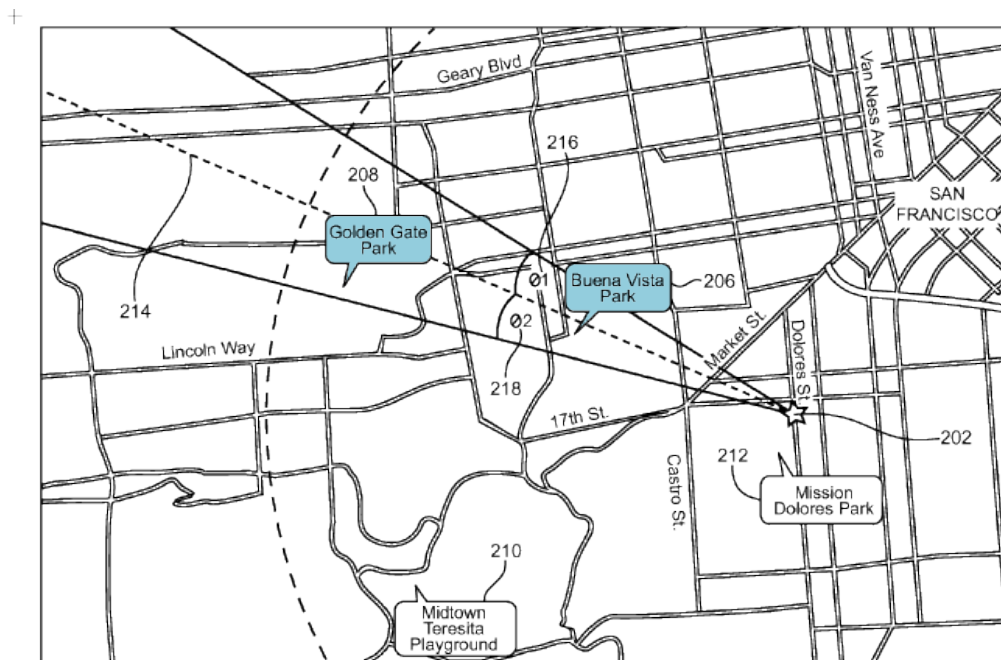


FIG. 2

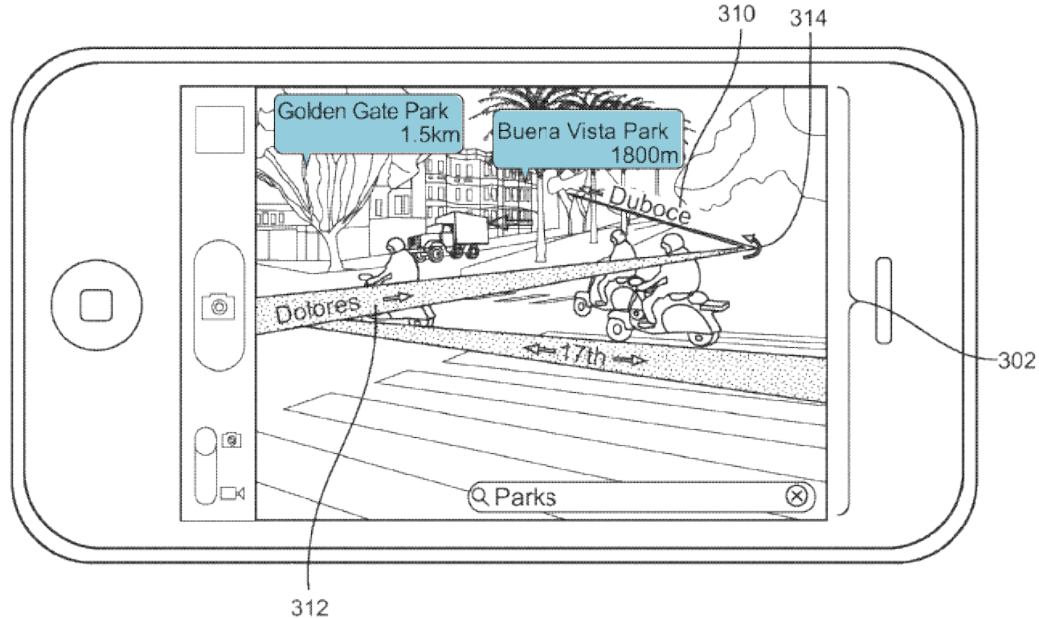


FIG. 3

Waldman, FIGS. 2-3; Williams ¶¶ 191-192.

19. Independent Claim 18

Independent claim 18 is directed to a portable electronic device for performing the method of claim 1. Waldman discloses or renders obvious, alone or over Kankainen, each element of claim 18 for the reasons discussed for claim 1.

Williams ¶¶ 193-207.

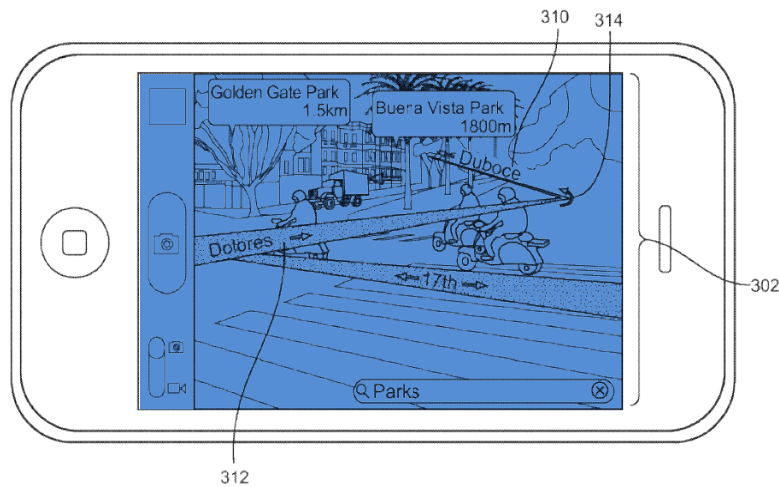
a. [18Preamble] “A portable device, comprising:”

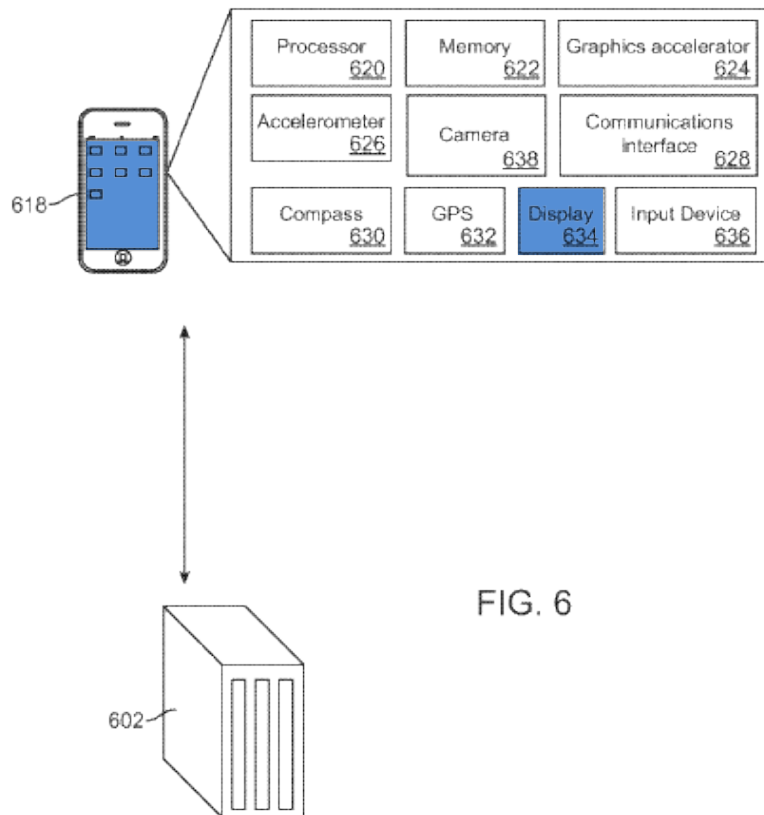
To the extent the preamble is limiting, Waldman discloses a portable electronic device or “handheld communication device,” such as a smart phone.

Waldman, Abstract, [0031], [0045], [0054]; Williams ¶ 194.

b. [18a] “a display device;”

Waldman discloses [18a]. Williams ¶ 195. Waldman’s device includes a display screen 634 (blue). Waldman, [0010], [0045], FIGS. 1, 3, 6.



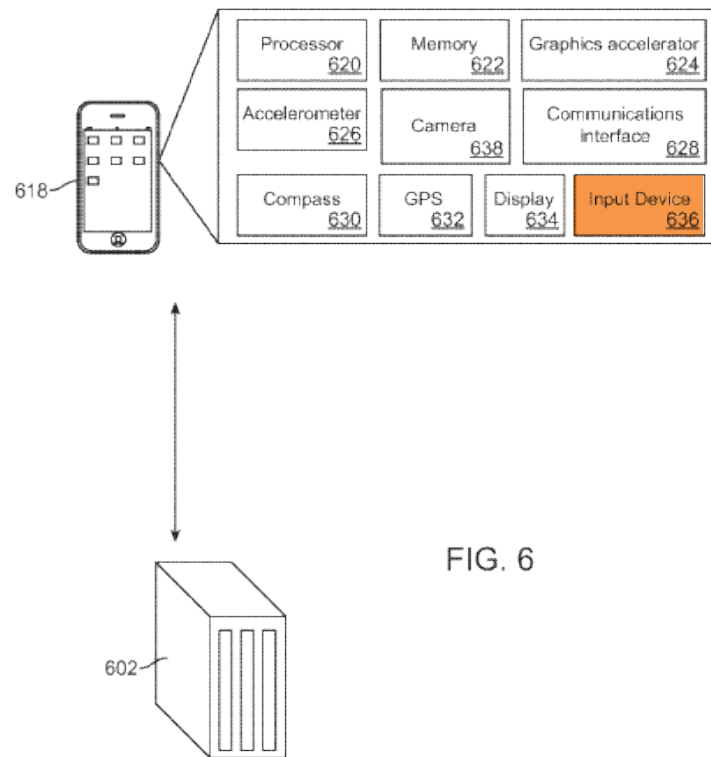


Waldman, FIGS. 3, 6.

c. [18b] “an input device;”

Waldman discloses [18b]. Waldman’s device includes an “input device” 636 (orange), such as a touch screen,¹² used for selecting “from among objects represented on the screen, including the search results.” Waldman, [0006], [0021], [0045], FIG. 6; Williams ¶ 196.

¹² Waldman’s touch screen display includes “an input device” and “also include[s] an output device.” Ex. 1001, 5:30-33.



Waldman, FIG. 6.

d. [18c] “at least one non-transitory memory storing instructions;”

Waldman discloses [18c]. Williams ¶¶ 197-198.

Waldman discloses “computer-executable instructions that are stored or otherwise available from computer-readable media,” such as embodied in “memory 622” (green). Waldman, [0045], [0053], [0055], FIG. 6. The computer-readable media/memory 622 is non-transitory, because “[e]xamples of computer-readable media that may be used to store instructions” include “magnetic or optical

disks, flash memory, USB devices provided with non-volatile memory,” and other storage media. Waldman, [0053], [0055]; Williams ¶ 198.

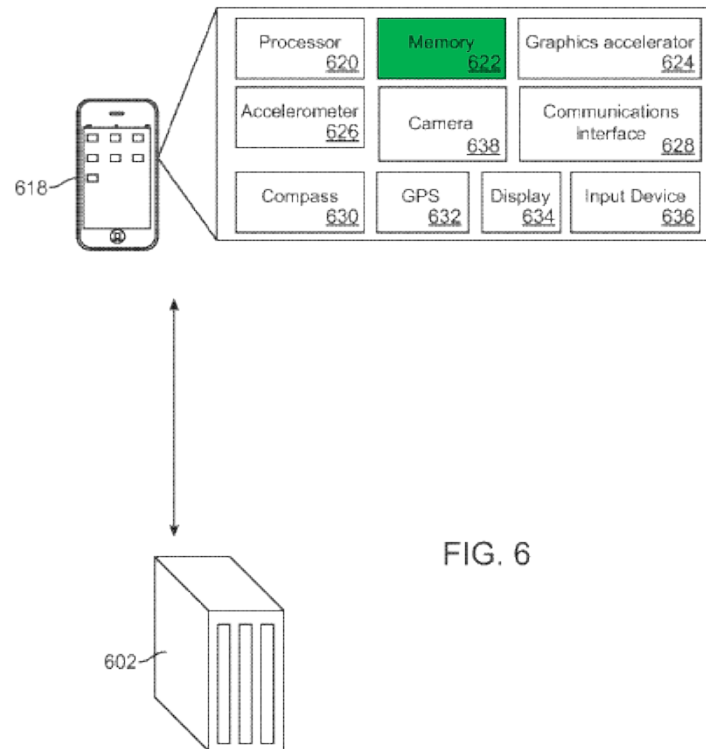


FIG. 6

Waldman, FIG. 6.

- e. [18d] “and one or more processors in communication with the display device, the input device, and the at least one non-transitory memory,”

Waldman discloses [18d]. Williams ¶¶ 199-201.

Waldman’s device includes a processor 620 (purple) that communicates with display device 634 (blue) by interpreting “map data to generate and display a route over the displayed image for guiding the user to a destination (selected point of interest).” Waldman, [0051]; Williams ¶ 200.

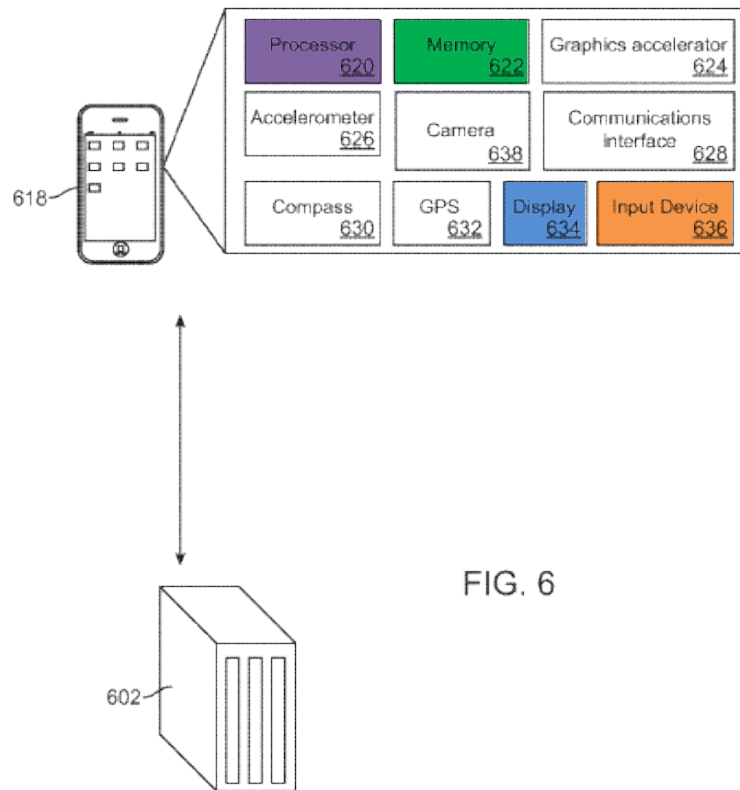


FIG. 6

Waldman, FIG. 6.

Waldman's processor communicates with the input device 636 (orange) because "instructions are input ... through an input device 636 [touch screen 634] that instructs the processor 620 to execute functions in an augmented reality application." Waldman, [0047], [0051]. The processor also communicates with memory 622 (green) because the memory stores "instructions and data which cause or otherwise configure [the device] to perform a certain function or group of functions," and the processor "execute[s] [the] functions in the augmented reality application." Waldman, [0047], [0053], [0055]; Williams ¶ 201.

- f. **[18e] “wherein the one or more processors execute the instructions to cause the portable electronic device to:”**

Waldman discloses that the processor executes the instructions to perform the steps recited in [18f]-[18i]. Williams ¶¶ 202-203.

Waldman’s processor and memory “provid[e] the functions described in this disclosure,” and the processor “execute[s] [the] functions in [the] augmented reality application,” such as receiving video and location data, interpreting map data, and generating and updating the displayed route. Waldman, [0047], [0051]-[0053], [0055]; Williams ¶ 203.

- g. **[18f] “detect a movement of the portable electronic device in a first direction, that results from a user walking with the portable electronic device in the first direction;”**

Waldman, or Waldman and Kankainen, renders obvious [18f] for the reasons discussed for [1a]. Williams ¶ 204.

- h. **[18g] “receive video data captured in a first direction by a video capture device during the movement,”**

Waldman discloses [18g] for the reasons discussed for [1b]. Williams ¶ 205.

- i. **[18h] “where a first object is in a second direction;”**

Waldman discloses [18h] for the reasons discussed in [1c]. Williams ¶ 206.

- j. **[18i] “and present a video by the display device of the portable electronic device that is viewable to the user for directing the user in a second direction towards the first object.”**

Waldman discloses [18i] for the reasons discussed for [1d]. Williams ¶ 207.

20. Independent Claim 19

Independent claim 19 is directed to non-transitory computer-readable media storing instructions for causing a portable electronic device to perform the method of claim 1. Waldman discloses or renders obvious, alone or over Kankainen, each element of claim 19 for the reasons discussed for claim 1. Williams ¶¶ 208-213.

- a. **[19Preamble] “A non-transitory computer-readable media storing computer instructions that, when executed by one or more processors of a portable electronic device, cause the portable electronic device to:”**

To the extent the preamble is limiting, Waldman discloses it for the reasons discussed for [18c]-[18e]. *Supra* §§ V.B.19.d-V.B.19.f; Waldman, [0047], [0051]-[0053], [0055]; Williams ¶ 209.

- b. **[19a] “detect movement of the portable electronic device in a first direction, that results from a user walking with the portable electronic device in the first direction;”**

Waldman, or Waldman and Kankainen, renders obvious [19a] for the reasons discussed for [1a] and [18f]. Williams ¶ 210.

- c. **[19b] “receive video data captured in a first direction by a video capture device during the movement,”**

Waldman discloses [19b] for the reasons discussed for [1b] and [18g].

Williams ¶ 211.

- d. **[19c] “where a first object is in a second direction;”**

Waldman discloses [19c] for the reasons discussed for [1c] and [18h].

Williams ¶ 212.

- e. **[19d] “and present a video by a display device of the portable electronic device that is viewable to the user for directing the user in a second direction towards the first object.”**

Waldman discloses [19d] for the reasons discussed for [1d] and [18i].

Williams ¶ 213.

C. Ground 2: Waldman, Kankainen, and Ohnishi Render Obvious Claims 12 and 13

1. **[Claim 12] “The method of claim 1 wherein tactile feedback is output simultaneously with the presentation the video, the tactile feedback being output based on a location of the first object.”**

Claim 12 is obvious over Waldman, or Waldman and Kankainen, as discussed for claim 1, and in further view of Ohnishi. Williams ¶¶ 214-219.

Ohnishi discloses a “pedestrian navigation device” or “mobile phone” having “a vibrating unit 17” for generating “a vibration guide” to provide tactile feedback and a “display unit 15” for displaying the pedestrian’s “present position

information” and navigation route. Ohnishi, [0063], [0068], [0094], [0117], [0119], [0128]-[0133]. As the user proceeds along a prescribed navigation route towards a selected destination, the phone vibrates based on the user’s location along the route, producing a “vibration pattern” as the user approaches a “guide point,” and an “arrival pattern” when the user arrives at “the destination.” Ohnishi, [0128], [0144]; Williams ¶ 216.

A POSITA would have found it obvious to incorporate Ohnishi’s vibration tactile feedback that is output based on the location of a first object (user’s destination) simultaneously with the video showing the navigational route because it is “preferable” to provide guidance “through non-visual means” “[i]n addition to the guiding method by which visual images are shown on the display screen.” Ohnishi, [0016]; Williams ¶ 217.

a. Motivation

A POSITA would have been motivated to incorporate Ohnishi’s tactile feedback simultaneously with the video display into Waldman’s augmented navigation to “provide[] a convenient means of obtaining information regarding distance and travel directions to a certain destination ..., thereby facilitating verification of the information presented.” Ohnishi, [0001], [0018]. A POSITA would have been motivated to provide tactile feedback simultaneously with the presentation of Waldman’s augmented video navigation to provide direction

information and arrival verifications that do not require the user to look at or verify the video (which improves safety because the user can navigate either by looking at the device or not looking at the device and ensures the user is notified even when visually distracted), thereby enhancing user convenience and experience.

Ohnishi, [0061]; Williams ¶ 218.

b. Expected Success

A POSITA would have had a reasonable expectation of success in configuring Waldman's device to provide tactile feedback output with the video based on the location of the first object, such as a vibration "arrival pattern" or guide-point-based vibration, because the modification would have only required the integration of known components (vibrating units for mobile devices) for use in accordance with their known functions (vibrating on an event). Ohnishi, [0128]-[0133], [0144]; Williams ¶ 219. Furthermore, it was known in the art to combine tactile and visual feedback to enhance user navigation. *E.g.*, Kankainen, [0065] (combining vibration feedback with video navigation); Ma, [0083]-[0084] (describing directing a user to a POI using overlaid video navigation and vibration tactile feedback to supplement the video navigation).

- 2. [Claim 13] “The method of claim 1 wherein tactile feedback is output simultaneously with the presentation the video, the tactile feedback being output based on a movement of the portable electronic device.”**

Claim 13 is obvious over Waldman, Kankainen, and Ohnishi. Williams ¶¶ 220-223.

As discussed for claim 12, Ohnishi discloses and renders obvious providing tactile feedback, such as a “vibration pattern” or “arrival pattern,” based on the movement of the electronic device, for example, when the device is detected moving towards, or arriving at, a “guide point” along the route or arriving at “the destination.” *Supra* § V.C.1; Ohnishi, [0128]-[0133], [0144]; Williams ¶ 222.

A POSITA would have been motivated to include Ohnishi’s tactile feedback based on the movement of the electronic device simultaneous with the video navigation in Waldman’s system, as recited in claim 13, for the reasons discussed in claim 12. *Supra* § V.C.1; Williams ¶ 223.

D. Ground 3: Kankainen Discloses or Renders Obvious 1-7 and 14-22

1. Independent Claim 1

Kankainen discloses or renders obvious claim 1. Williams ¶¶ 224-240.

a. [1Preamble] “A method, comprising:”

To the extent the preamble is limiting, Kankainen discloses a method using “a mapping and augmented reality application” to provide “walking” directions

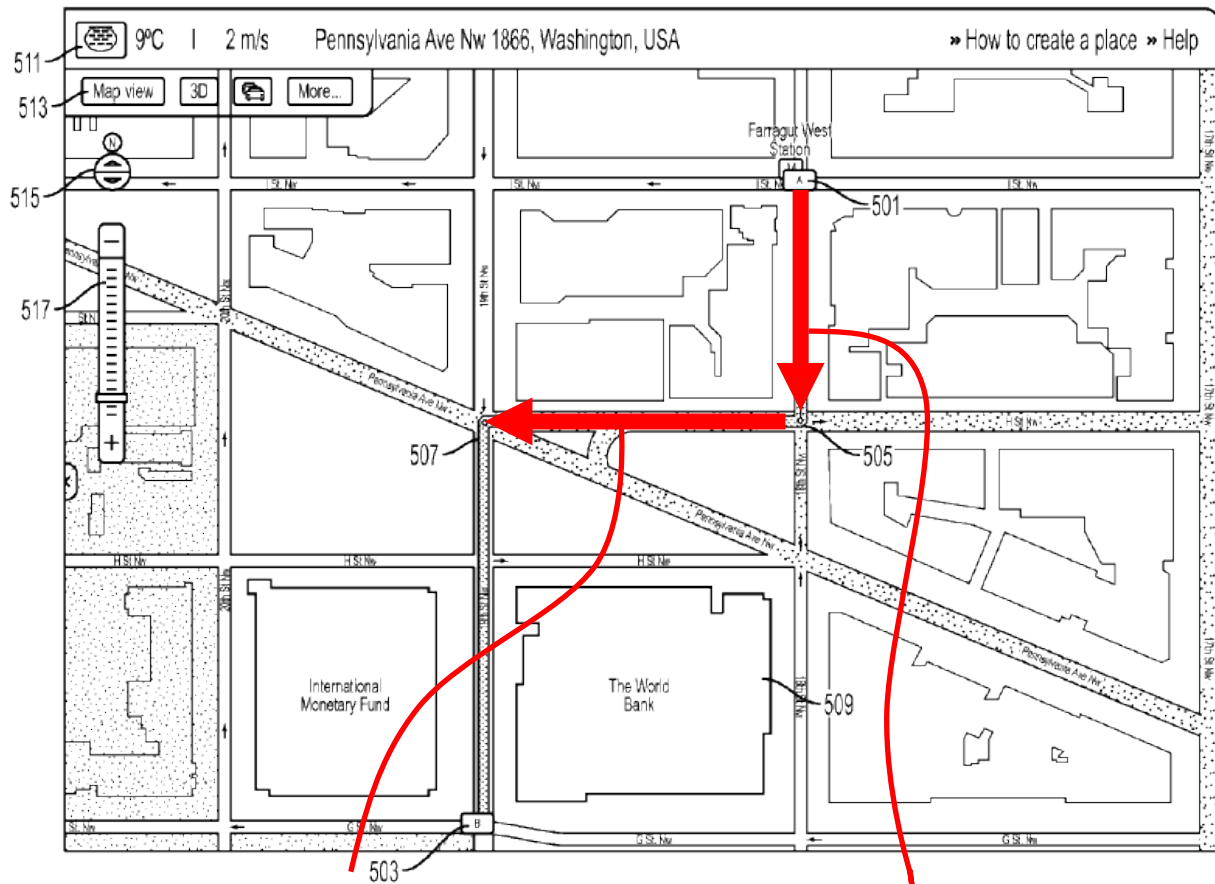
from a user's "current location to a POI." Kankainen, [0034], [0042], [0075];

Williams ¶ 225.

- b. [1a] "detecting a movement of a portable electronic device in a first direction, that results from a user walking with the portable electronic device in the first direction;"**

Kankainen discloses detecting movement of a "mobile terminal" or "user equipment (UE)" that results from a user walking with the device from a "current location," such as Farragut West Metro Station, in a first direction towards a POI, such as the International Monetary Fund ("IMF"). Kankainen, [0034], [0042], [0047], [0073]-[0075]; Williams ¶¶ 226-228.

The route between Farragut West and the IMF includes numerous streets and turns, and the UE's (portable electronic device's) movement is detected "[w]hen the user starts walking on the route" in a first direction down 18th St. towards the cross section of 18th St. and H St., and, alternatively, "[a]s the user continues walking along the route" in a first direction along H St. towards the cross section of H St. and 19th St. Kankainen, [0034], [0075], FIGS. 6C-6D; Williams ¶ 227-.



Alternatively, first direction
walking along H St.
towards 19th St. (FIG. 6D)

FIG. 5

First direction walking
down 18th St. towards H
St. (FIG. 6C)

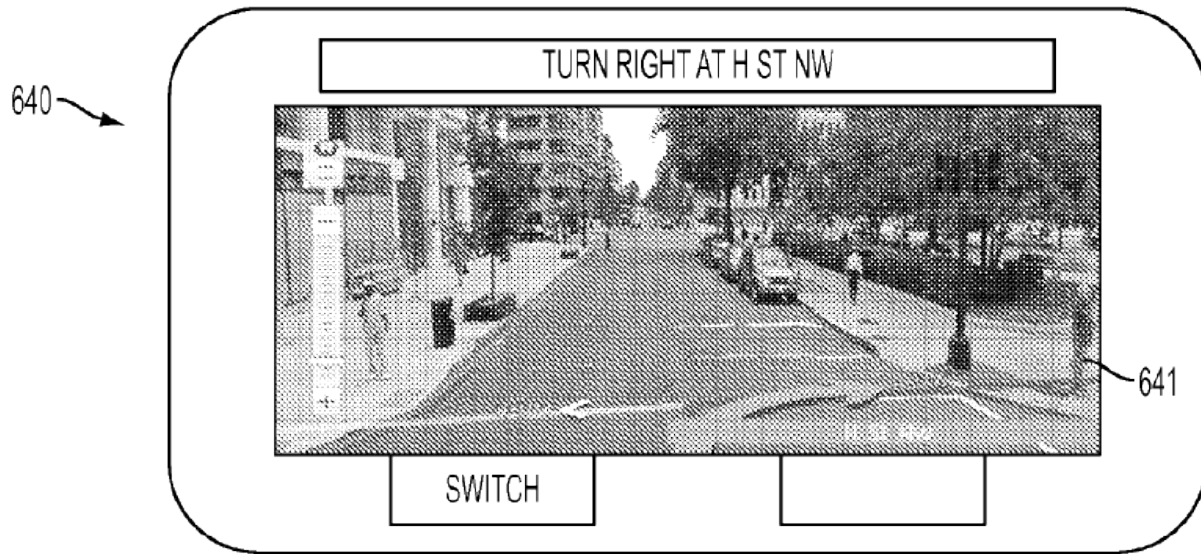


FIG. 6C

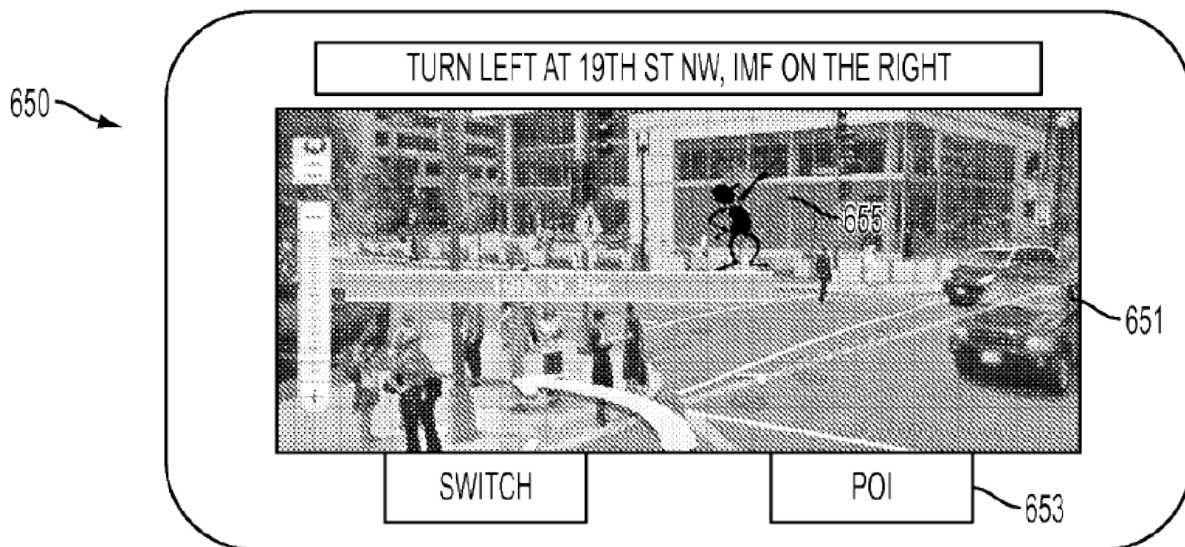


FIG. 6D

Kankainen, FIGS. 5, 6C-6D.

The UE's movement and location are detected using GPS satellites 119, which "determine the location of the UE" and provide "location data of the current

location of the UE” using “geographic coordinates,” such as “GPS coordinates” or latitude/longitude information, associated with the UE’s current location.

Kankainen, [0044], [0052], [0053]; Williams ¶ 228.

c. [1b] “receiving video data captured in a first direction by a video capture device during the movement,”

Kankainen discloses receiving a “live image” (also called “live view” or “live camera view”) using a “video camera” of the UE, “[a]s the user continues walking along the route” in the first direction down 18th St. towards H St. or, alternatively, down H St. towards 19th St. Kankainen, [0019], [0021] (“existing augmented reality, navigation, mapping, and other like services and systems display ... a live camera view”), [0034], [0051], [0074], [0075], [0082]; Williams ¶ 229.

Kankainen makes clear that the received and displayed video “live view” is distinct from “still” images or “prerecorded” images. Kankainen, [0019] (“embodiments are described with respect to a live camera view,” but “a still image” is “contemplated”), [0074], [0077]-[0078] (“world bank live view” versus “world bank prerecorded panoramic view”), [0081], FIGS. 6E-6F. A POSITA would have understood that Kankainen’s “live view” describes a video because it displays the video image received in real time (live) captured by a “video camera” during movement of the UE “[a]s the user continues walking along the route”

down 18th St. or H St. Williams ¶¶ 229-231; Kankainen, [0019], [0034], [0039], [0051], [0074], [0075], [0080]. Kankainen also discloses receiving video data captured during movement (1) when the user walks in the first direction of [1a] and (2) in the direction the video capture device is pointing, because Kankainen's device uses a "video camera" to display a "live image" "[a]s the user continues walking along the route" that includes the "direction line 623 with an arrow" in the direction the video camera is pointing. Kankainen, [0019], [0034], [0051], [0074]-[0075], [0082], FIGS. 6B-6D; Williams ¶¶ 230-231.

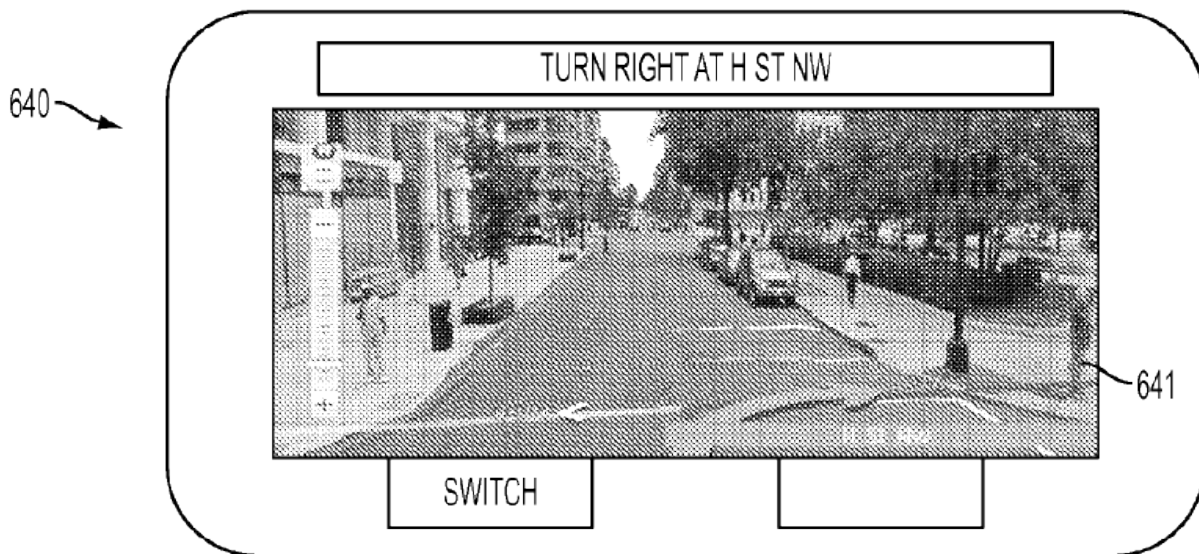


FIG. 6C

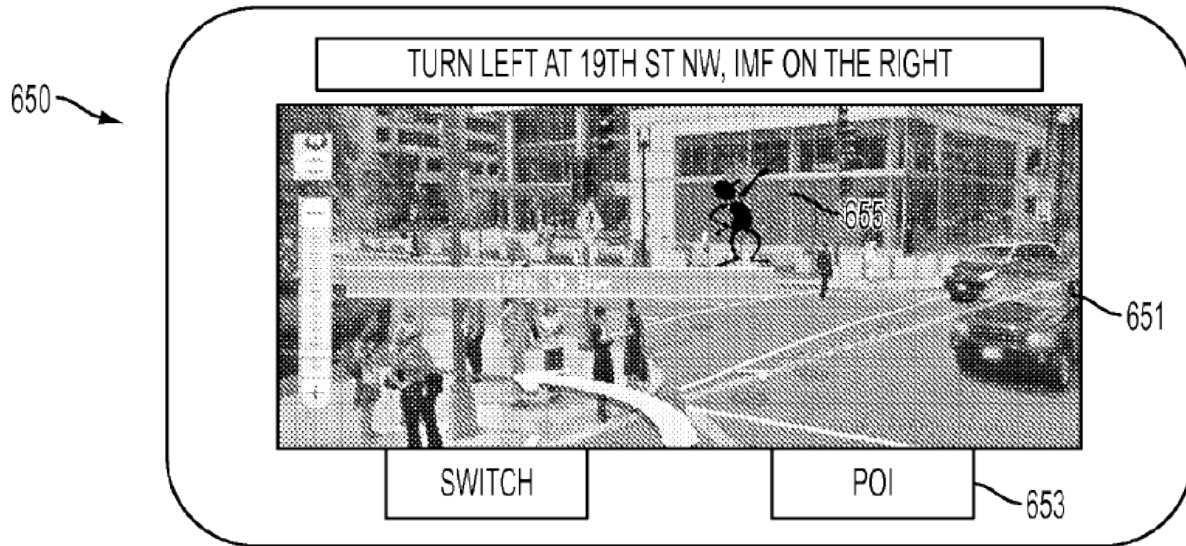


FIG. 6D

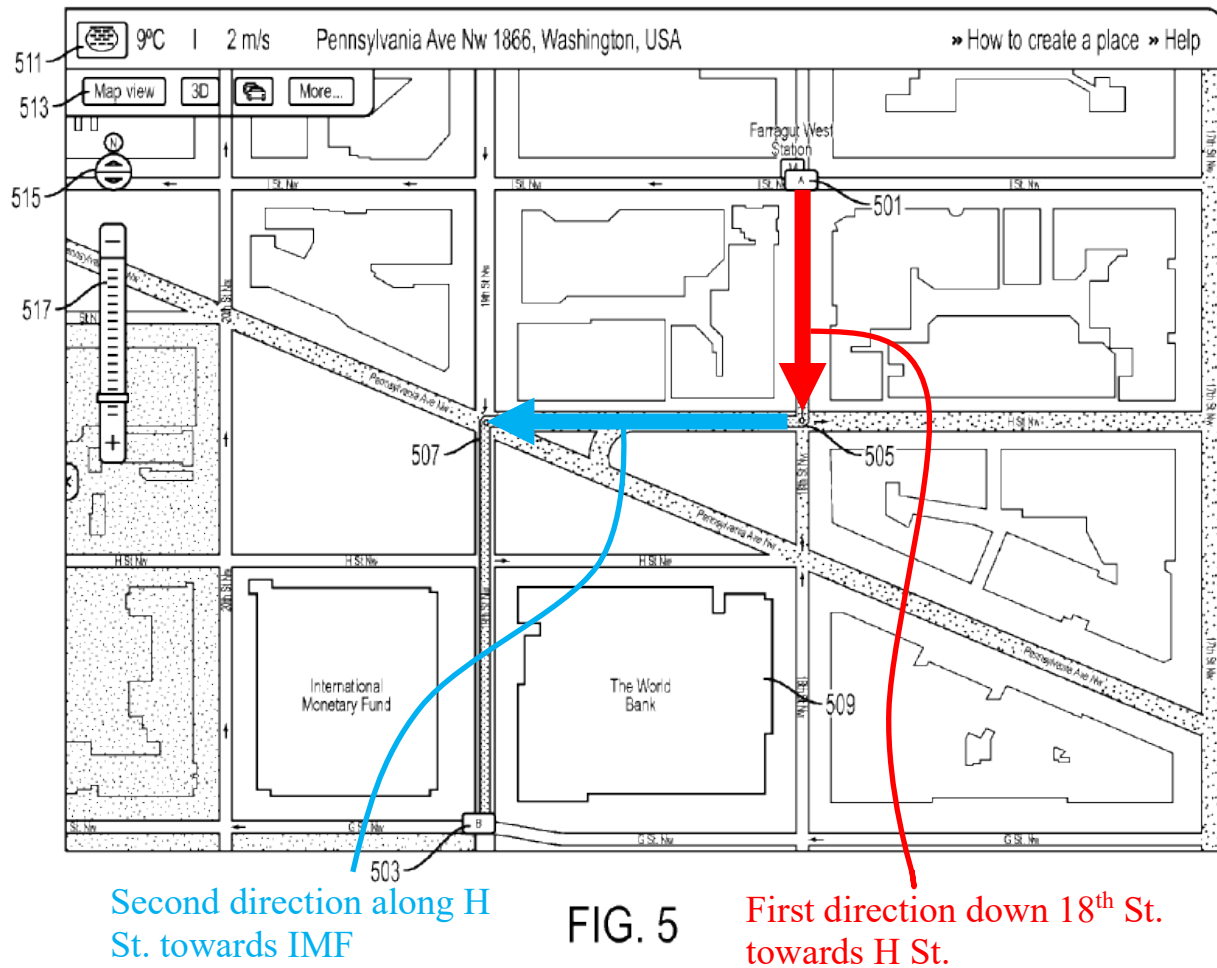
Kankainen, FIGS. 6C-6D.

Furthermore, a POSITA would have found it obvious to receive and display a live video captured in the first direction to reflect the video camera's input and advantageously provide the user with real-time navigation guidance. A POSITA would have reasonably expected to succeed in doing so because the implementation was well known and applied only routine functions. Waldman, [0010], [0031], [0034]-[0039], FIGS. 3-4; Geelen, [0071], [0111], [0117], FIGS. 6, 10-11; Ma, [0096]. Kankainen thus discloses or renders obvious [1b]. Kankainen, [0019], [0051], [0074], [0075], [0082], FIGS. 6C-6D; Williams ¶¶ 230-231.

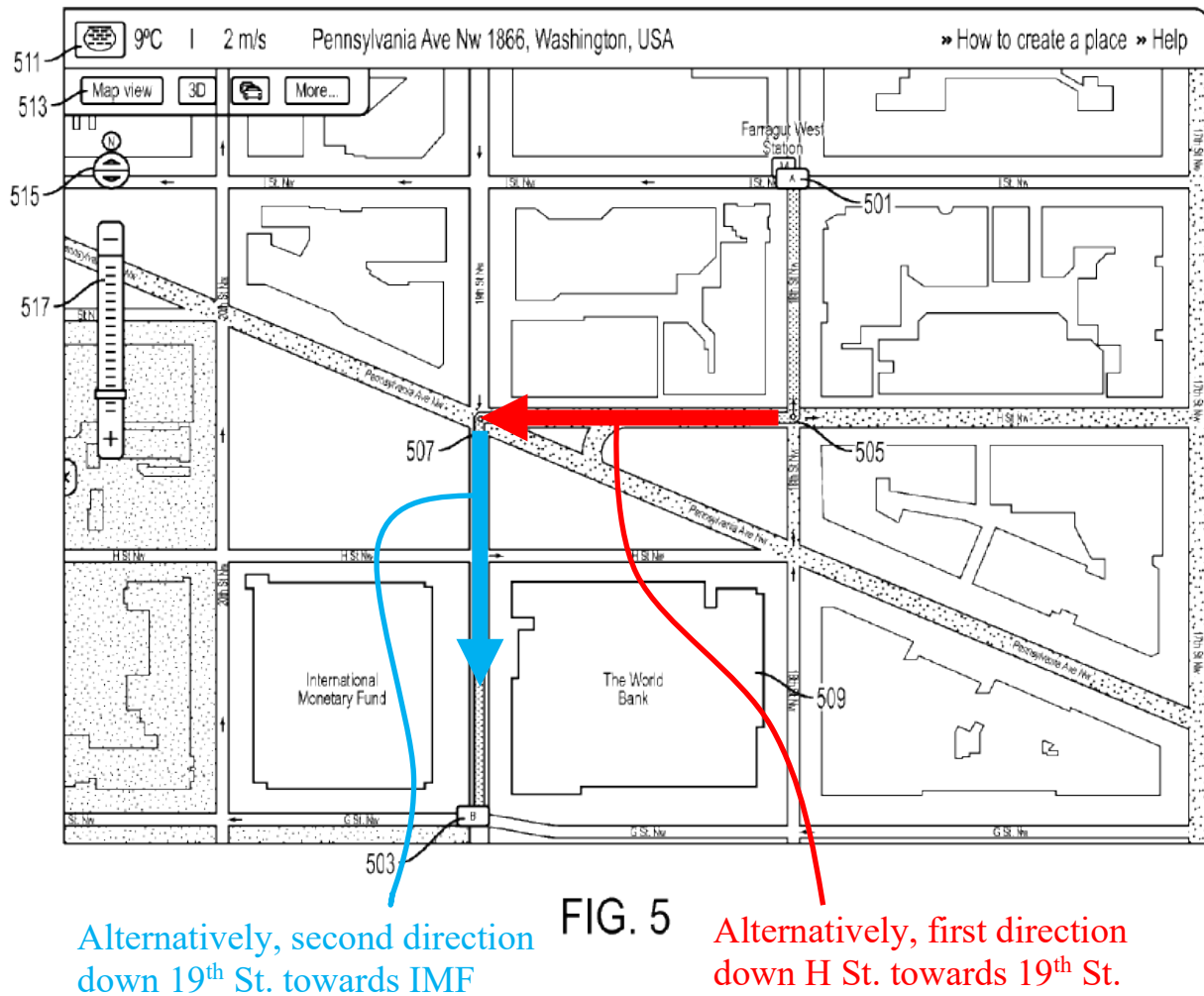
d. [1c] “where a first object is in a second direction;”

As discussed in [1a]-[1b], Kankainen discloses providing a navigational route to a user walking from Farragut West Metro Station to the IMF (first object) using augmented video captured while the user is walking in a first direction down 18th St. or H St. *Supra* §§ V.D.1.b-V.D.1.c; Williams ¶¶ 232-235.

Kankainen further discloses that the IMF is in a second direction with respect to the first direction because the user must turn from the first direction (down 18th St.) in a second direction (right onto H St.) or, alternatively, from the first direction (down H St.) in a second direction (left onto 19th St.) to advance towards the IMF. Kankainen, [0073], [0075], FIGS. 5, 6C-6D.



Kankainen, FIG. 5.



Id.

As Kankainen’s “user continues walking” in the first direction down 18th St., the user reaches a “turning point located at the cross section of ... H St. and ... 18th St.” and receives an instruction to “turn right at H St[.] NW” in a second direction (blue) onto H St. towards the IMF, as shown below. Kankainen, [0073], [0075]; Williams ¶¶ 233-234.

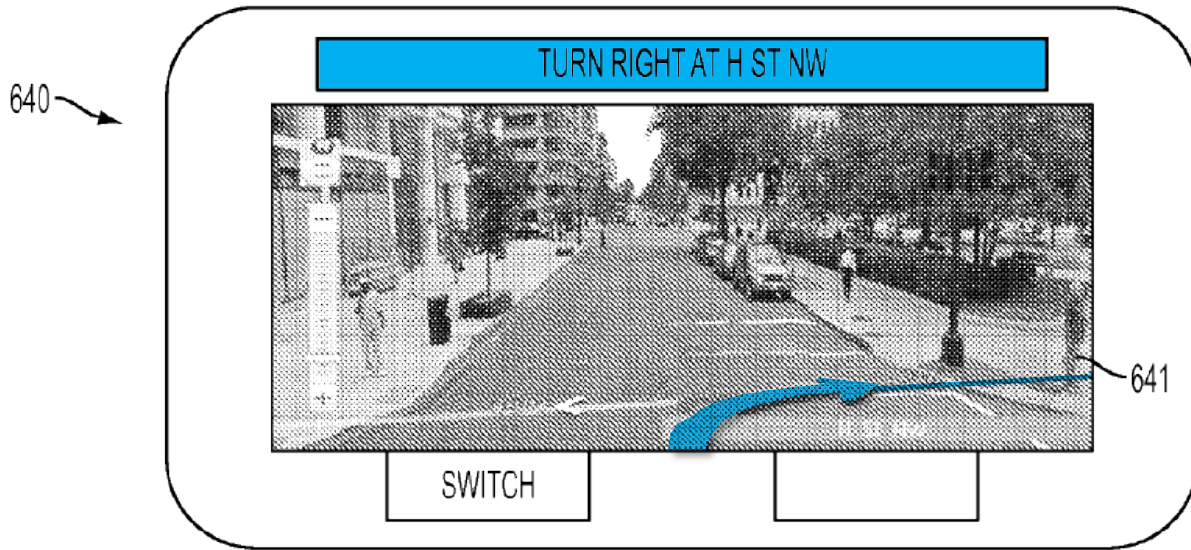


FIG. 6C

Kankainen, FIG. 6C.

Alternatively, “[a]s the user continues walking along the route” down H St. (first direction), the user reaches the “turning point located at the cross section of ... H St. and ... 19th St.” and receives an instruction to “turn left at 19th St[.] NW” in a second direction (blue) towards the IMF, as shown below. Kankainen, [0073], [0075], FIG. 6D; Williams ¶ 235.

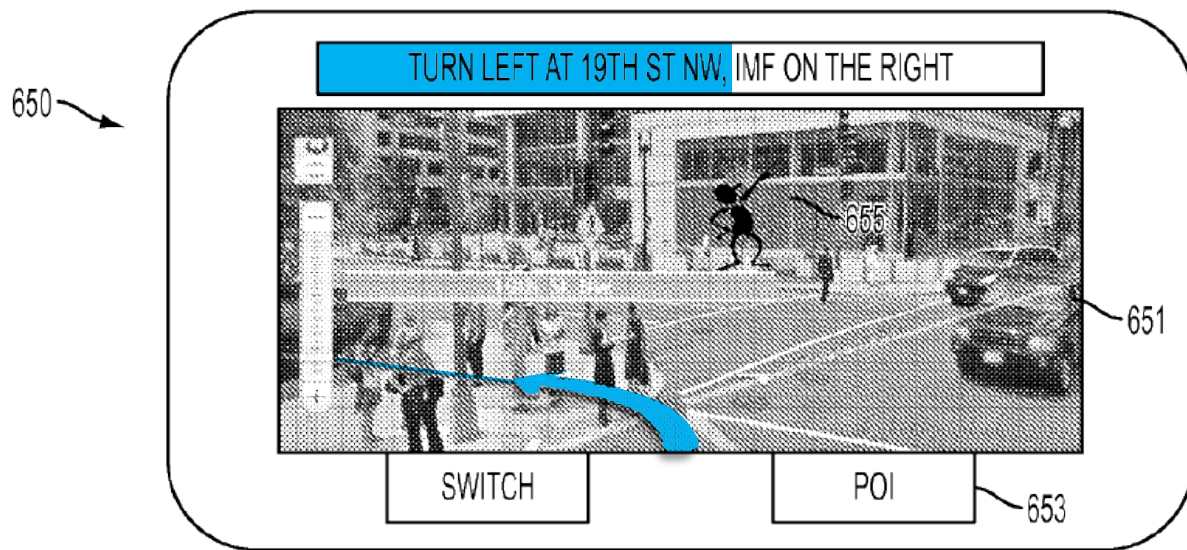


FIG. 6D

Kankainen, FIG. 6D.

- e. [1d] “and presenting a video by a display device of the portable electronic device that is viewable to the user for directing the user in a second direction towards the first object.”

As explained for [1b], Kankainen receives video data and a corresponding video captured by the “video camera” as a “live image,” “live view,” or “live camera view.” Kankainen, [0019], [0074], [0075], [0082]; Williams ¶¶ 236-240; *supra* § V.D.1.c.

The video/live view is presented using a display device (e.g., “screen” or “display device” 714 or “display unit” 907) and is viewable to the user “[a]s the user continues walking along the route” (*see* Kankainen, FIGS. 6A, 6C-6D, 6H) and directs the user in a second direction towards the IMF, by incorporating “3D

objects or other representations of content and related information,” such as “turning points” that direct the user “walking along the route,” into the live video view. Kankainen, [0043], [0073], [0075], [0089], [0103]; Williams ¶ 237.

Kankainen discloses each interpretation of “a second direction” identified in Ground 1, [1d]. Kankainen satisfies interpretations (1) and (2) because it discloses, for example, “direction line 623 with an arrow” showing the user’s navigation route in the augmented video in the direction the user is facing and the camera is pointing along the navigation route or to face the IMF. Kankainen, [0043], [0073], [0075], [0089], [0103], FIGS. 6B-6D, 6H. Kankainen also satisfies interpretations (1) and (2) because a POSITA would have found it obvious to receive and display a live video captured in the same direction that the user is navigating and pointing the device to advantageously provide the user with real-time navigation guidance. Williams ¶ 240. A POSITA would have reasonably expected to succeed in doing so because this implementation was well known and applied only to routine functions. Waldman, [0010], [0031], [0034]-[0039], FIGS. 3-4; Geelen, [0071], [0111], [0117], FIGS. 6, 10-11; Ma, [0093]; Williams ¶ 240.

Kankainen satisfies interpretation (3) because it discloses that directional navigation is displayed in the video “[a]s the user continues walking along the route” in a first direction down 18th St. to a “turning point located at the cross section of ... H St. and ... 18th St.” or, alternatively, down H St., the user reaches

the “turning point located at the cross section of ... H St. and ... 19th St.,” and the “live camera view” shows a left arrow directing the user to “turn right at H St[.] NW” or, alternatively, “turn left at 19th St[.] NW” in a second direction (blue) towards the IMF, as shown below. Kankainen, [0051], [0073], [0075], FIGS. 6C-6D; Williams ¶¶ 238-240.

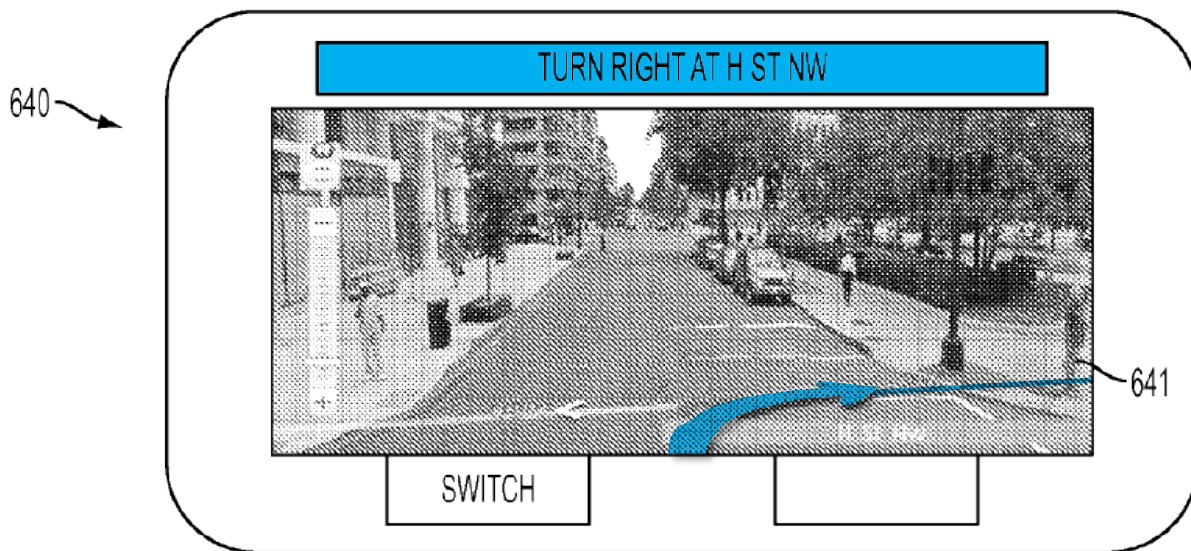


FIG. 6C

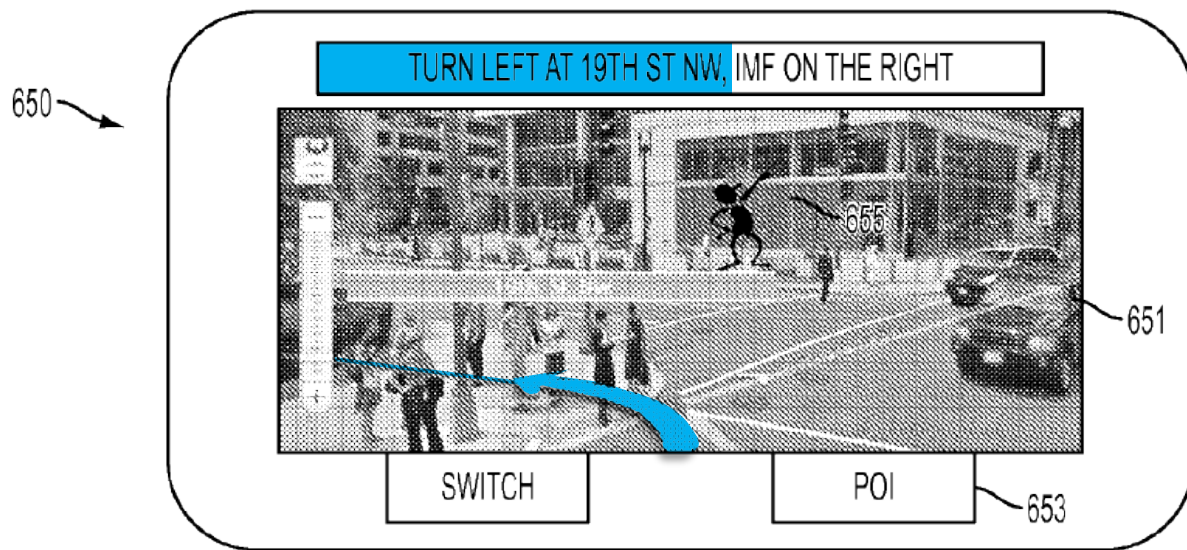


FIG. 6D

Kankainen, FIG. 6C-6D.

2. [Claim 2]

Kankainen discloses integrating information with the live view video by superimposing “3D objects,” “representations of content and related information,” including turning points, textual instructions, and descriptors, directing the user to the IMF, as explained in [1d]. *Supra* § V.D.1.e; Kankainen, [0043], [0075], FIGS. 6A-6D, 6H. This information directs an attention of the user to the IMF by providing a visual representation of the route like the “attention output” described in the ’215 patent and discussed in Ground 1. Kankainen, [0039], [0075]; *supra* § V.B.2; Williams ¶ 241. For example, the turning point directs the user’s attention

to the IMF by “direct[ing] a user to change direction” or location. *Compare* Kankainen, [0075], FIG. 6D, *with* Ex. 1001, 29:31-39.

Kankainen integrates the information with the live view video “utiliz[ing] the augmented reality or augmented virtuality ... to insert rich content information ... in the live image view in a real time manner.” Kankainen, [0039]. Examples include superimposed direction arrows and the corresponding textual navigation “IMF on the right” (FIG. 6D) and textual overlays identifying the IMF (FIG. 6H) (each **green**). Williams ¶ 242.

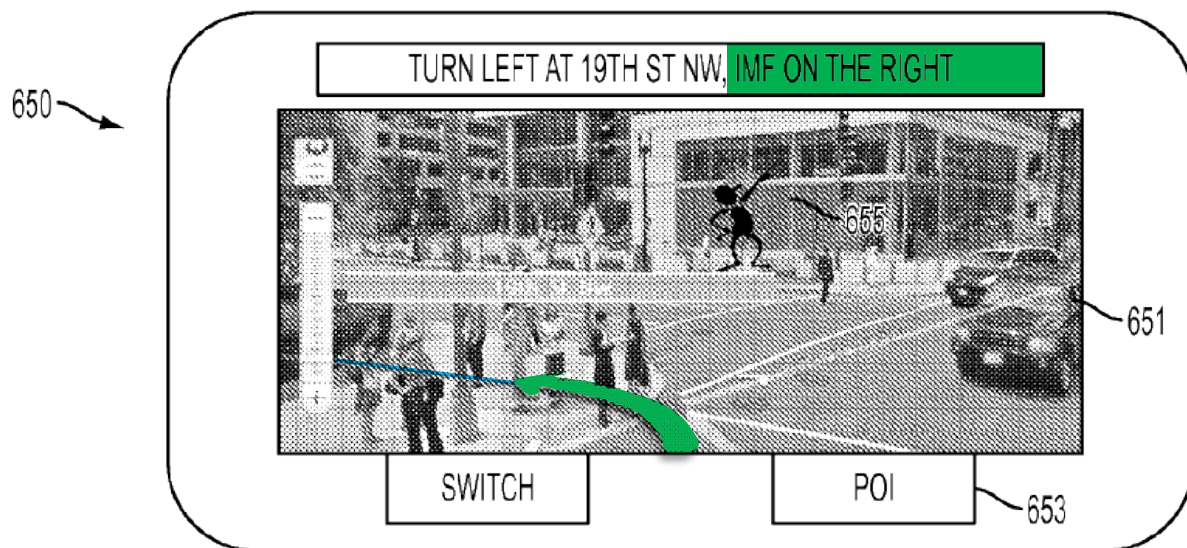
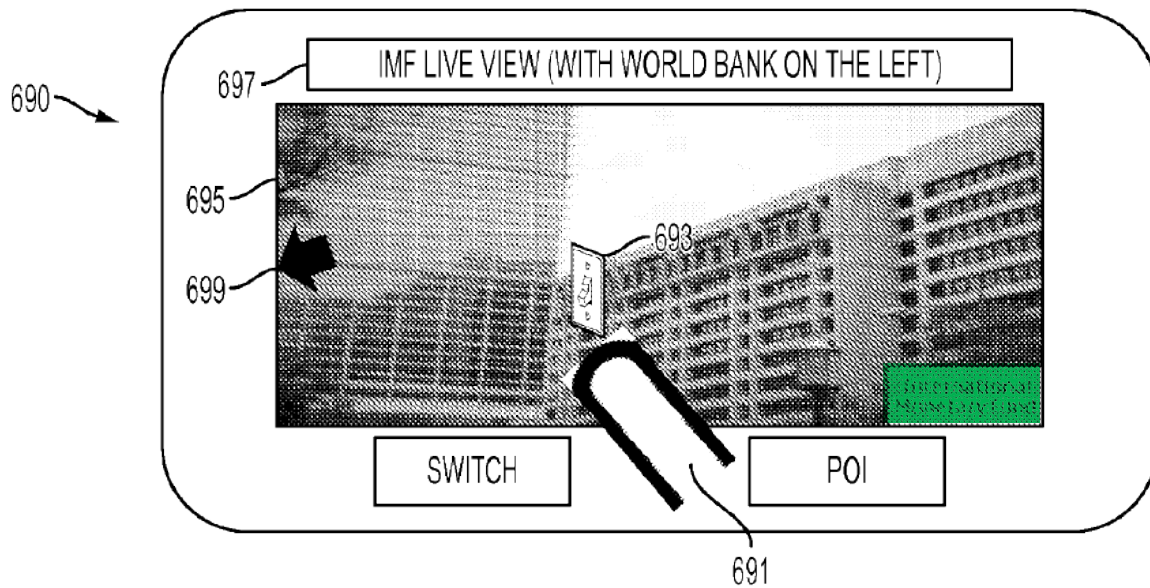


FIG. 6D



Kankainen, FIG. 6D, 6H.

3. [Claim 3]

Kankainen discloses information integrated with the live view video for directing or instructing a user to direct an attention to the IMF, as explained in claim 2. *Supra* § V.D.2; Kankainen, [0039], [0075]; Williams ¶¶ 243-244.

The integrated arrow (FIG. 6D) instructs the user to direct their attention to the IMF by providing a visual means for telling the user how to navigate to the IMF, while the “IMF on the right” (FIG. 6D) and “International Monetary Fund” label (FIG. 6H) (each green) instruct the user to direct their attention to the IMF by identifying the IMF’s location. Kankainen, [0039], [0075], [0080], FIGS. 6D, 6H; Williams ¶ 244.

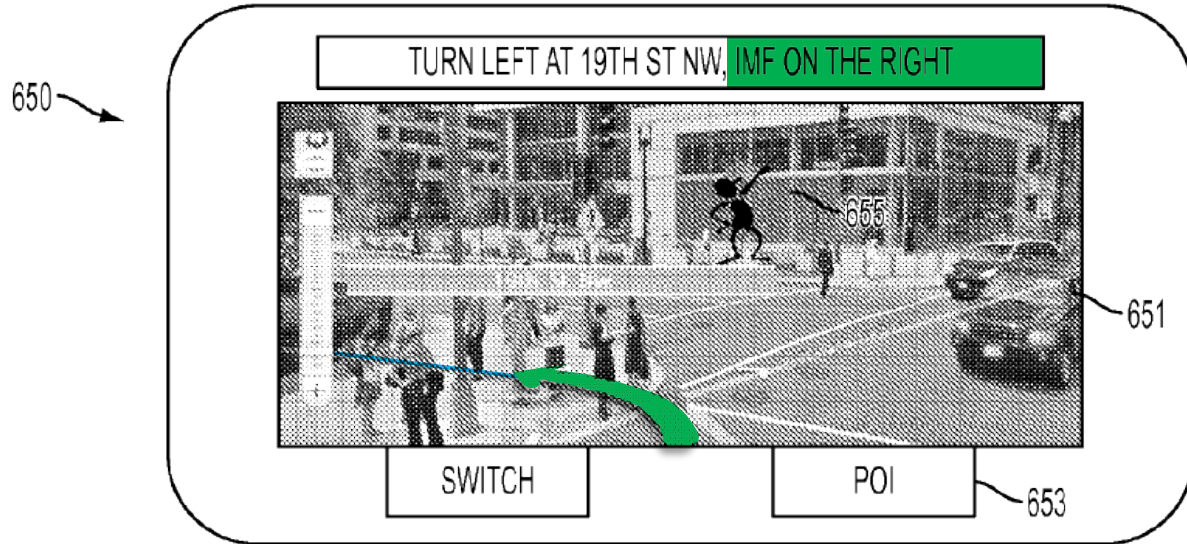


FIG. 6D

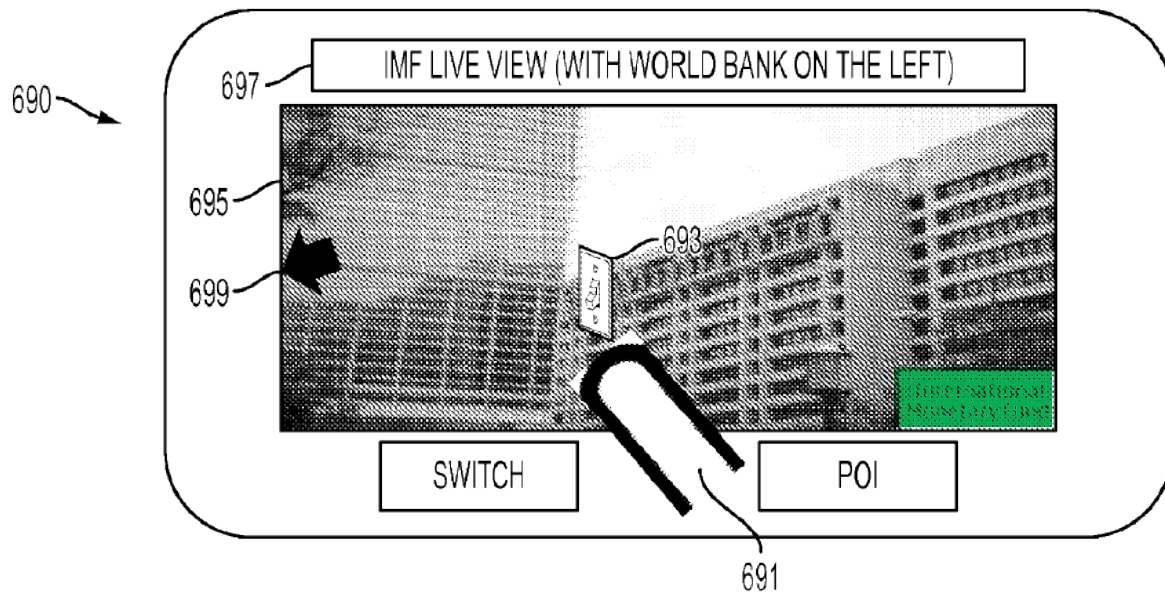


FIG. 6H

Kankainen, FIGS. 6D, 6H.

4. [Claim 4]

Kankainen discloses information integrated with the live view video indicating a location of the IMF (first object), as explained in claims 2-3. *Supra* §§ V.D.2-V.D.3; Kankainen, [0039], [0075]; Williams ¶¶ 245-246.

Kankainen's indicator arrow and "IMF on the right" indicate the IMF's location by providing navigational information to the IMF (FIG. 6D), while the "International Monetary Fund" label (FIG. 6H) (each green) identifies the location of the IMF building. Kankainen, [0039], [0075], [0080], FIGS. 6D, 6H; Williams ¶ 246.

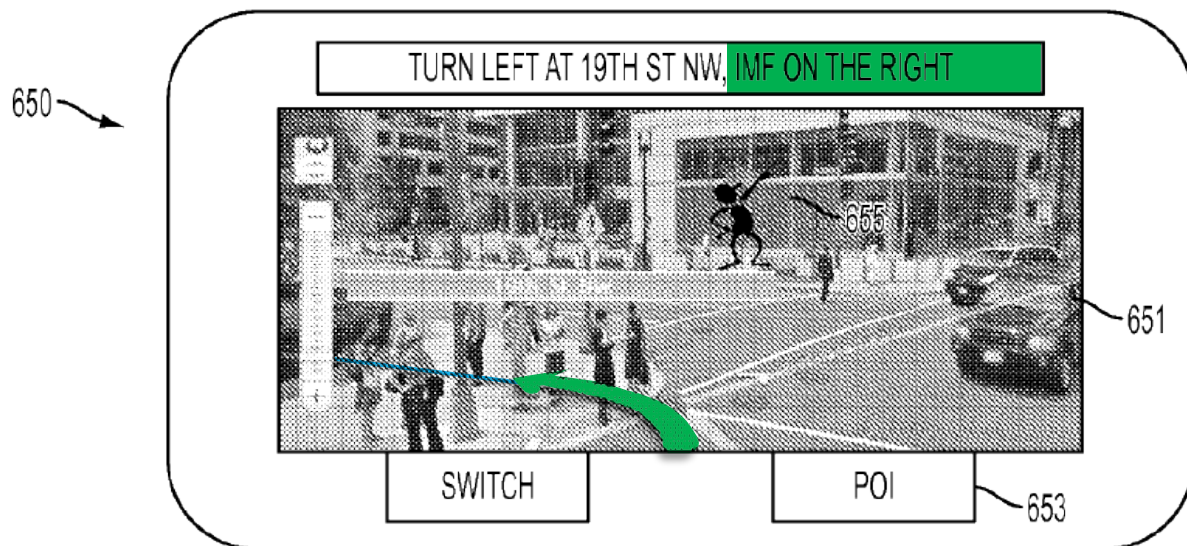


FIG. 6D

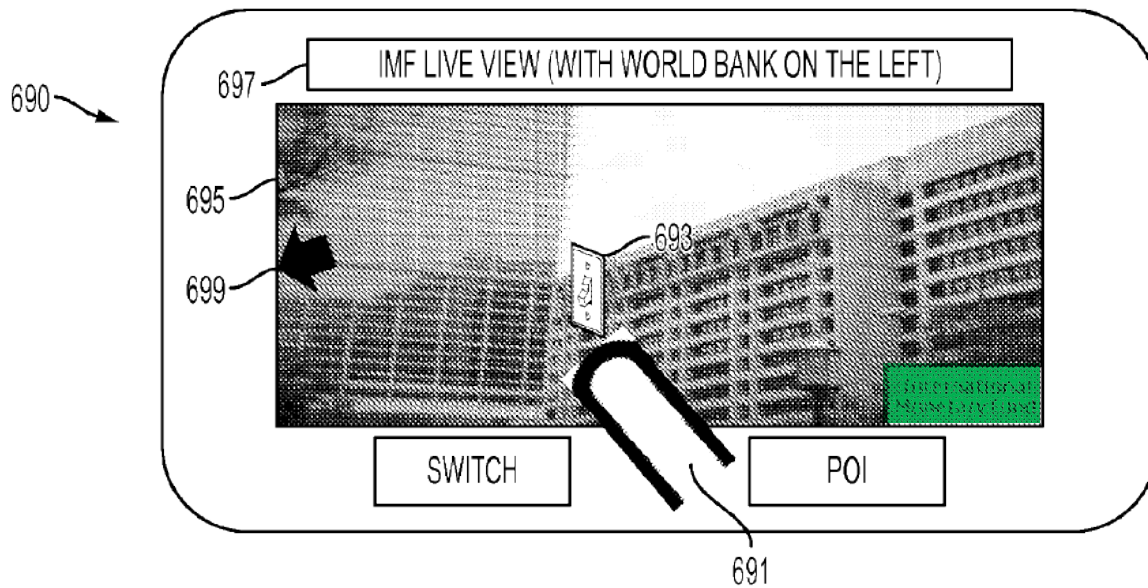


FIG. 6H

Kankainen, FIGS. 6D, 6H.

5. [Claim 5]

Kankainen discloses information integrated with the live view video, including “turning points,” direction arrows, and corresponding language “turn left at 19TH St[.]” and “IMF on the right” (each green), each providing directional information indicating directions to the IMF (first object), as discussed for claims 2-4. *Supra* §§ V.D.2-V.D.4; Kankainen, [0039], [0075]; Williams ¶ 247.

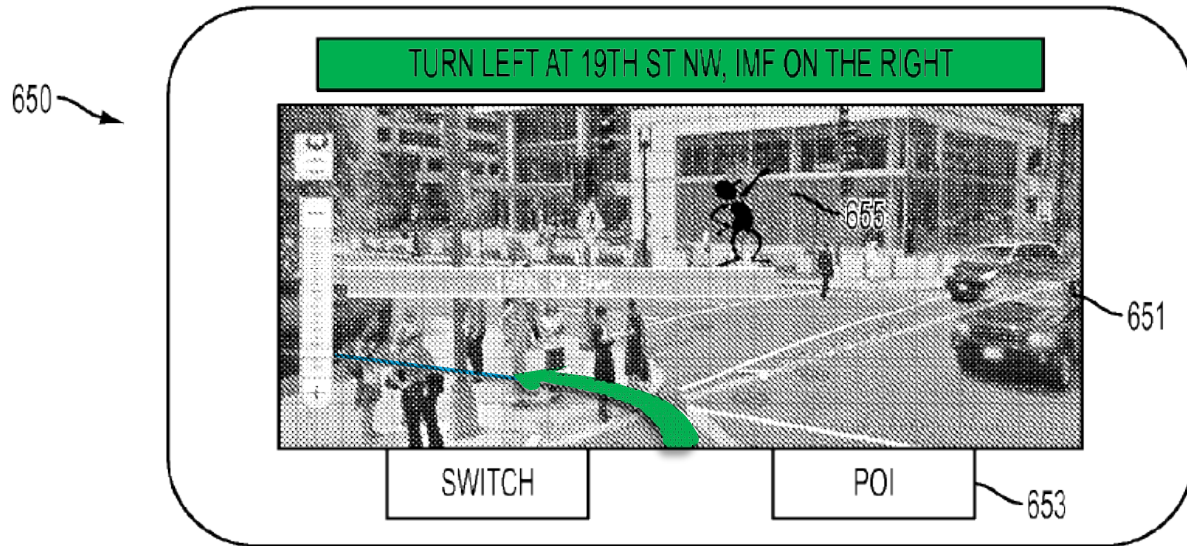


FIG. 6D

Kankainen, FIG. 6D.

6. [Claim 6]

Kankainen's integrated information, including "turning points," direction arrows, and corresponding language "turn left at 19TH St[.]" and "IMF on the right" (each green), provide directional information indicating directions to the IMF, as discussed for claims 2-5. *Supra* §§ V.D.2-V.D.5; Kankainen, [0039], [0075]. The information is indicia because it represents the user's route.

Kankainen, [0039], [0075]; Williams ¶ 248.

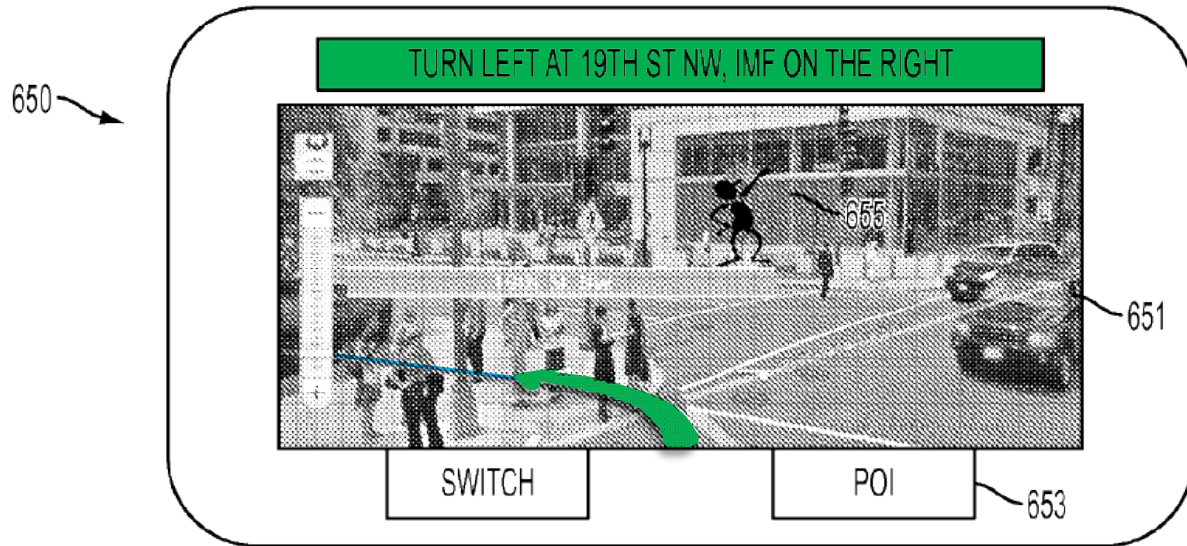


FIG. 6D

Kankainen, FIG. 6D.

7. [Claim 7]

Kankainen discloses indicia integrated with the live view video indicating directions to the IMF, as explained for claim 6. *Supra* § V.D.6; Kankainen, [0039], [0075], FIG. 6D; Williams ¶¶ 249-250.

Kankainen discloses that the indicia's location (e.g., turning points) is based on the relative position between the UE and the IMF because “[a]n inherent property of an augmented reality user interface is that the displayed content [location of the indicia] is dependent on the viewpoint” of the UE, such as updating the “turning points” and navigational route to indicate the relative position of the UE and IMF. Kankainen, [0069], [0075], FIGS. 6B-6D, 6H; Williams ¶ 250.

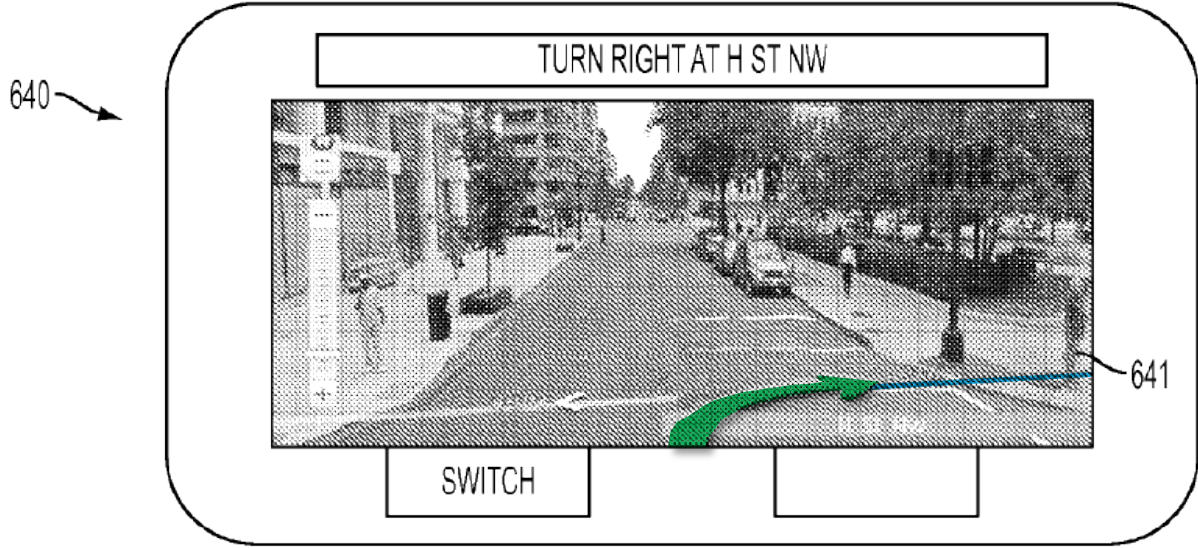


FIG. 6C

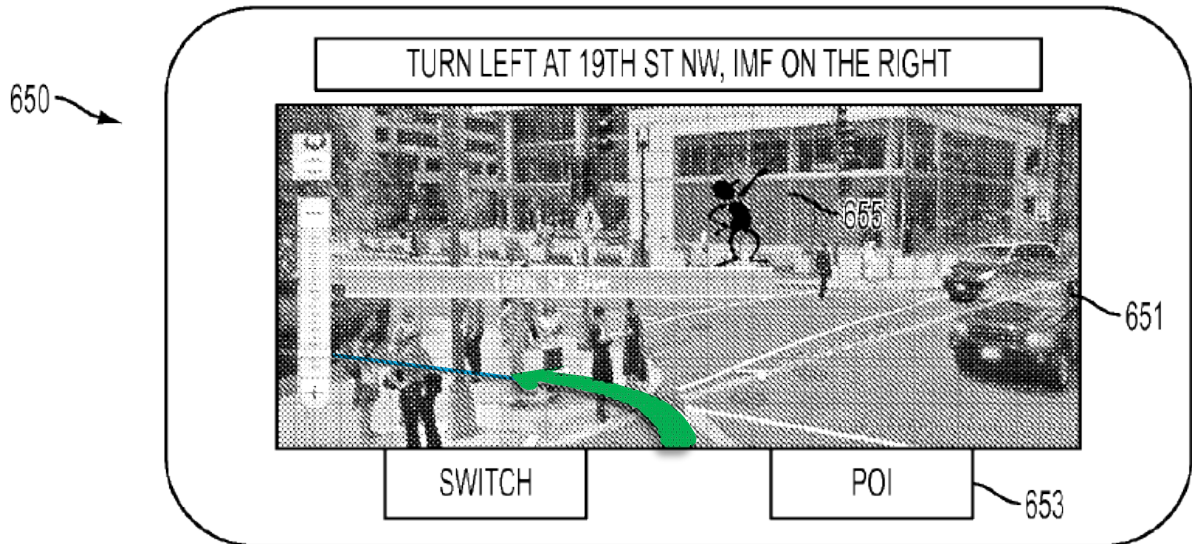


FIG. 6D

Kankainen, FIGS. 6C-6D.

8. [Claim 14]

Kankainen's live view video includes data, such as "turning points," textual directions, and labels, reflecting the live video capture of surroundings of the IMF (first object), as discussed for claims 1-7. *Supra* §§ V.D.1-V.D.7; Kankainen, [0039], [0075], FIGS. 6C-6D, 6H; Williams ¶¶ 251-252.

The data reflects a video capture of the IMF's surroundings because "the displayed content is dependent on the viewpoint" of the UE, which includes the areas surrounding the IMF. Kankainen, [0039], [0069], [0075], FIGS. 6C-6E, 6H. For example, when the IMF comes into view, as shown in FIG. 6H, the live video includes data reflecting the video capture of the IMF's surroundings, e.g., the World Bank and an IMF label (each green). Kankainen, [0080], FIG. 6H; Williams ¶ 252.

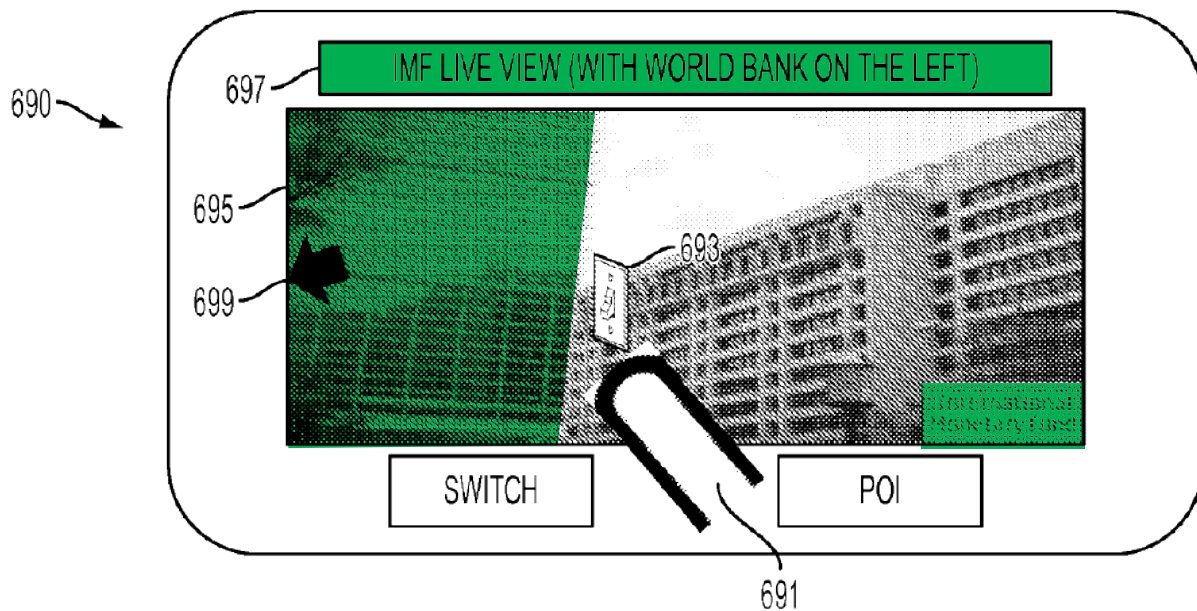


FIG. 6H

Kankainen, FIG. 6H.

9. [Claim 15]

As explained in [1c], the IMF (first object) is “located at 700 19th St. NW[,] Washington D.C.,” which is a location. *Supra* § V.D.1.d; Kankainen, [0034] (the IMF corresponds to “location data (e.g., an address, GPS coordinates, etc.)”, [0073]; Williams ¶ 253.

10. [Claim 16]

Kankainen discloses detecting a change in the movement of the UE as “the user continues walking along the route,” for example, “[w]hen the user is walking on ... 19th St.” or “[w]hen the user walks close to the IMF” on 19th St. Kankainen, [0075], [0077], [0079], [0080], FIGS. 6D-6E, 6H; Williams ¶¶ 254-255. The

movement change is detected using, for example, GPS tracking, as explained in claim 1. *Supra* § V.D.1.

Kankainen updates the presentation of the live view based on the detected change by integrating new navigation information in the video, e.g., labels, “turning points,” and corresponding directional language, in response to the detected change in movement from the first direction to the second direction, and as the user draws closer to the IMF as shown in FIGS. 6C-6D and 6H (exemplary annotations **green**) and as discussed in claims 1-7 and 14. Kankainen, [0075], FIGS. 6B-6D, 6H; Williams ¶ 255; *supra* §§ V.D.1-V.D.8.

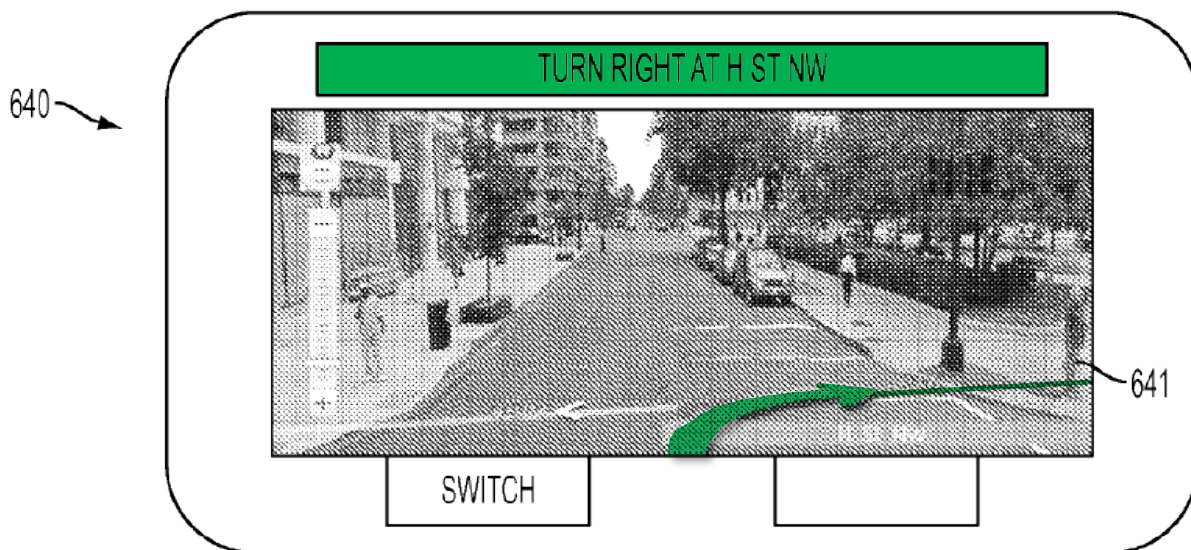


FIG. 6C

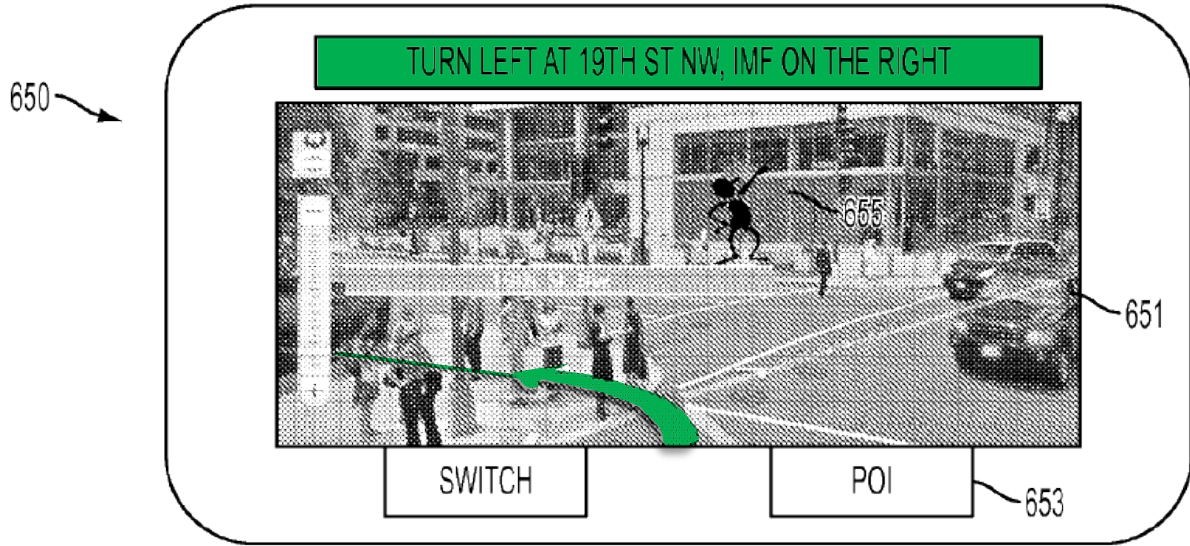


FIG. 6D

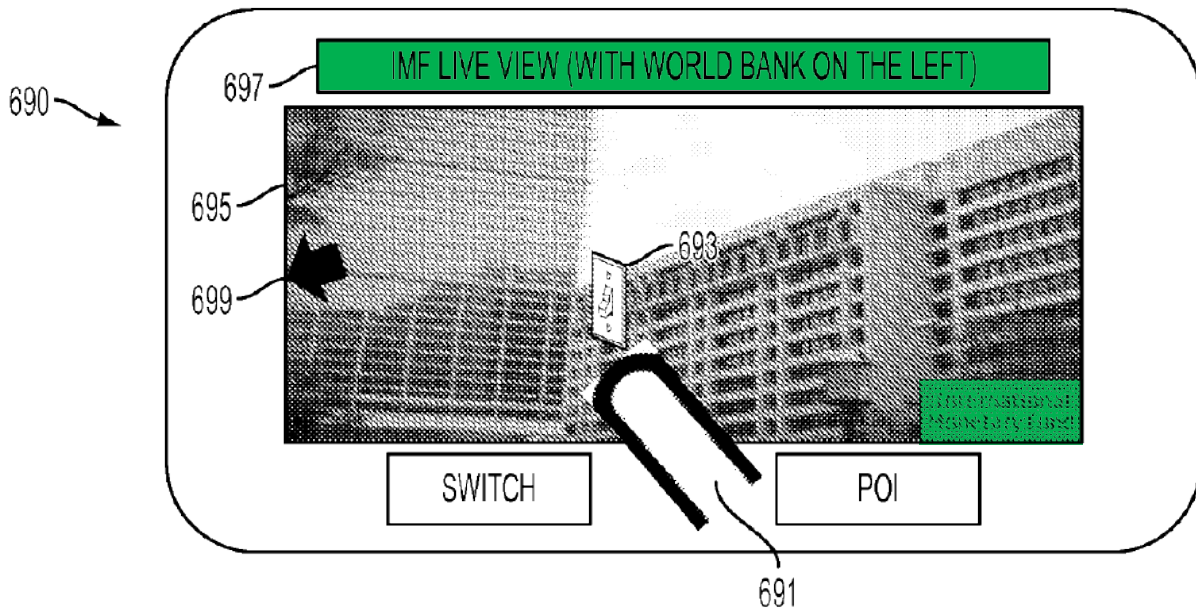


FIG. 6H

Kankainen, FIGS. 6C-6D, 6H.

11. [Claim 17]

Kankainen discloses or renders obvious presenting video captured by a video camera on the UE's display screen "[a]s the user continues walking along the route," as discussed in claim 1. *Supra* § V.D.1; Kankainen, [0019], [0074], [0075], [0082]; Williams ¶¶ 256-257.

Kankainen's live view (video) is conditionally presented based on the UE's detected position because the video and visual augmentations e.g., "direction line 623 with an arrow" in FIG. 6B, "turning point[]" arrows in FIGS. 6C-6D, and the "International Monetary Fund" label in FIG. 6H, are presented based on the device's location along the route and "inherent[ly]" depend on its facing direction. Kankainen, [0067], [0069], [0075]; Williams ¶ 257.

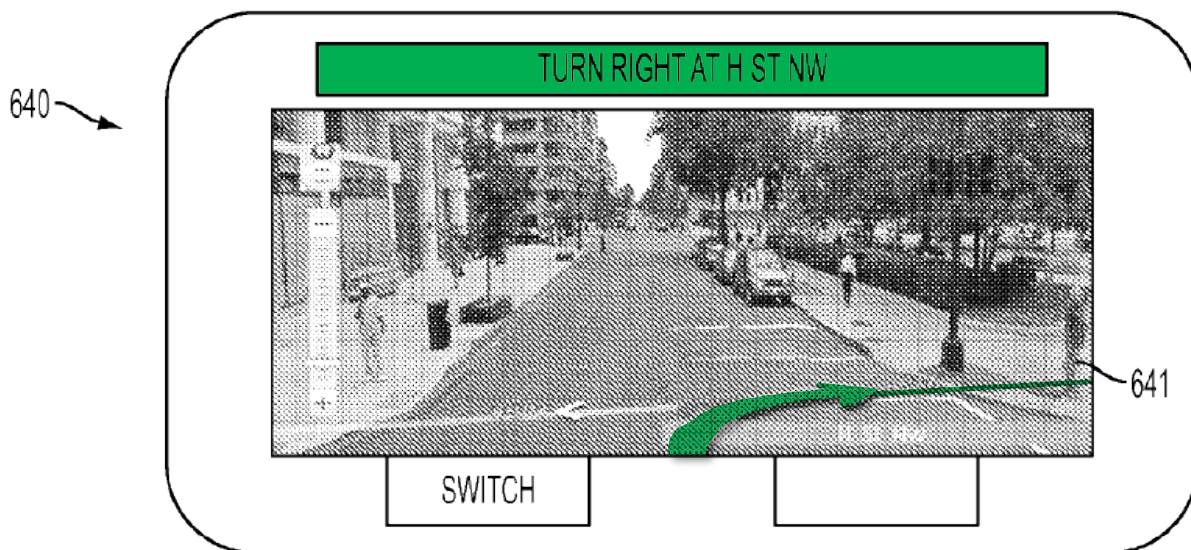


FIG. 6C

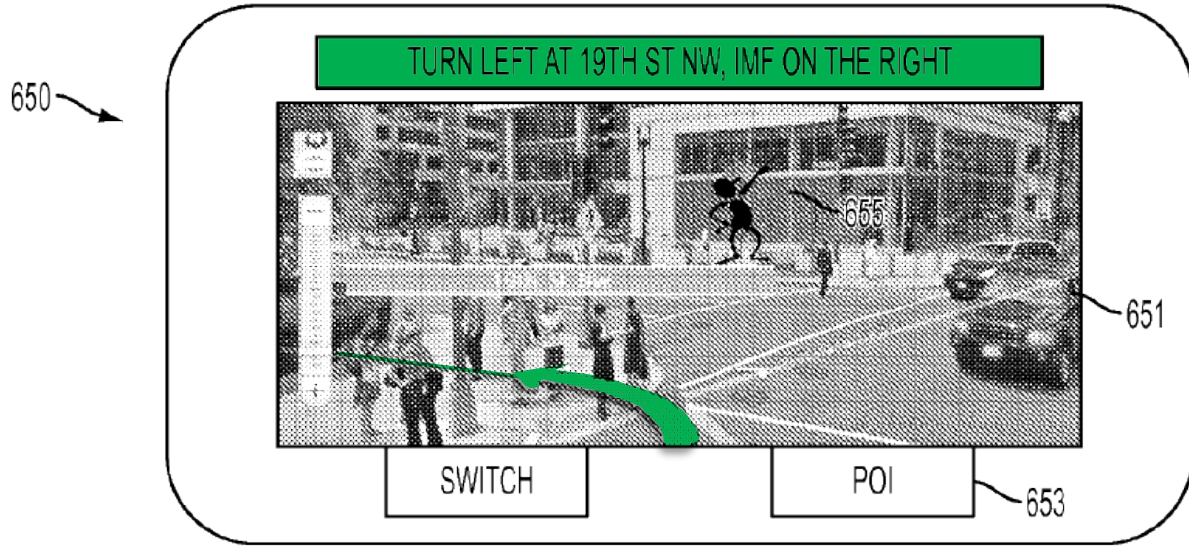


FIG. 6D

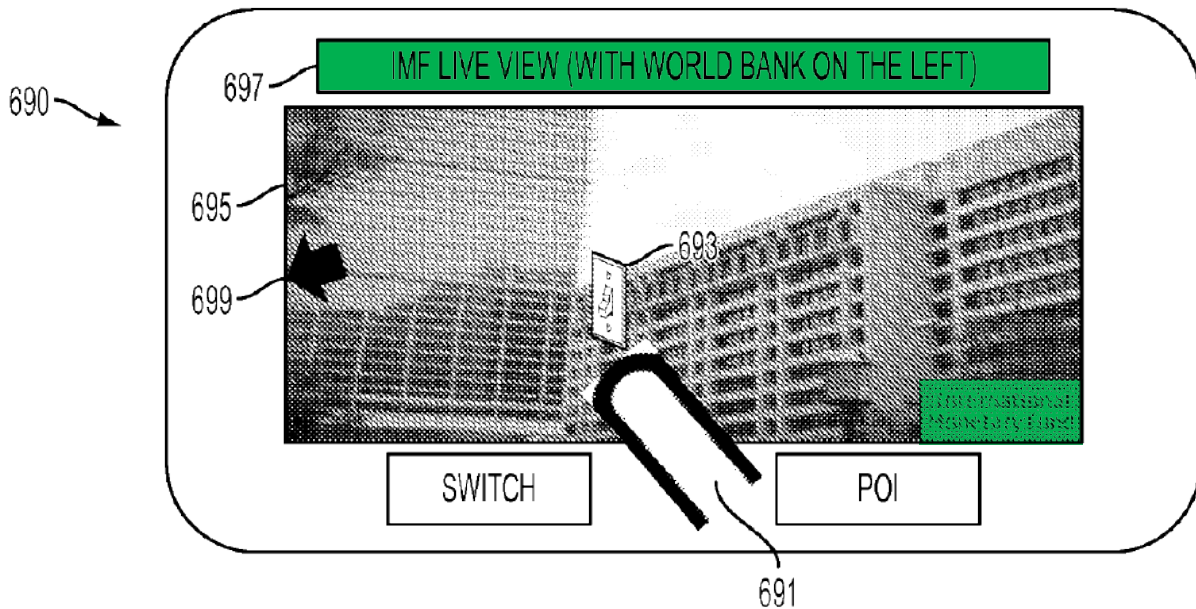


FIG. 6H

Kankainen, FIGS. 6C-6D, 6H.

12. [Claim 20]

As explained in claims 1-7, Kankainen discloses directing the user in the second direction, either along H St. or down 19th St., towards the IMF (first object), using information/indicia augmented with the live video. *Supra* §§ V.D.1-V.D.7; Kankainen, [0043], [0075], FIGS. 6B-6D, 6H; Williams ¶¶ 258-261.

The IMF is not initially presented in the video, which shows “a live view of the [UE’s] current[] location” on 18th St. or H St. and the IMF is not within the viewpoint of the UE’s video camera, and thus not displayed in the live view video. Kankainen, [0074]-[0075], FIGS. 6A-6C; Williams ¶ 260.

The augmented information directs the user to “walk[] along the route,” and identifies the IMF’s location, in the second direction, thereby directing the user’s attention to the IMF, as discussed for claims 1-3. Kankainen, [0043], [0075]; *supra* §§ V.D.1-V.D.3; Williams ¶ 261.

13. [Claim 21]

a. [21Preamble]

Kankainen discloses the additional method steps of claim 21. Williams ¶¶ 262-265.

b. [21a]

Kankainen discloses detecting additional movement of the UE in the second direction, such as when “the user continues walking along the route” down H St. or

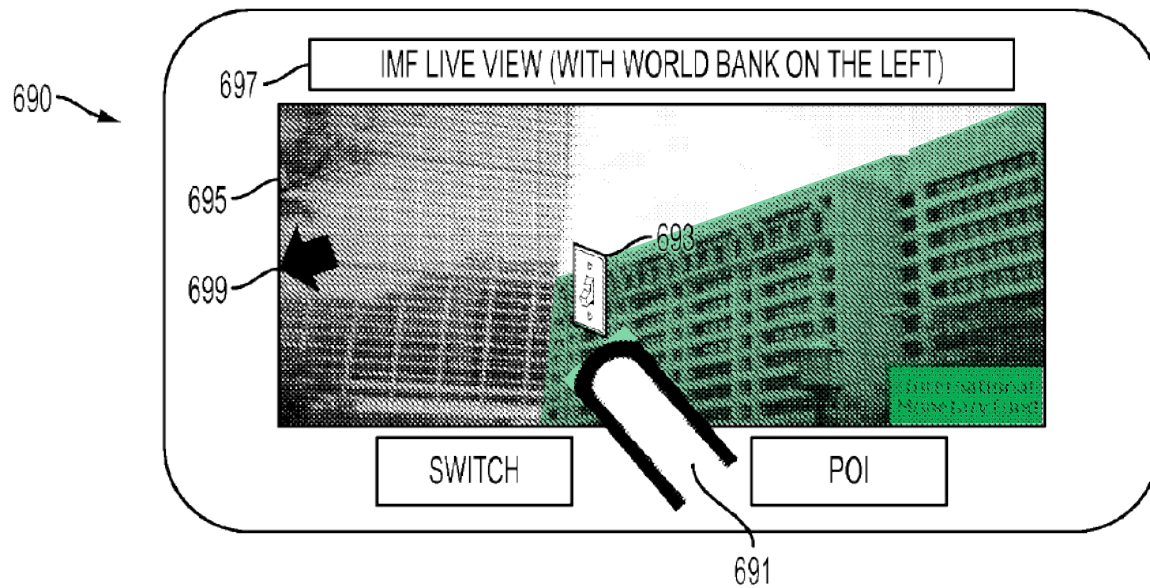
19th St., “[w]hen the user is walking on ... 19th St.,” and “[w]hen the user walks close to the IMF” on 19th St. with the UE, as discussed in claims 1 and 16.

Kankainen, [0075], [0077], [0079], [0080]; *supra* §§ V.D.1, V.D.10; Williams ¶ 263.

c. [21b]

Kankainen discloses receiving additional video data captured by the “video camera” that includes the IMF “[w]hen the user walks close to the IMF” (additional movement) after turning left on 19th St. in the second direction.

Kankainen, [0051], [0075], [0079], [0080]. The additional captured video shows “the IMF on the right hand side [(green)] and the World Bank [on] the left hand side in the live image [video] view.” Kankainen, [0075], [0079], [0080], FIG. 6H; Williams ¶ 264.



Kankainen, FIG. 6H.

d. [21c]

Kankainen presents additional video of the IMF utilizing the additional video data discussed in [21b]. Kankainen, [0079], [0080], FIG. 6H; *supra* § V.D.13.c. The live image video is presented on the UE's screen, which is viewable to the user and includes (presents) the overlaid text "International Monetary Fund" (**green**) that directs the user's attention to the IMF by identifying the IMF's location. Kankainen, [0079], [0080], FIG. 6H; Williams ¶ 265.

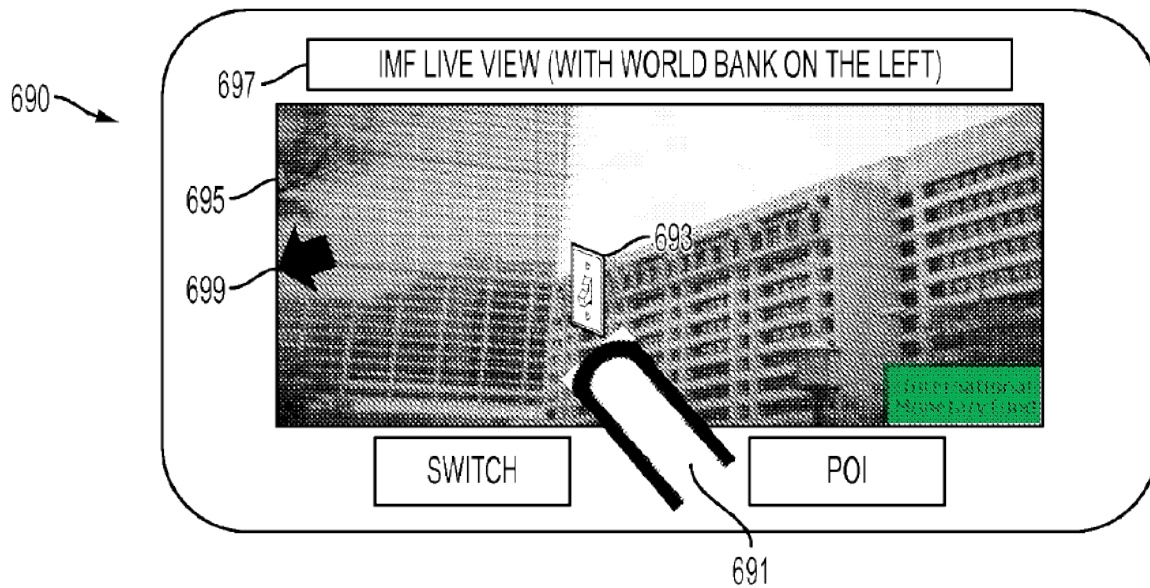


FIG. 6H

Kankainen, FIG. 6H.

14. [Claim 22]

Kankainen discloses integrating information with the live view (video), including POIs (such as the World Bank and IMF), as discussed in claims 1, 2, 14, 16, 17, and 21. *Supra* §§ V.D.1-V.D.2, V.D.8, V.D.10-V.D.11, V.D.13; Kankainen, [0039], [0075], FIGS. 6C-6D, 6H; Williams ¶¶ 266-267.

The integrated information is received from a content mapping platform (a data store) that “stores mapping information in the map database 109a” and “includes all or a portion [of] the information in the map database 109a and the content catalog 109b,” including location information, such as “GPS coordinates,” “geo-tagged data,” and “points of interest data,” for objects with fixed locations

such as “landmarks.” Kankainen, [0021], [0042], [0043], [0064], [0073], [0075]; Williams ¶ 267.

15. Independent Claim 18

Kankainen discloses or renders obvious claim 18 for the reasons discussed for claim 1. *Supra* § V.D.1; Williams ¶¶ 268-278.

a. [18Preamble]

To the extent the preamble is limiting, Kankainen discloses a “portable electronic device,” such as “user equipment (UE) 101,” which may be a “mobile handset.” Kankainen, [0042], [0047]; Williams ¶ 269.

b. [18a]

Kankainen discloses that UE 101 includes a display device, such as a “display” or “screen,” to present the augmented live image video. Kankainen, [0034], [0065], [0075], FIGS. 6A-6H, 7; Williams ¶ 270.

c. [18b]

Kankainen discloses that UE 101 includes a “touch-screen interface, microphone, camera, a scroll-and-click interface, a button interface, etc.,” for receiving “[u]ser inputs.” Kankainen, [0065]; Williams ¶ 271.

d. [18c]

Kankainen further discloses that computer system 700, which embodies UE 101 and performs the disclosed methods, includes non-transitory memory 704, for

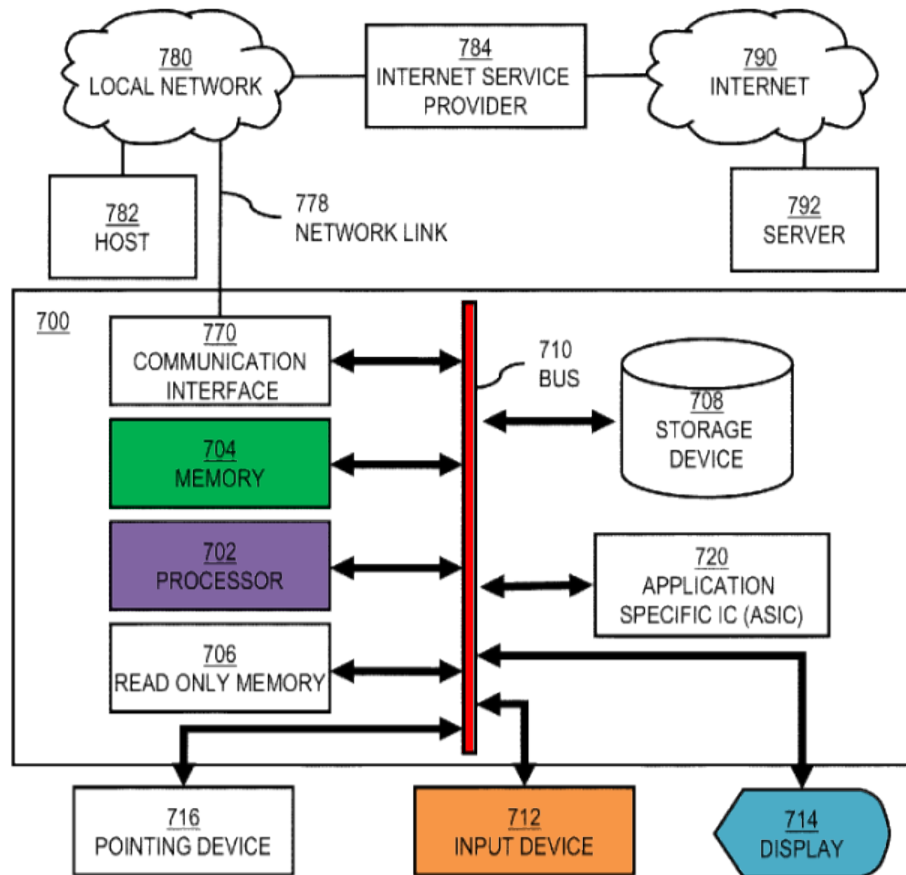
“stor[ing] information including processor instructions for correlating and navigating between a live camera image” and “processor instructions” that “perform one or more of the method steps described.” Kankainen, [0088], [0096]. Memory 704, like the memory of the ’215 patent, may be configured as dynamic RAM. *Compare* Kankainen, [0088], *with* Ex. 1001, 4:21-26.¹³ Dynamic RAM 704 also reads the instructions from “storage device” 708, another “[n]on-transitory media.” Kankainen, [0088], [0092], [0096]; Williams ¶ 272.

e. [18d]

“[T]he method steps described” in Kankainen “are performed ... in response to processor 702 executing ... one or more processor instructions contained in memory 704,” which are also contained in storage device 708. Kankainen, [0096]. A POSITA would have understood that the methods include the processes discussed for [1a]-[1d]. Processor 702 (purple) is coupled to and communicates with the display device 714 (teal) to display the augmented live view video, input device 712 (orange) to receive user inputs, and non-transitory memory 704 or 708 (green) to read instructions for execution via bus 710 (red), as shown in FIG. 7. Kankainen, [0065], [0075], [0088]-[0089], [0096], FIG. 7; Williams ¶ 273.

¹³ The term “non-transitory” is not in the specification. *See generally* Ex. 1001.

FIG. 7



Kankainen, FIG. 7.

f. [18e]

Kankainen discloses that processor 702 “[e]xecut[es] ... the sequences of instructions contained in memory 704 ... to perform one or more of the method steps described” in Kankainen, recited in [18f]-[18i]. Kankainen, [0096]; Williams ¶ 274.

g. [18f]

Kankainen discloses [18f] for the reasons discussed for [1a]. Williams ¶ 275.

h. [18g]

Kankainen discloses or renders obvious [18g] for the reasons discussed for [1b]. Williams ¶ 276.

i. [18h]

Kankainen discloses [18h] for the reasons discussed for [1c]. Williams ¶ 277.

j. [18i]

Kankainen discloses or renders obvious [18i] for the reasons discussed for [1d]. Williams ¶ 278.

16. Independent Claim 19

Kankainen discloses or renders obvious claim 19 for the reasons discussed for claims 1 and 18. *Supra* §§ V.D.1, V.D.15; Williams ¶¶ 279-285.

a. [19Preamble]

To the extent the preamble is limiting, Kankainen discloses [19Preamble]. Williams ¶¶ 280-281.

Kankainen discloses a computer-readable medium, such as memory 704 and storage device 708, storing “computer instructions, software and program code” that, when executed by computer system processor 702, cause Kankainen’s UE, which is a portable electronic device, “to perform one or more of the method steps

described” in Kankainen, recited in [19a]-[19d], as explained in claim 18. *Supra* § V.D.15; Kankainen, [0096]; Williams ¶ 281.

b. [19a]

Kankainen discloses [19a] for the reasons discussed for [1a]. Williams ¶ 282.

c. [19b]

Kankainen discloses or renders obvious [19b] for the reasons discussed for [1b]. Williams ¶ 283.

d. [19c]

Kankainen discloses [19c] for the reasons discussed for [1c]. Williams ¶ 284.

e. [19d]

Kankainen discloses or renders obvious [19d] for the reasons discussed for [1d]. Williams ¶ 285.

E. Ground 4: Kankainen and Geelen Render Obvious Claims 8-11

1. [Claim 8]

Claim 8 is obvious over Kankainen and Geelen. Williams ¶¶ 286-291.

Kankainen discloses multiple indicia, including a “direction line,” “direction icon,” “turning point[],” navigation arrow, “direction bar,” and POI icon, integrated with the live view video for indicating directions to the IMF (first

object), as explained in claims 1, 6, and 7. *Supra* §§ V.D.1, V.D.6, V.D.7;

Kankainen, [0075], FIGS. 6B-6D, 6H.

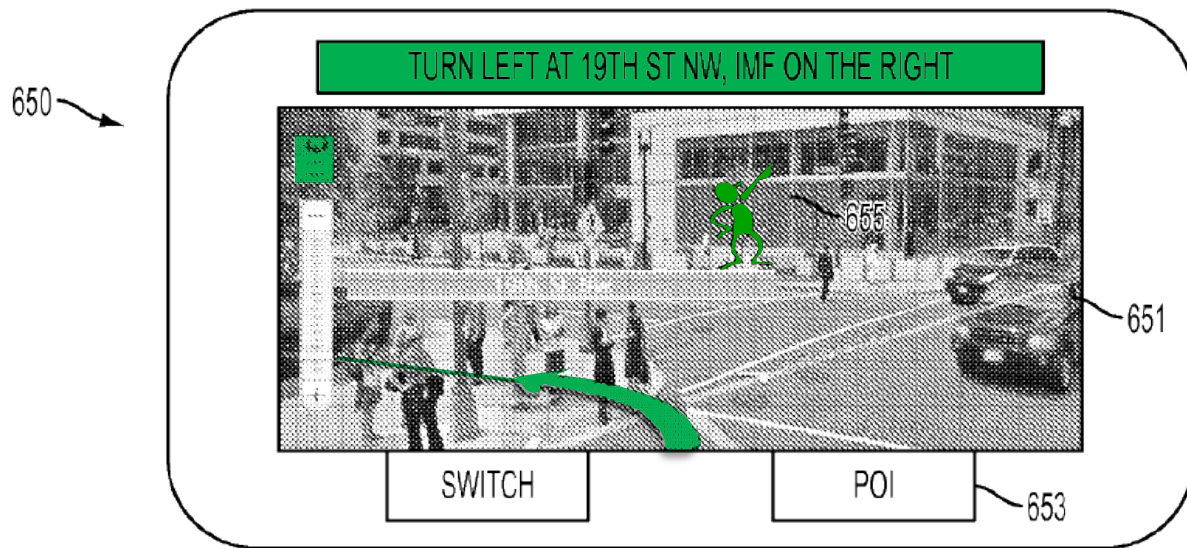


FIG. 6D

Kankainen, FIG. 6D.

Kankainen also suggests indicating a distance between the user's location at Farragut West Metro and the IMF by showing the number of blocks on the navigation route (red), but does not expressly disclose second indicia indicating a distance to the IMF in the live video. Kankainen, [0073], [0075], FIG. 5; Williams ¶ 287.

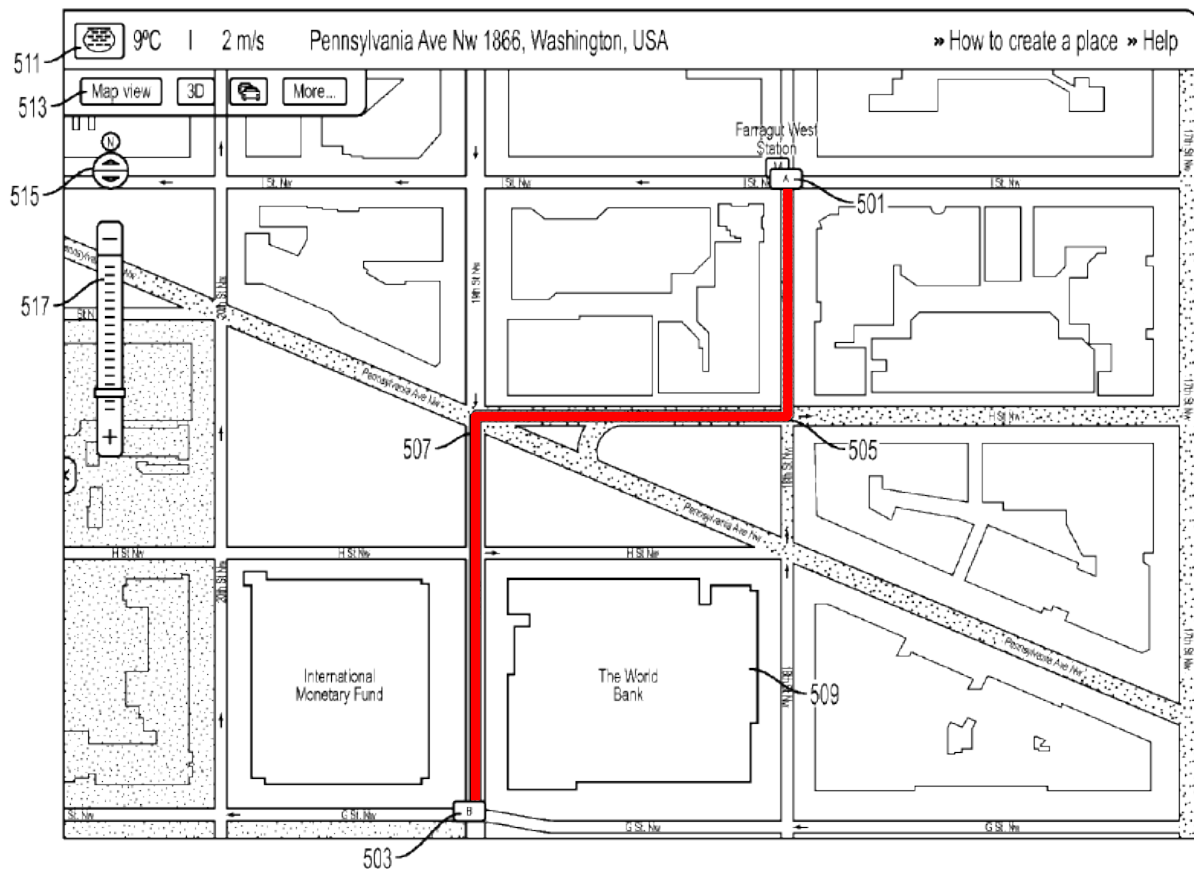


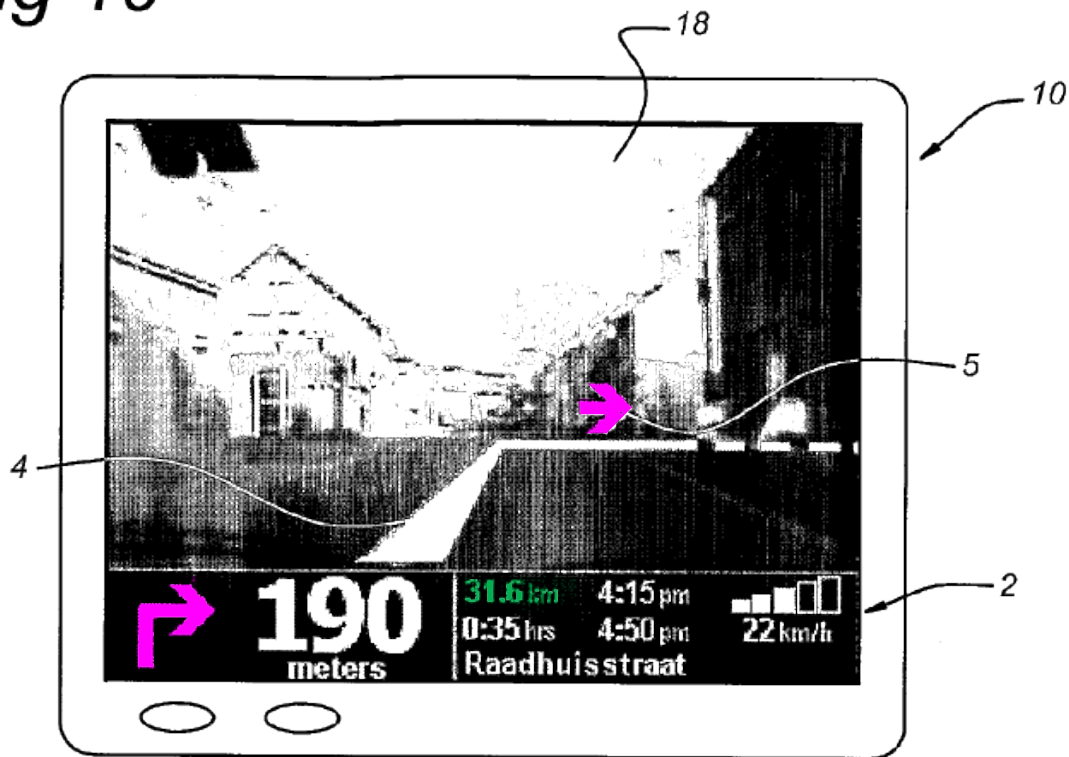
FIG. 5

Kankainen, FIG. 5.

Geelen discloses providing navigation directions using a “real time” video feed “for walkers” on a portable electronic device. Geelen, [0002], [0061], [0071]. Like Kankainen, Geelen “superimpose[s] in [a] video feed” “navigation directions over the camera image” where all the navigation directions “match with the actual position of the corresponding item in the camera image.” Geelen, [0017], [0111]. The superimposed navigation directions include a first indicia (pink) indicating a direction to the destination, such as “an arrow indicating a right turn,” and second

indicia (green) indicating the “distance to the destination 26” superimposed onto and integrated with the real-time video feed. Geelen, [0017], [0064], FIGS. 10, 12; Williams ¶ 288.

Fig 10



Geelen, FIG. 10.

A POSITA would have found it obvious to incorporate Geelen’s teaching of including a second indicia indicating the distance to the first object because it provides additional information to the user that allows the user to understand their progress and estimate the remaining length of the trip. Williams ¶ 289.

a. Motivation

A POSITA would have been motivated to modify Kankainen’s live image video to include Geelen’s second indicia indicating the distance to the first object (IMF). Such a modification would have been useful for trip planning, e.g., deciding when to leave to ensure timely arrival and whether the arrival time is changing based on the distance remaining. Furthermore, distance-to-arrival indicia were established in the art and known to provide at least the benefit described above. *See* Ex. 1010, 4:59-5:1 (displaying indicia indicating a destination’s distance “from the mobile device” “over real-time ... images captured by the camera of the mobile device”); Ex. 1011, [0101]-[0102] (superimposing a navigational distance onto image captured by “portable terminal”); Ex. 1012, [0031], [0084] (overlaying “guidance information” representing the distance between POIs on a captured image); Williams ¶ 290.

b. Expected Success

A POSITA would have had a reasonable expectation of success in integrating Geelen’s indicia indicating the distance to the first object into Kankainen’s augmented live video view because it would have used Kankainen’s existing augmented mapping application to perform the same well-known techniques disclosed in Kankainen (superimposing images on a live camera video)

to yield predictable results (providing navigation information to users). Geelen, [0075]; Kankainen, [0034], [0039], [0043], [0064]; Williams ¶ 291.

2. [Claim 9]

Claim 9 is obvious over Kankainen and Geelen. Williams ¶¶ 292-294.

Kankainen discloses that the augmented live view “content”—integrated indicia—is updated “[a]s the user continues walking along the route.” Kankainen, [0074], [0075]. The device moves “[a]s the user continues walking along the route,” and Kankainen’s indicia (green) shown on live video change to reflect the new viewpoint based on the device’s movement, as shown in the different images and superimposed indicia in FIGS. 6B-6D and 6H. Kankainen, [0075]; Williams ¶ 293.

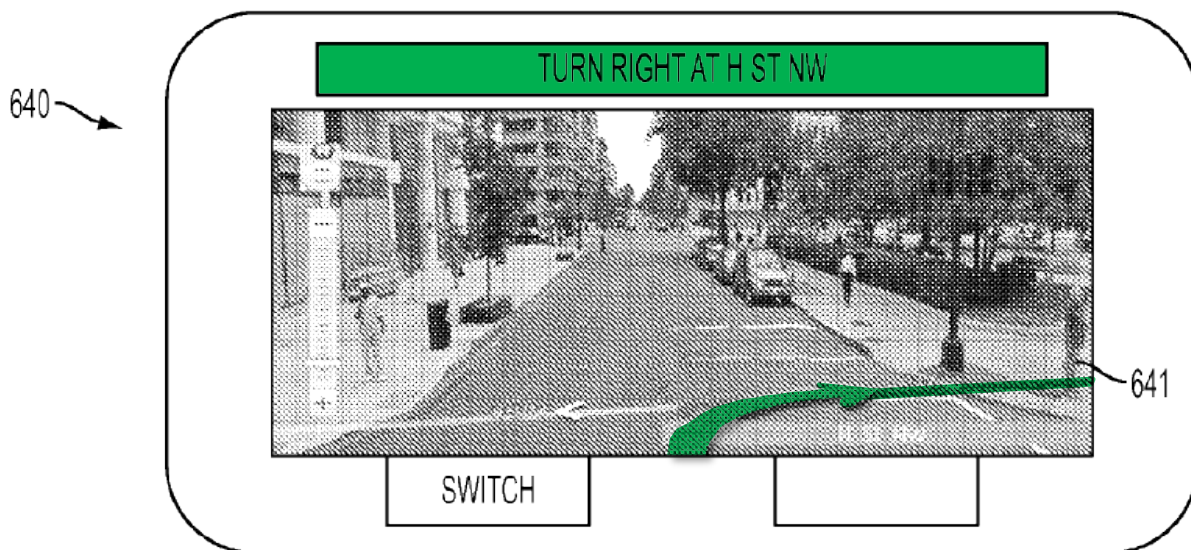


FIG. 6C

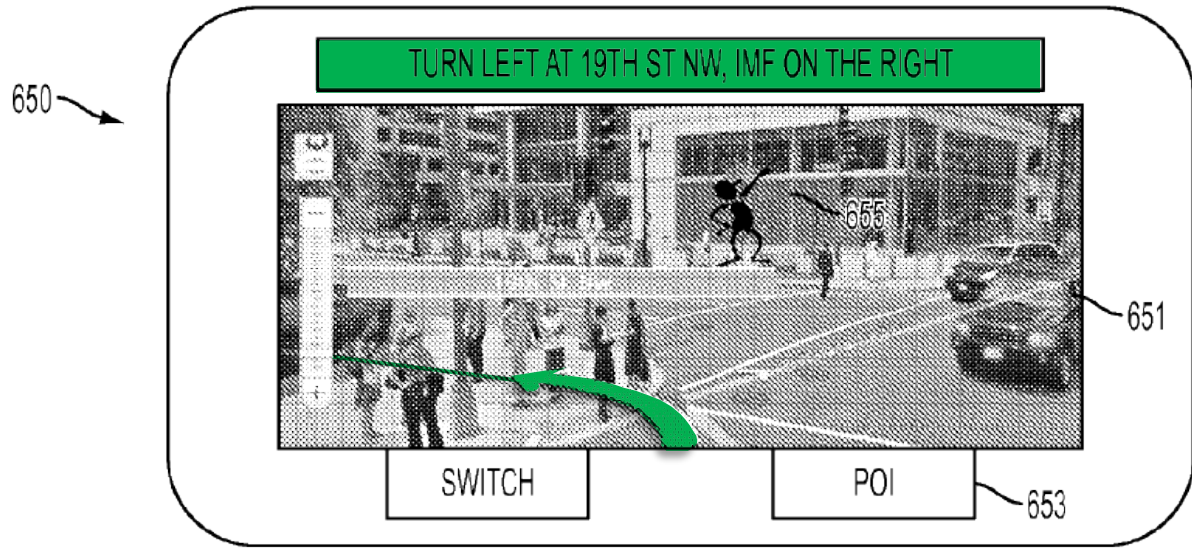


FIG. 6D

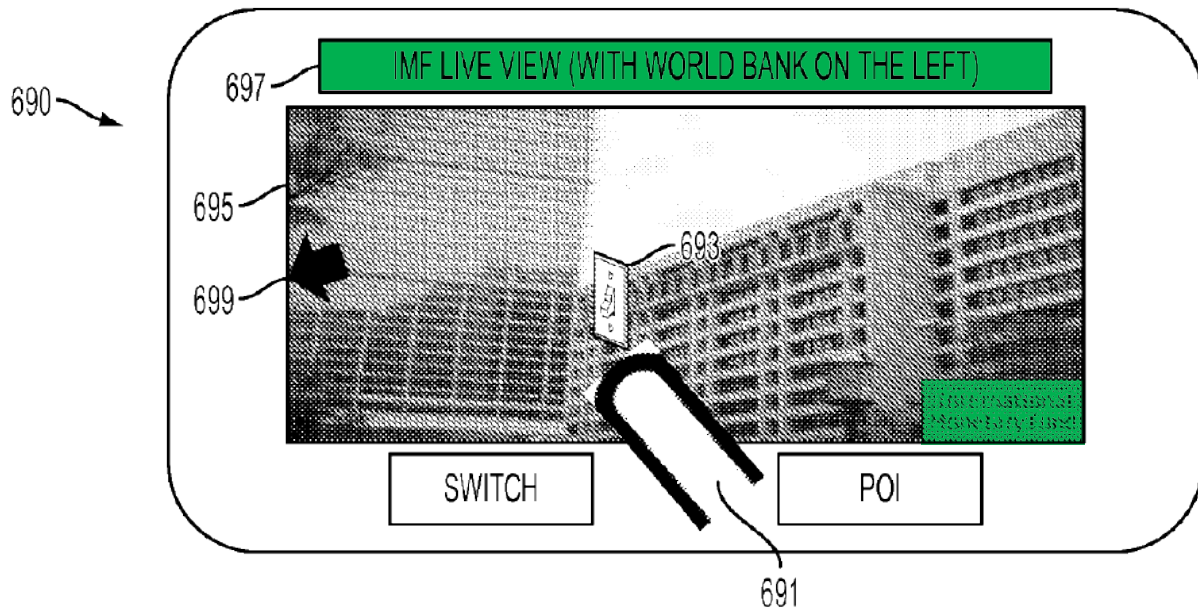


FIG. 6H

Kankainen, FIGS. 6C-6D, 6H.

A POSITA would have found it obvious to update the second indicia indicating the distance to the IMF (first object) based on the UE's movement, for the reasons explained in claim 8, such as to provide the user with real-time information about the remaining travel distance for planning purposes. *Supra* § V.E.1; Williams ¶ 294; Geelen, [0096].

3. [Claim 10]

As explained in claims 1 and 8, the first indicia includes an arrow at a “turning point” that indicates a direction that the user should turn along the navigation route. *Supra* §§ V.D.1, V.E.1; Kankainen, [0075]; Williams ¶¶ 295-296.

4. [Claim 11]

The integrated first indicia (direction bar, superimposed route indicator, or direction arrow/turning points) includes a label because it is superimposed onto the live view and describes how the user should proceed along the route, as explained in claims 1, 8, and 10. *Supra* §§ V.D.1, V.E.1, V.E.3; Kankainen, [0075], Williams ¶¶ 297-298.

F. Ground 5: Kankainen and Ohnishi Render Obvious Claims 12 and 13

1. [Claim 12]

Kankainen and Ohnishi render obvious claim 12. Williams ¶¶ 299-304.

Kankainen further discloses that the user interface can provide “vibrations” (tactile feedback) as part of the “[c]ontent and mapping information,” which

includes the augmented video based on the first object's location, as explained above for claims 1-3, 5-7, and 17. Kankainen, [0065]; *supra* §§ V.D.1-V.D.3, V.D.5-V.D.7, V.D.11. Thus, Kankainen lends itself to simultaneously presenting the live view (video) and tactile feedback. Williams ¶ 300.

Ohnishi discloses a “pedestrian navigation device” for providing tactile feedback simultaneously with visual navigation and advantages thereof as discussed in Ground 2. *Supra* § V.C; Williams ¶ 301.

A POSITA would have found it obvious to generate tactile feedback based on the location of a first object (user's destination) simultaneously with the presentation of the video showing the navigational route of Kankainen based on Ohnishi's teachings. Williams ¶ 302.

a. Motivation

A POSITA would have been motivated to incorporate Ohnishi's tactile feedback simultaneously with the video display into Kankainen's augmented navigation for the reasons discussed for Ground 2. *Supra* § V.C.1.a; Williams ¶ 303.

b. Expected Success

A POSITA would have had a reasonable expectation of success in configuring Kankainen's device to provide Ohnishi's tactile feedback with the video based on the location of the first object, such as a vibration “arrival pattern”

or guide point-based vibration, for the reasons discussed for Ground 2. *Supra* § V.C.1.b; Williams ¶ 304.

2. [Claim 13]

Claim 13 is obvious over Kankainen and Ohnishi. Williams ¶¶ 305-307.

As discussed for claim 12, Kankainen and Ohnishi render obvious providing tactile feedback, such as a “vibration pattern,” based on the movement of the electronic device (e.g., change in detected location), for example, when the device is detected moving towards or arriving at a “guide point” along the route or arriving at “the destination.” *Supra* § V.F.1; Kankainen, [0065]; Ohnishi, [0128]-[0133], [0144]; Williams ¶ 306.

A POSITA would have been motivated to include Ohnishi’s tactile feedback based on the movement of the electronic device simultaneous with the video navigation in Kankainen’s system, as recited in claim 13, for the reasons discussed in claim 12. *Supra* § V.F.1; Williams ¶ 307.

VI. Discretionary Denial Is Not Warranted

A. Discretionary Denial Is Not Warranted Under § 325(d)

The ’215 patent has not been involved in any other proceeding before the Office.

The Examiner did not consider Waldman, Kankainen, or Ohnishi during prosecution. The Examiner identified Geelen US 2012/0185165 as “pertinent to

applicant's disclosure" in an *Ex parte Quayle* action, but did not apply Geelen in a substantive rejection. Ex. 1002, 423-24. The Examiner did not discuss whether Geelen discloses the limitations relied on in claim 8 and its dependents, and never considered the combination of Kankainen and Geelen asserted in this Petition. Therefore, the same or substantially the same prior art or arguments have not been presented to the Office and denial of institution is not warranted under § 325(d).

B. Discretionary Denial Is Not Warranted Under *Fintiv*

Apple Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11, at 5-6 (Mar. 20, 2020) (precedential), and the Office's interim guidelines dated June 21, 2022 ("Guidance Memo"), do not warrant discretionarily denying institution.

Factor 3 favors institution or is neutral because Petitioner acted diligently and the parties have not substantially invested in the parallel proceeding (*Markman* hearing, merits discovery, and final contentions have not occurred). Ex. 1015, 2-4.

Factor 4 is at least neutral. The scheduling order sets October 5, 2023, as the date for final invalidity contentions and February 8, 2024, and May 9, 2024, as deadlines for when the parties will meet and confer to narrow the prior art references asserted in district court. *Id.*, 4-5. As such, any overlap between this

proceeding and the district court trial is speculative because the final contentions have not been determined.¹⁴

Factors 1, 2, and 5 are, at worst, neutral. Patent Owner filed its Complaint on November 23, 2022. Ex. 1017. No stay has been requested, trial is currently scheduled for August 2024 (Ex. 1015, 6), and the median time-to-trial in the Western District of Texas is 29.5 months, so trial is projected to occur, at the earliest, in August 2024.¹⁵ Ex. 1018, 37. A FWD would issue around December 2024, shortly after trial ends. Indeed, the Board has instituted under similar fact patterns. *See NetNut v. Bright Data*, IPR2021-01492, Paper 12 at 9-16 (Mar. 21, 2022) (instituting IPR without stipulation and copending trial date six months before FWD); *Protect Animals with Satellites v. OnPoint Sys.*, IPR2021-01483, Paper 11 at 11-13, 17 (Mar. 4, 2022) (same with trial one month before FWD); Guidance Memo, 8-9.

If the Board finds that factors 1-5 favor denial of institution, the compelling merits should still result in institution. Guidance Memo 3-4; *CommScope Techs. v. Dali Wireless*, IPR2022-01242, Paper 23 at 3 (Feb. 27, 2023) (precedential).

¹⁴ Petitioner reserves the right to submit a stipulation at a later time.

¹⁵ A Motion to Transfer, filed March 13, 2023, is pending and makes uncertain the projected trial date. Ex. 1019.

VII. Mandatory Notices

A. Real Parties-in-Interest Under 37 C.F.R. § 42.8(b)(1)

Google LLC is the real party-in-interest for this Petition.¹⁶

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

To the best of Petitioner's knowledge, the '215 patent is or has been involved in the following district court litigation:

Name	Number	Court	Filed
<i>Rafqa Star, LLC</i> <i>v. Google LLC</i>	6:22-cv-01207	W.D. Tex.	Nov. 18, 2022

Pending U.S. Application Nos. 17/473,788 and 17/938,035 claim priority to the '215 patent.

¹⁶ Google LLC is a subsidiary of XXVI Holdings Inc., a subsidiary of Alphabet Inc. XXVI Holdings Inc. and Alphabet Inc. are not real parties-in-interest here.

C. Lead and Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Lead Counsel	Back-Up Counsel
Erika Harmon Arner (Reg. No. 57,540) erika.arners@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP Two Freedom Square 11955 Freedom Dr. Reston, VA 20190-5675 Tel: 571-203-2700 Fax: 202-408-4400	Kevin D. Rodkey (Reg. No. 65,506) kevin.rodkey@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 271 17th Street, NW Suite 1400 Atlanta, GA 30363-6209 Tel: 404-653-6400 Fax: 202-408-4400 Safiya Aguilar (Reg. No. 77,212) Safiya.aguilar@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 901 New York Avenue, NW Washington, DC 20001-4413 Tel: 202-408-4000 Fax: 202-408-4400

D. Service Information Under 37 C.F.R. § 42.8(b)(4)

Please address correspondence to lead and back-up counsel at the addresses above and Google-Rafqa-IPR@finnegan.com. Petitioner consents to electronic service by e-mail.

VIII. Standing

Petitioner certifies that the '215 patent is available for *inter partes* review and Petitioner is not barred or estopped from requesting *inter partes* review to challenge the claims on the grounds herein.

IX. Conclusion

Petitioner has established a reasonable likelihood of prevailing for the challenged claims and requests the Board institute *inter partes* review and cancel each challenged claim as unpatentable.

Date: June 20, 2023

Respectfully submitted,

/Erika H. Arner/

Erika H. Arner

Lead Counsel

Reg. No. 57,540

CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that the foregoing **Petition for *Inter Partes* Review** contains 13,998 words, excluding those portions identified in 37 C.F.R. § 42.24(a), as measured by the word-processing system used to prepare this paper.

/Erika H. Arner/
Erika H. Arner
Lead Counsel
Reg. No. 57,540

CLAIMS APPENDIX

1. **[1Preamble]** A method, comprising:

 [1a] detecting a movement of a portable electronic device in a first direction, that results from a user walking with the portable electronic device in the first direction;

 [1b] receiving video data captured in a first direction by a video capture device during the movement,

 [1c] where a first object is in a second direction;

 [1d] and presenting a video by a display device of the portable electronic device that is viewable to the user for directing the user in a second direction towards the first object.
2. The method of claim 1 wherein information is integrated with the video, the information for directing an attention of the user to the first object.
3. The method of claim 1 wherein information is integrated with the video, the information for instructing the user to direct an attention to the first object.
4. The method of claim 1 wherein information is integrated with the video, the information indicating a location of the first object.

5. The method of claim 1 wherein information is integrated with the video, the information including directional information indicating directions to the first object.
6. The method of claim 1 wherein indicia is integrated with the video, the indicia including directional information indicating directions to the first object.
7. The method of claim 1 wherein indicia is integrated with the video, the indicia indicating directions to the first object, where a location of the indicia on the display device of the portable electronic device is based on a relative position between the first object and the portable electronic device.
8. The method of claim 1 wherein first indicia and second indicia are integrated with the video, the first indicia indicating directions to the first object, the second indicia indicating a distance to the first object.
9. The method of claim 8 wherein the first indicia and the second indicia are updated based on the movement of the device.

10. The method of claim 8 wherein the first indicia includes a direction indicator.
11. The method of claim 8 wherein the first indicia includes a label.
12. The method of claim 1 wherein tactile feedback is output simultaneously with the presentation the video, the tactile feedback being output based on a location of the first object.
13. The method of claim 1 wherein tactile feedback is output simultaneously with the presentation the video, the tactile feedback being output based on a movement of the portable electronic device.
14. The method of claim 1 wherein the video includes data reflecting a video capture of surroundings of the first object.
15. The method of claim 1 wherein the first object includes a location.

16. The method of claim 1 and further comprising:
 - detecting a change in the movement of the portable electronic device;
 - in response to detecting the change in the movement of the portable device,
 - updating the presentation of the video by the display device of the portable electronic device.
17. The method of claim 1 wherein the video is conditionally presented by the display device of the portable electronic device, based on a detected position of the portable electronic device.
18. **[18Preamble]** A portable electronic device, comprising:
 - [18a]** a display device;
 - [18b]** an input device;
 - [18c]** at least one non-transitory memory storing instructions;
 - [18d]** and one or more processors in communication with the display device, the input device, and the at least one non-transitory memory,
 - [18e]** wherein the one or more processors execute the instructions to cause the portable electronic device to:

[18f] detect a movement of the portable electronic device in a first direction, that results from a user walking with the portable electronic device in the first direction;

[18g] receive video data captured in a first direction by a video capture device during the movement,

[18h] where a first object is in a second direction;

[18i] and present a video by the display device of the portable electronic device that is viewable to the user for directing the user in a second direction towards the first object.

19. [19Preamble] A non-transitory computer-readable media storing computer instructions that, when executed by one or more processors of a portable electronic device, cause the portable electronic device to:

[19a] detect movement of the portable electronic device in a first direction, that results from a user walking with the portable electronic device in the first direction;

[19b] receive video data captured in a first direction by a video capture device during the movement,

[19c] where a first object is in a second direction;

[19d] and present a video by a display device of the portable electronic device that is viewable to the user for directing the user in a second direction towards the first object.

20. The method of claim 1 wherein the user is directed in the second direction towards the first object which is not initially presented in the video, so that the user is directed to walk in the second direction for directing an attention of the user to the first object.
21. **[21 preamble]** The method of claim 1 and further comprising:
 - [21a]** detecting additional movement of the portable electronic device in the second direction, that results from the user walking with the portable electronic device in the second direction;
 - [21b]** receiving additional video data, that includes the first object, captured by the video capture device during the additional movement of the portable electronic device in the second direction;
 - [21c]** and utilizing the additional video data, presenting additional video by the display device of the portable electronic device that is viewable to the user for directing an attention of the user in connection with the first object that is presented in the additional video.

22. The method of claim 1 wherein information is integrated with the video, the information being received via a data store including location information for objects with fixed locations.

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing **Petition for *Inter Partes* Review** was served on June 20, 2023, by Priority Mail Express or by means at least as fast and reliable as Priority Mail Express, at the following address of record for the subject patent. The associated **Exhibits 1001 through 1015 and 1017 through 1019** and the **Power of Attorney** were also served on June 20, 2023.

PATRICK CALDWELL
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A courtesy copy of this Petition, corresponding exhibits, and Power of Attorney were served on Patent Owner's litigation counsel:

Derek Dahlgren
Devlin Law Firm
1526 Gilpin Avenue
Wilmington, Delaware 19806

Date: June 20, 2023

/Daniel E. Doku/
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