

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Samsung ELECTRONICS CO., LTD., , and
SAMSUNG ELECTRONICS AMERICA, INC.,

Petitioners

v.

HERMES IP MANAGEMENT LLC,

Patent Owner

Case IPR2025-00953

U.S. Patent No. 9,613,060

Petition for *Inter Partes* Review of

U.S. Patent No. 9,613,060

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PETITIONERS' EXHIBIT LIST

Exhibit No.	DESCRIPTION
1001	U.S. Patent No. 9,613,060 (“’060Pat”)
1002	Declaration of Dr. William R. Michalson
1003	Curriculum Vitae of Dr. William R. Michalson
1004	File History of U.S. Patent No. 9,613,060 (Application No. 11/911,879) (“’060FH”)
1005	U.S. Patent Publication No. 2007/0195373 (“Singh”)
1006	U.S. Patent No. 6,462,778 (“Abram”)
1007	Japanese Patent Application Publication No. 2004-234562 (“Odashima”) (with certified translation)
1008	U.S. Patent No. 6,995,792 (“Ogura”)
1009	U.S. Patent No. 6,810,323 (“Bullock”)
1010	U.S. Patent No. 7,480,567 (“Suomela”)
1011	U.S. Patent Publication No. 2004/0114042 (“Paolini”)
1012	U.S. Patent No. 7,751,825 (“Gogic”)
1013	Decision on Appeal of Application No. 11/911,879 issued March 22, 2016 (excerpted from EX1004, 326-337)
1014	U.S. Patent Publication No. 2003/0147563 (“Liu”)
1015	U.S. Patent Publication No. 2005/0060299 (“Filley”)
1016	U.S. Patent Publication No. 2004/0092250 (“Valloppilli”)
1017	Y. Asakura and T. Iryo, <i>Tracking Individual Travel Behavior Using Mobile Phone</i> , International Journal of Urban Sciences 8(2), 121-130 (2004) (“Asakura”)

Exhibit No.	DESCRIPTION
1018	T. Takasaki, <i>et al.</i> , <i>Wild animal tracking by PHS (Personal Handy phone System)</i> , Human Friendly Mechatronics, ICMA 2000, 43-48 (2001) (“ <i>Takasaki</i> ”)
1019	U.S. Patent Publication No. 2006/0140448 (“ <i>Fujii</i> ”)

LISTING OF CHALLENGED CLAIMS

Claim 1	
[1pre]	A location-based service method using image data provided by a terminal equipped with a camera, and using location data that includes location information of the terminal, comprising:
[1a]	generating first image data with the terminal at a predetermined location;
[1b]	receiving location data of the predetermined location;
[1c]	prompting a user to choose whether or not to insert the received location data into the first image data to generate a second image data and, when the user chooses to do so, inserting the received location data into the first image data to generate a second image data;
[1d]	transmitting the second image data, the second image data including the first image data and the location data, to another terminal;
[1e]	receiving, at the another terminal, a selection input for an image corresponding to the second image data, from the user;
[1f]	displaying, at the another terminal, an image corresponding to the first image data, and a menu inquiring about whether to select a location-based service;
[1g]	receiving, at the another terminal, via the displayed menu, a selection input for the location-based service, from the user;
[1h]	receiving, at the another terminal, location-based service data corresponding to the location data of the selected second image data; and
[1i]	providing the location-based service to the another terminal by using the received location-based service data.

Claim 3	
[3]	The location-based service method according to claim 1, wherein the map includes at least one of geographical information, traffic information, administrative district information, and information including the latitude and the longitude of the location data.

Claim 4	
[4pre]	The location-based service method according to claim 1
[4a]	wherein the location-based service is a guiding service,
[4b]	wherein the receiving the selection input comprises transmitting a service request signal and the location data to a navigation system;
[4c]	wherein the navigation system provides a navigation data corresponding to the location data, as the location-based service data, and
[4d]	wherein the providing the location-based service comprises providing the guiding service by means of a navigator of the another terminal, which is displayed on a display section of the another terminal.

Claim 6	
[6]	The location-based service method according to claim 4, wherein the navigation data comprises at least one of the information including the shortest route corresponding to the location data, traffic information and turnaround time.

Claim 7	
[7]	The location-based service method according to claim 1, wherein the location data are provided by a location data providing system.

Claim 8	
[8]	The location-based service method according to claim 7, wherein the location data providing system is configured to provide the location data of the terminal using a Cell Positioning System (CPS).

Claim 9	
[9]	The location-based service method according to claim 7, wherein the location data providing system is configured to provide the location data of the terminal using a Global Positioning System (GPS).

Claim 10	
[10]	The location-based service method according to claim 1, wherein the location data includes information on latitude and longitude of the terminal or base station.

Claim 11	
[11]	The location-based service method according to claim 1, wherein the terminal equipped with the camera includes a camera phone or a digital camera.

Claim 12	
[12]	The location-based service method according to claim 11, wherein the digital camera includes a module for receiving the location data.

Claim 13	
[13pre]	A location-based service method using image data provided by a terminal equipped with a camera, and using location data that includes location information of the terminal, comprising:
[13a]	generating first image data with the terminal at a predetermined location;
[13b]	receiving location data of the predetermined location;
[13c]	prompting a user to choose whether or not to insert the received location data into the first image data to generate a second image data and, when the user chooses to do so, inserting the received location data into the first image data to generate a second image data;
[13d]	transmitting the second image data, the second image data including the first image data and the location data, to another terminal;
[13e]	receiving, at the another terminal, a selection input for an image corresponding to the second image data, from the user;
[13f]	displaying, at the another terminal, an image corresponding to the first image data, and a menu inquiring about whether to select a location-based service;
[13g]	receiving, at the another terminal, via the displayed menu, a selection input for the location-based service, from the user;
[13h]	receiving, at the another terminal, location-based service data corresponding to the location data of the selected second image data; and

Claim 13	
[13i]	providing the location-based service to the another terminal by using the received location-based service data.

Claim 14	
[14pre]	The location-based service method according to claim 13,
[14a]	wherein the location-based service is a guiding service, and
[14b]	wherein the receiving the selection input comprises transmitting a service request signal and the location data to a navigation system,
[14c]	wherein the navigation system provides a navigation data corresponding to the location data, as the location-based service data, and
[14d]	wherein the providing the location-based service comprises providing the guiding service by means of a navigator of the another terminal, which is displayed on a display section of the another terminal.

I. INTRODUCTION

Petitioners request *inter partes* review (“IPR”) of claims 1, 3, 4, 6-14 of Patent No. 9,613,060 (“’060Pat”). The ’060Pat is directed to a purported improvement to conventional camera phones. In particular, the ’060Pat discloses a method and system for providing location-based services using photos taken by a camera phones. For example, the ’060Pat discloses displaying a map with the photo placed at a location corresponding to the location information contained in the photo. These purported improvements were already known in the art. As detailed below, prior to the ’060Pat’s earliest possible priority date, camera phones with location-finding capabilities were known, and it was already known to integrate location-based services into the photo capturing and sharing functions of such phones.

Petitioners respectfully request *inter partes* review and cancellation of claims 1, 3, 4, 6-14.

II. GROUNDS FOR STANDING

Petitioners certify that the ’060Pat is available for IPR, and that Petitioners are not barred or estopped from requesting IPR. Petitioners file this Petition within one year of service of Patent Owner’s (“PO”) district court complaint.

III. STATEMENT OF PRECISE RELIEF REQUESTED FOR EACH CLAIM CHALLENGED

Petitioners respectfully request review and cancellation under 35 U.S.C.

§311:¹

Ground	Claims	Basis ²
1A	1, 4, 7-14	§103: <i>Singh-Abram-Odashima</i>
1B	1, 4, 7-14	§103: <i>Singh-Abram-Ogura-Odashima</i>
1C	1, 4, 7-14	§103: <i>Singh-Abram-Odashima-Bullock</i>
1D	1, 4, 7-14	§103: <i>Singh-Abram-Ogura-Odashima-Bullock</i>
2A	3, 6	§103: <i>Singh-Abram-Odashima-Suomela</i>
2B	3, 6	§103: <i>Singh-Abram-Ogura-Odashima-Suomela</i>
2C	3, 6	§103: <i>Singh-Abram-Odashima-Bullock-Suomela</i>
2D	3, 6	§103: <i>Singh-Abram-Ogura-Odashima-Bullock-Suomela</i>

Each reference pre-dates the earliest priority date to which the Challenged Claims may be entitled (no earlier than 04/19/2005):

¹ Petitioners do not concede that any Challenged Claims satisfy requirements for patentability that cannot be raised in IPR.

² Petitioners' obviousness grounds do not require the bodily incorporation of components from one reference into another, but instead are directed to the application of the teachings of one reference to another.

Reference	Date	Pre-AIA Art At Least Under
US 2007/0195373 (“ <i>Singh</i> ”) (EX1005)	10/08/2004 (filed) 08/23/2007 (published)	§102(e)
US6462778 (“ <i>Abram</i> ”) (EX1006)	10/08/2002 (patented)	§102(b)
JP2004-234562 (“ <i>Odashima</i> ”) (EX1007)	01/31/2003 (filed) 08/19/2004 (published)	§102(a)
US6995792 (“ <i>Ogura</i> ”) (EX1008)	09/20/2000 (filed) 02/07/2006 (patented)	§102(e)
US6810323 (“ <i>Bullock</i> ”) (EX1009)	09/25/2000 (filed) 10/26/2004(patented)	§102(a)/(e)
US7480567 (“ <i>Suomela</i> ”) (EX1010)	09/24/2004 (filed) 01/20/2009 (published)	§102(e)

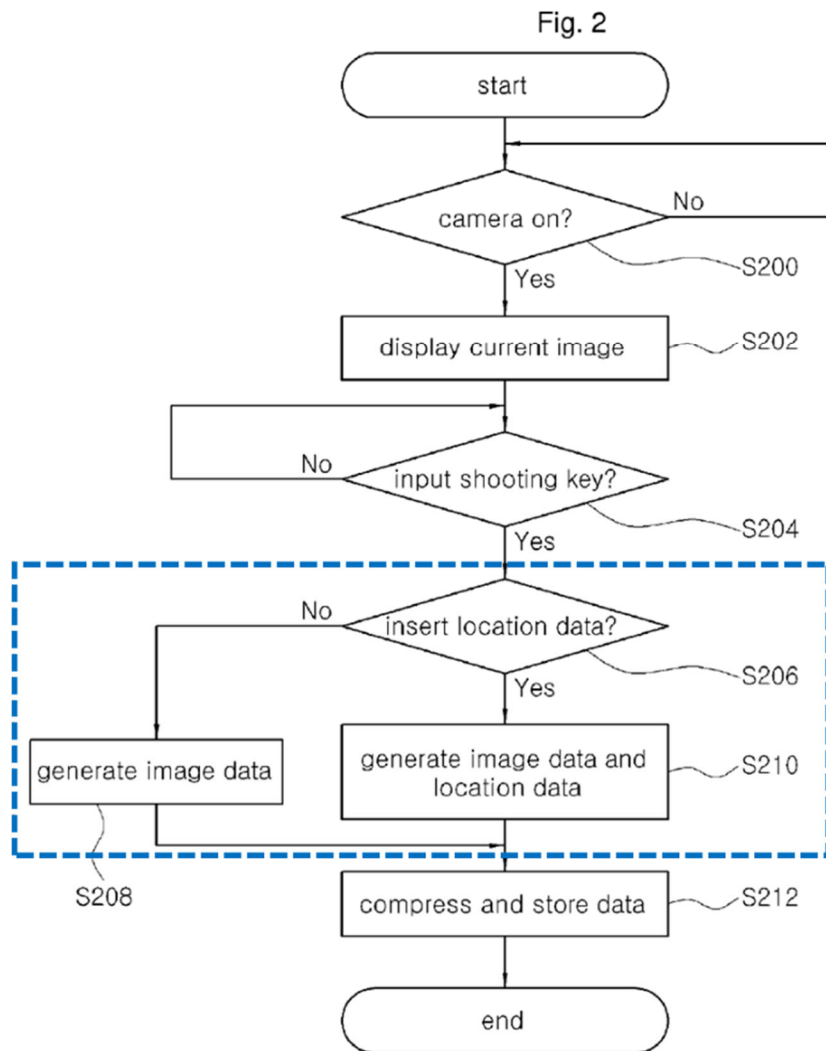
IV. OVERVIEW OF THE '060 PATENT

The *'060Pat* discloses a system that provides “various services using photos taken by a camera phone [] including location information at the shooting time, with the photos taken by the camera phone.” *'060Pat*, 1:16-20. The *'060Pat* states that conventional camera phones were “limited to play a role of showing a user the image information or showing others only the shot photo” because the photos only contain image data. *Id.* 1:38-42. The *'060Pat* also teaches a method of inserting and storing location information at the shooting time on the photo shot by a terminal equipped with a camera. *Id.*, 1:57-62. Using this location information, the *'060Pat* discloses “showing the user the shot location by map” and “guiding the user to the location

when the user or others view the shot photo through the terminal.” *Id.*, 1:48-56, 1:63-2:3. *Michalson*, ¶¶ 32-36.

The ’060*Pat* discloses that after the user shoots a picture, “a menu inquiring about whether to insert the location data is displayed.” ’060*Pat*, 4:20-26 (S206). “If the user chooses to insert the location data, the location data processing section inserts the location data into the shot first image data and generates second image data (S210).” *Id.*, 4:26-29, FIG. 2 (encircled in dashed blue).³ The terminal then transmits the second image data. *Id.*, 4:29-39, FIG. 2; *Michalson*, ¶37.

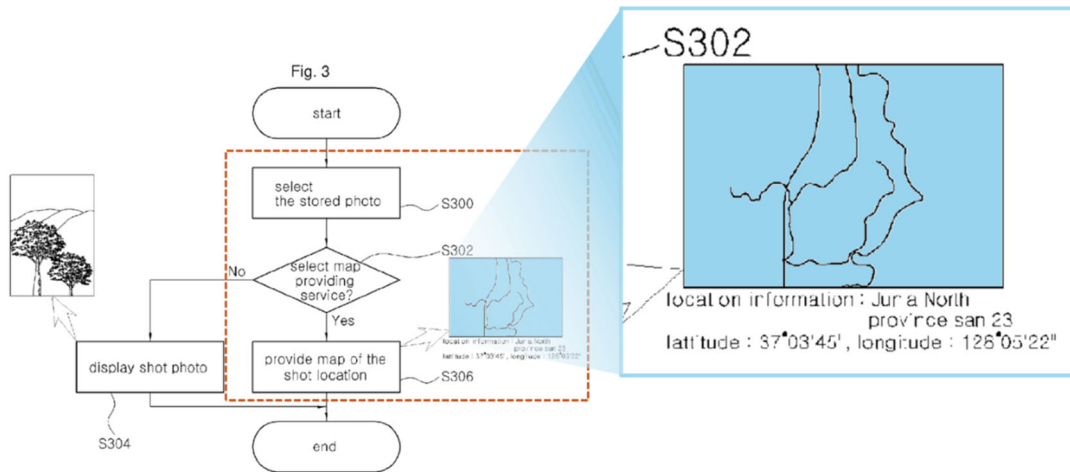
³ All emphases/color/annotations added unless noted otherwise.



'060Pat, FIG. 2 (annotated)

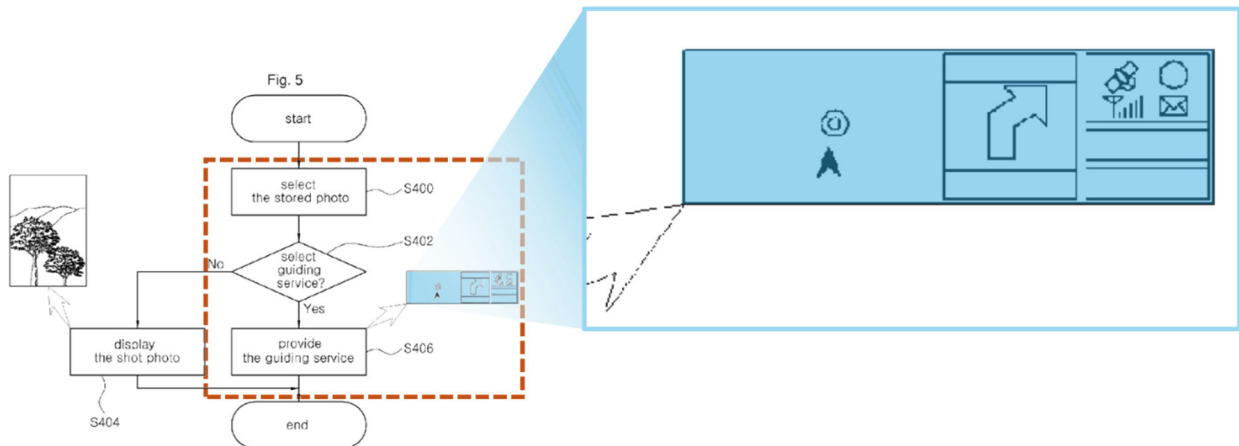
The '060Pat further discloses “providing a map of the shot location to the user.” '060Pat, 2:42-46. A user selects the photo, which includes the first image data and the location data, and if the user selects the map providing service, “the map of the shot location is provided” by a map data providing server. *Id.*, 4:44-60 (describing S306 FIG. 3). '060Pat discloses the **map (light blue)** can include traffic information and geographic information of the shot location. *Id.*, 4:57-60.

Michalson, ¶38.



'060Pat, FIG. 3 (excerpted and annotated)

The '060Pat also discloses providing a **guiding service (light blue)**. '060Pat, 2:52-56. The user selects a photo and selects a **guiding service**. *Id.*, 5:20-34 (describing FIG. 5). The **guiding service** provides navigation data guiding the user to the location included in the photo. *Id.* 5:27-34. Michalson, ¶39.

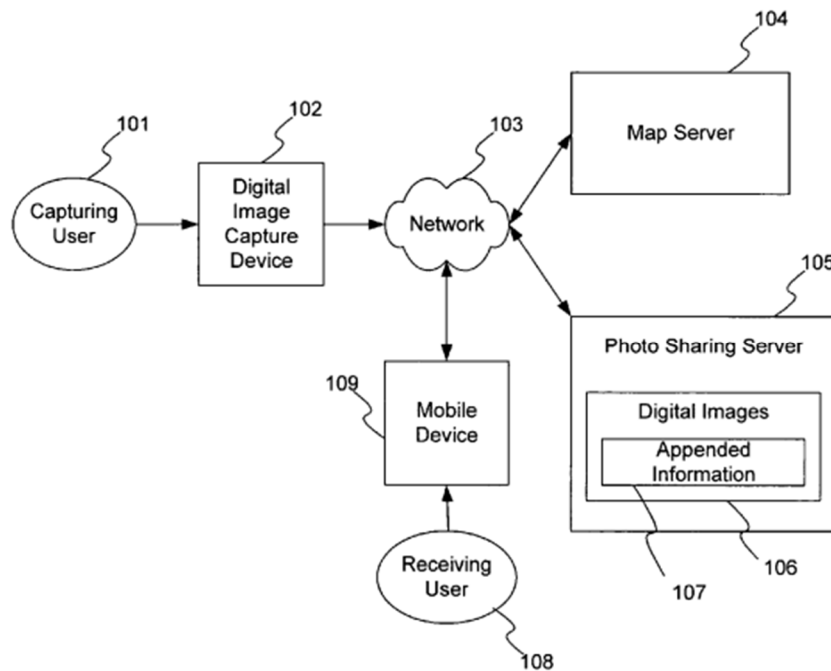


'060Pat, FIG. 5 (excerpted and annotated)

V. OVERVIEW OF *SINGH, ABRAM, AND ODASHIMA*

Singh is titled “[m]ethod for providing recommendations using image, location data, and annotations” and relates to “providing information with digital images” including “a geographic position of the subject and other information associated with generating a path to the subject.” *Singh*, [0005]. *Singh* explains that existing digital image capture devices that receive images with location coordinates are “not able to actively interface with the user based on this appended information.” *Id.*, [0003]. With increasing use of digital images, *Singh* explains there exists a need to “append information to digital images that allow a digital image capture device to more actively and meaningfully interface with a recipient of the images.” *Id.*, [0004]. *Michalson*, ¶¶47-49.

Singh discloses “a method for providing information with digital images in the sharing of digital images.” *Singh*, [0014]. In Figure 1, *Singh* depicts digital image capture device 102 and mobile device 109, both of which may be “a digital camera, a camera phone, a personal digital assistant including an image capture subsystem, etc.” *Id.*, [0015], [0016]. *Michalson*, ¶50.



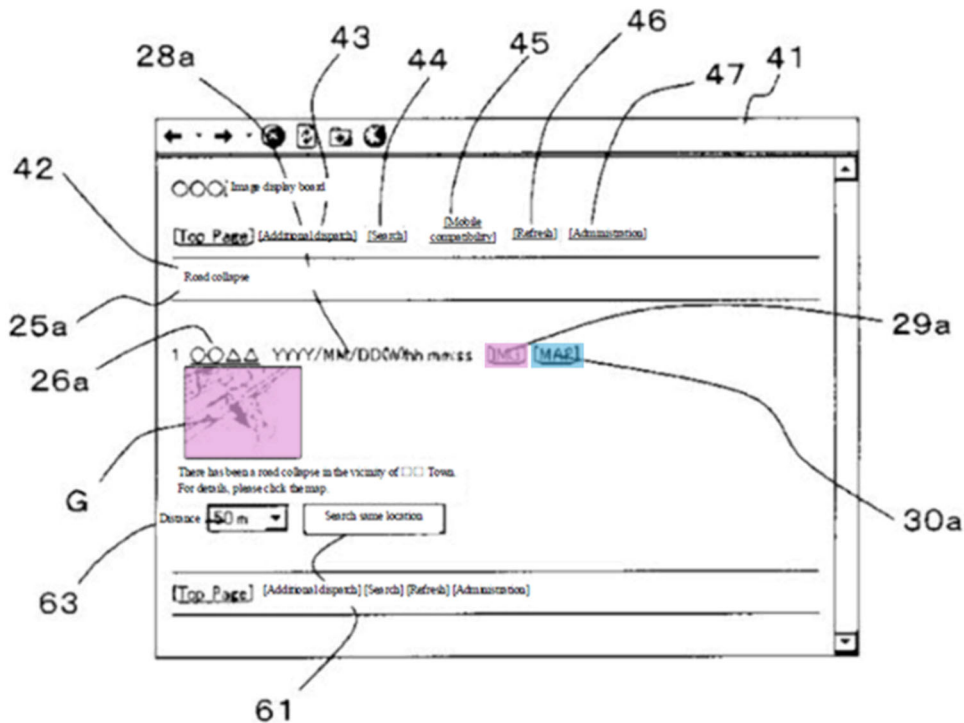
Singh, FIG. 1

The capturing user 101 “captures images of various subjects.” *Singh*, [0015], [0017] (“a digital image of the subject is received”), [0018] (“the capturing user 101 captures a digital image of a subject”). The digital images 106 include appended metadata including “the geographical coordinates and/or altitude of the subject” provided by a GPS unit in the device 102.” *Id.*, [0015], [0017]. A photo sharing server 105 receives these digital images 106 with geographical coordinates. *Id.* The capturing user 101 may also share images 106 “directly between users.” *Id.*, [0017], [0020]. Upon receiving the digital images 106 (steps 401, 501), the receiving user may select one or more of the digital images and “request paths to their locations” (step 402, 502). *Id.*, [0024]-[0027]. *Michalson*, ¶¶51-52.

Abram is similar to *Singh* and discloses a method for “labeling digital image data” acquired by a digital imaging device. *Abram*, 1:56-61. As background, *Abram* describes various shortcomings in how conventional digital cameras store image data files. *Id.*, 1:9-53. One such shortcoming is that conventional devices may automatically name files with non-descriptive or non-meaningful information such as a consecutive alphanumeric filename. *Id.*, 1:9-21, 1:31-44. *Michalson*, ¶¶53-54. Another shortcoming is that conventional devices require the user to manually enter the file name. *Id.*, 1:22-30. *Abram* therefore teaches giving the user a choice about the descriptive information to associate with image files via a menu. *Abram*, 1:49-63, 1:67-2:5. *Abram* teaches that “[t]he geographic coordinates, place name, or other descriptive term may be used.” *Id.*, 2:60-63, 6:20-56. *Michalson*, ¶¶55-56.

Odashima is also similar to *Singh* and relates to “an information distribution system that integrates image data” and “location data pertaining to the image data” so that the location of the image data can be reflected on a map. *Odashima*, [0001], [0008]. *Michalson*, ¶57. *Odashima* discloses a system with transmission terminals, a server, and receiving terminals. *Odashima*, [0020]. *Michalson*, ¶58. The transmission terminals, some of which may be mobile phones, capture and transmit image data and location data to the server. *Odashima*, [0020]-[0021]. The transmission terminals capture image data with a digital camera and acquire location data using GPS or other techniques involving cell ID, triangulation systems, or

hybrid systems. *Id.*, [0021]. *Michalson*, ¶59. The server integrates the image data and location data and delivers it to the receiving terminals. *Odashima*, [0020]. In particular, *Odashima*'s server generates list screen 21 which includes **image data G** (annotated in pink) and **map button 30a** (annotated in light blue). *Id.*, [0027]-[0028], FIG. 4. *Odashima*'s server also generates detailed display screen 41 which also includes **image data G** and **map button 30a**. *Id.*, [0030]-[0031], FIG. 5; *Michalson*, ¶60.



Odashima, FIG. 5 (annotated)

VI. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art at the time of the alleged invention (POSITA), which for purposes of this proceeding is no earlier than 04/19/2005,

would have had a B.S. in electrical engineering, computer science, or a similar field and two years of experience in the design of location-based systems. POSITAs could have also obtained similar knowledge and experience through other means. *Michalson*, ¶¶15-17.

VII. CLAIM CONSTRUCTION

The claims should be given their plain and ordinary meaning. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *Michalson*, ¶61.

VIII. DETAILED EXPLANATION OF GROUNDS

A. Ground 1A: *Singh-Abram-Odashima* Renders Claims 1, 4, 7-14 Obvious

1. Claims 1, 13⁴

- a. [1pre] , [13pre] A location-based service method using image data provided by a terminal equipped with a camera, and using location data that includes location information of the terminal, comprising:

To the extent the preamble is limiting, *Singh* teaches this feature.⁵ *Michalson*,

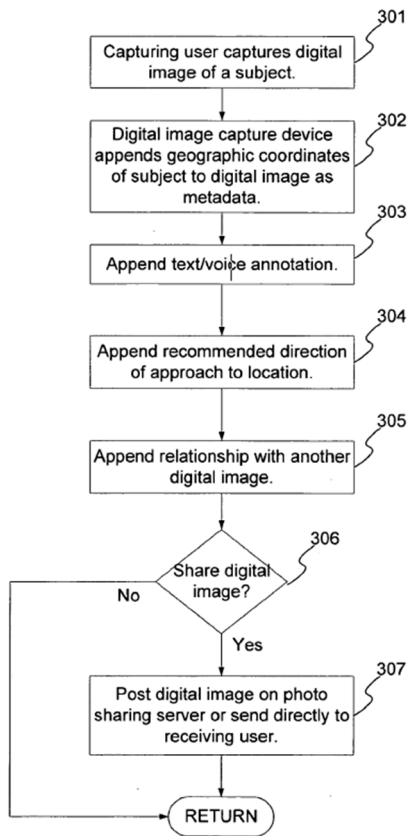
⁴ Claims 1 and 13 are identical, so Petitioners treat them together in this analysis.

⁵ Petitioners use the term “teaches” as including both express teachings or those fairly suggested to a POSITA. *In re Baird*, 16 F.3d 380, 383 (Fed. Cir. 1994 1979); *In re Keller*, 642 F.2d 413, 425 (CCPA, 1981) (“The test for obviousness is ... what

¶¶62-72.

As context, *Singh* discloses a system in Figure 1 and various methods carried out with or by that system with reference to Figures 2-8. Petitioners' analysis below focuses on the overall method collectively disclosed in *Singh*'s description related to Figures 3, 5, 6. *Singh* discloses with reference to Figure 3 a method whereby a capturing user with an image capture device "captures a digital image of a subject" (step 301), appends metadata to the image including "the location of the subject" (step 302), and sends the image, either to a photo sharing server or to the mobile device of a receiving user (step 307). *Singh*, [0018], [0020], FIG. 3. *Michalson*, ¶¶63.

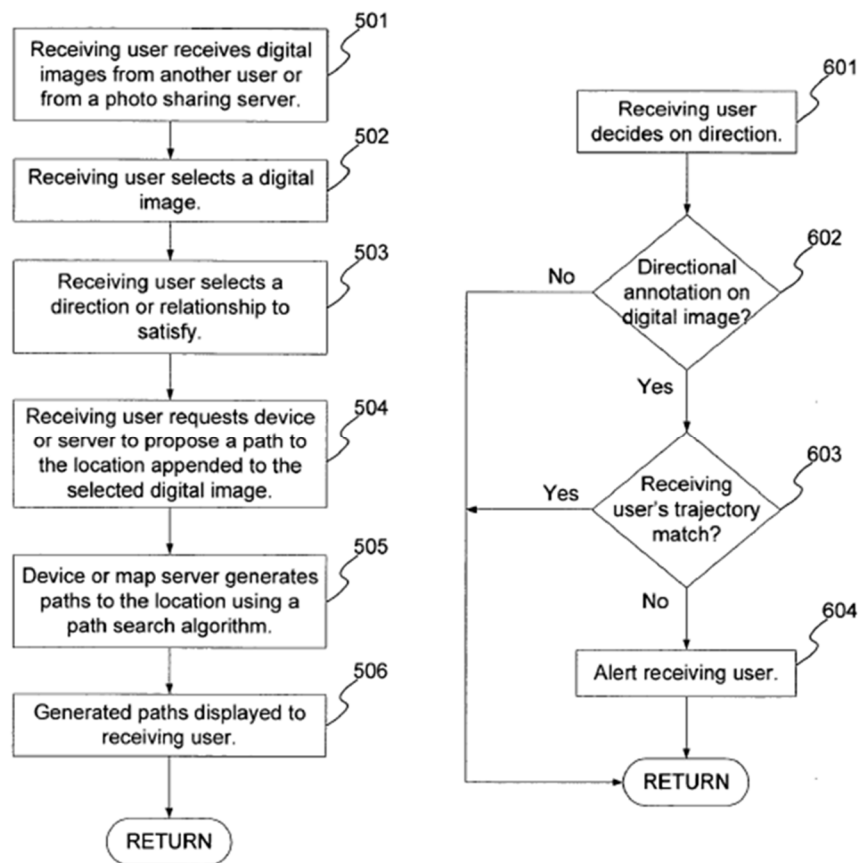
the combined teachings of the references would have suggested to those of ordinary skill in the art." (citations omitted)).



Singh, FIG. 3

With reference to Figure 5, *Singh* discloses a method by which a receiving user's mobile device receives the digital image either from the photo sharing server or directly from the capturing user (step 501), selects a digital image (step 502), requests the map server generate paths using a path search algorithm (step 505), and displays the generated paths to the receiver user's mobile device (step 506). *Singh*, [0010], [0025]-[0026]. And with reference to Figure 6, *Singh* discloses a method including a step for comparing the user's trajectory along the path to a directional annotation in the image (step 603), and alerting the receiving user if it does not match

(step 604). *Id.*, [0029]. *Michalson*, ¶¶64-65.



Singh, FIGs. 5, 6

A POSITA would have understood *Singh* to disclose that the methods in Figures 3, 5, 6 are related to each other and could be carried out contiguously, such that, collectively, *Singh* discloses a method involving various steps related to capturing, transmitting, and receiving images followed by requesting and receiving a path, and then receiving alerts related to that path. *Michalson*, ¶¶66. The method includes steps for generating a path to a position included as metadata to an image, downloading the path to a mobile device, and providing related informational

messages, prompts, or alerts. *Singh*, [0017]-[0018], [0024], [0027], FIGs. 3-6 (steps 504-506, 604). A POSITA would have understood that these steps constitute a “location-based service” because they provide a service to the user based on location information (e.g., the location of the subject of the image or the location of the receiving terminal). *Michalson*, ¶66.

Singh teaches that, as part of the overall method, device 102, “such as a digital camera, camera phone, or a personal digital assistant with an image capture subsystem,” captures the “digital image of a subject.” *Singh*, [0015], [0018], FIG. 3 (step 301). *Michalson*, ¶67. A POSITA would have understood a “digital image” to comprise “image data” because a digital image comprises digital data representing the image. *Michalson*, ¶68.

A POSITA would have understood “a digital camera, camera phone, or a personal digital assistant with an image capture subsystem” to encompass a “terminal equipped with a camera.” *'060Pat*, 2:15-16 (“the terminal comprises a camera phone or a digital camera.”). *Michalson*, ¶68.

Singh teaches that the position of the subject or place where the image was captured is included in the image as metadata, and that the position (e.g., geographical coordinates) is provided by a GPS unit in the device. *Singh*, [0015] (“The digital images 106 include information 107 appended to them as metadata. The information 107 includes location data and user specified annotations. The

location data can include the geographical coordinates and/or altitude of the subject that can be provided by global positioning system (GPS) unit (not shown) included in the device 102.”), [0021], FIG. 2 (step 202). *Singh* further teaches that the path is generated to that position. *Id.*, [0024] (“[T]he path to the subject from the source location is generated based on the geographic position of the source location and the metadata included with the digital image, via step 404.”). *Michalson*, ¶¶69-70.

A POSITA would have understood that the position of the subject or place where the image was taken is “location data that includes location information of the terminal” because a POSITA would have understood that when the image is captured, the device 102 (e.g., camera phone) is in the same location as the subject of the image or place where the image is taken, and the GPS unit from which the coordinates are derived is included in the device 102. *Michalson*, ¶71. Stated differently, a POSITA would have understood that, in the context of *Singh*’s disclosure, the position of the subject or place where the image was taken is the same as the position of the camera phone that captured the image. *Id.*

Accordingly, a POSITA would have understood that *Singh* teaches a method including steps for generating a path to the subject or place of the image and providing alerts related to the path (“a location-based service method”) wherein the image is captured by a capturing device such as a camera phone (“using image data provided by a terminal equipped with a camera”) and the position included in the

image is the position of the subject or place where the image was captured provided by a GPS unit included in the capturing device (“using location data that includes location information of the terminal”). *Id.*, ¶72.

b. [1a], [13a] generating first image data with the terminal at a predetermined location;

Singh teaches this feature. *Michalson*, ¶¶73-79.

Singh discloses that, using capture device (e.g., a camera phone), “capturing user 101 captures a digital image of a subject.” *Singh*, [0018], FIG. 3 (step 301). For example, “[a]s the user 101 passes an interesting place, he notices a particularly exciting scene. He takes an image of this scene with the digital image capture device 102.” *Id.*, [0021]. A POSITA would have understood that capturing a digital image of a subject generates “image data,” e.g., digitized image sensor data and/or an image file. *Michalson* ¶75 (citing *Ogura*, 7:52-57, *Fujii*, [0043], [0052]-[0055], *Ueno*, [0006], [0029], FIG. 2).⁶ This is consistent with how the ’060*Pat* describes

⁶ *Ogura* is only being cited for this limitation as evidence of the knowledge of a POSITA. To the extent that EX1011, EX1012, and EX1014-1019 are cited in this Petition, it is merely to demonstrate a POSITA’s knowledge and/or as evidence that a POSITA would have been motivated to make the combinations in the manner discussed in this Petition. These exhibits are not part of the unpatentability grounds.

“generating first image data.” *'060Pat*, 4:17-26. *Michalson*, ¶76.

A POSITA would have further understood *Singh* to teach capturing the image at a “predetermined location” because *Singh* discloses that a user may “notice[] a particularly exciting scene” and then “take[] an image of this scene.” *Singh*, [0021]. *Michalson*, ¶77. That is, a POSITA would have understood that the user captures the image at a location the user determined, or noticed, before capturing the image, i.e., a “predetermined location.” *Michalson*, ¶78. Neither the claims nor the specification of the *'060Pat* place any limitations on how the location must be “predetermined.” *Id.* This interpretation is also consistent with how the Patent Office interpreted this limitation during prosecution. *Id.* (citing *EX1013*, 7 (“As for the ‘at a predetermined location’ limitation, the image is taken at a location and, thus, generated ‘at a predetermined location,’ as broadly as recited.”)). The applicant did not dispute this interpretation. *E.g.*, *EX1004*, 344-345 (applicant arguing limitations other than the predetermined location limitation after Board decision), 395-396 (applicant arguing limitations other than the predetermined location before Notice of Allowance). *Michalson*, ¶78.

Accordingly, *Singh* teaches capturing a digital image with the capturing device (e.g., camera phone) (“generating first image data with the terminal”) at a location that the capturing user noticed before capturing the image (“at a predetermined location”). *Michalson*, ¶79.

c. [1b], [13b] receiving location data of the predetermined location;

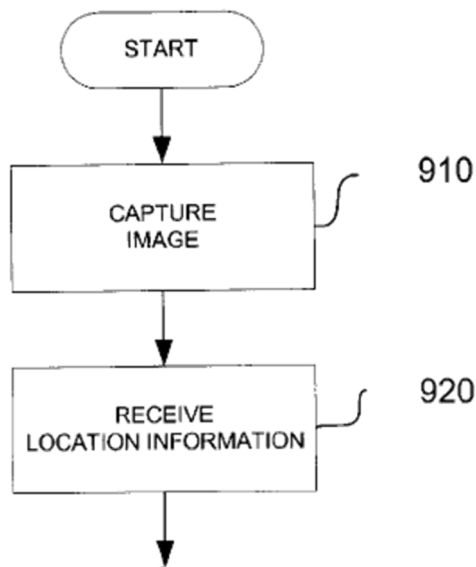
Singh in combination with *Abram* teaches this feature. *Michalson*, ¶¶80-90.

Singh discloses capturing an image and then appending geographic position (e.g., geographic coordinates provided by the GPS unit) of the subject or place to the image. *Singh*, [0017]-[0018], [0021] (“The device 102 automatically records the geographical coordinates of the place using, for example, the GPS unit described above. The device 102 can then append the geographical coordinates to the image.”); FIG. 3 (step 302). *Michalson*, ¶81.

A POSITA would have understood that to append the geographic coordinates to the image as *Singh* discloses, the capturing device 102 previously received the geographical coordinates from the GPS unit because the GPS unit would need to provide the coordinates before the device can append them to the image. *Michalson*, ¶82. Receiving geographic coordinates is consistent with how the ’060Pat describes “receiving location data.” ’060Pat, 3:38-43. *Michalson*, ¶82.

Singh does not expressly disclose that the capturing device receives the geographic coordinates after the user captures the image, i.e., after “generating first image data with the terminal at a predetermined location.” Nevertheless, a POSITA would have considered this feature obvious in view of *Singh* in combination with *Abram*. *Michalson*, ¶83.

Abram is similar to *Singh* and discloses a “process of associating descriptive data obtained from [a] location determination device with a digital image file.” *Abram*, 4:4-6. *Abram* discloses a digital camera 100 with a location determination unit 375 (e.g., a GPS receiver). *Id.*, 3:39-46. *Abram* expressly discloses that the digital camera 100 “acquires an image (stage 910)” before it “receives location information from a location determination device, such as a GPS (stage 920).” *Id.*, 6:20-28, FIG. 9 (stages 920). *Michalson*, ¶¶84-85. “The location information received may be, for example, longitudinal and latitudinal coordinates of the location of the camera when the image was acquired.” *Abram*, 6:23-26.



Abram, FIG. 9 (excerpted)

A POSITA would have understood that, when implementing *Singh*’s teachings, there were a finite number of options for when to receive the GPS

coordinates from *Singh*'s GPS unit relative to capturing the image — before or after capturing the image. *Michalson* ¶86 (citing *Ogura*, 1:13-2:56, 4:4-12).⁷ A POSITA would have understood that *Singh* and *Abram* are very similar and that *Abram* discloses the relative timing of receiving the GPS coordinates from a GPS unit in more detail than *Singh*. *Id.* ¶87. A POSITA also would have recognized that other, very similar prior art references also disclose receiving GPS coordinates from a GPS unit after capturing an image. *Id.* (citing *Paolini* at [0026] (steps 302, 306), [0029], FIGs. 3-4). Thus, a POSITA would therefore have considered applying *Abram*'s teaching to *Singh* to be obvious to try, as it amounts to choosing from a finite number of identified, predictable solutions (i.e., receiving the position information before or after capturing the image). *Id.*, ¶88 (citing *Ogura*, 3:47-53 (identifying the possibility of positioning “immediately before or immediately after photographing”), 4:4-7 (same)).⁶ A POSITA also would have considered applying *Abram*'s teaching to *Singh* to amount to the use of a known technique (receiving GPS coordinates after capturing an image) to improve a similar device (the *Singh* device) in the same way (to receive the GPS coordinates after capturing an image). *Id.*

A POSITA would have had a reasonable expectation of success in applying

⁷ *Ogura* is only being cited for this limitation as evidence of the knowledge of a POSITA.

Abram's teaching in this regard to *Singh*. *Michalson*, ¶89. *Singh* and *Abram* both disclose devices that capture images and include GPS units and processors. *See Singh*, [0015] (disclosing the GPS unit), [0036] (disclosing its techniques being implemented on a "processor containing system"); *Abram*, 3:39-54 (disclosing GPS receiver), 6:64-67 (disclosing "the described implementation includes software"). *Singh* discloses its devices are "a digital camera, a camera phone, and a personal digital assistant including an image capture subsystem," and *Abram* discloses a digital camera. *Singh*, [0015]; *Abram*, 3:39-54. Modifying *Singh*'s method to include *Abram*'s software teachings in *Singh*'s devices would have straightforward and well within a POSITA's ordinary skill, as *Abram* confirms by implementing this functionality in a device like *Singh*'s. *Michalson*, ¶89.

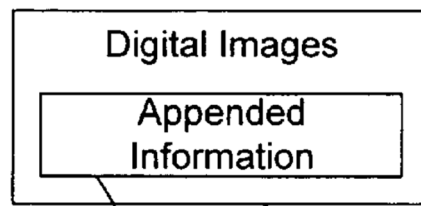
Accordingly, a POSITA would have understood the *Singh-Abram* combination teaches receiving geographic coordinates ("receiving location data") of the device at the location where the user predetermined to capture the image ("of the predetermined location"). *Michalson*, ¶90.

- d. **[1c], [13c] prompting a user to choose whether or not to insert the received location data into the first image data to generate a second image data and, when the user chooses to do so, inserting the received location data into the first image data to generate a second image data;**

Singh-Abram teaches this feature. *Michalson*, ¶¶91-106.

Singh discloses “append[ing] the location of the subject 302 to the image” such that the image “includ[es] as metadata a geographic position of the subject.” *Id.*, [0017], [0015] (“digital images 106 include information 107 appended to them as metadata”); *see also id.*, Abstract.

A POSITA would have understood that appending the coordinates as metadata to the image such that the image includes the coordinates as metadata to constitute “inserting” the “location data into the first image data” because a POSITA would have understood that for the image to “include” the coordinates as metadata, the coordinates are inserted into the image. *Michalson*, ¶93. *Singh*’s Figure 1 schematically illustrates digital images with the appended information inserted inside the digital images. *Id.*, ¶94.



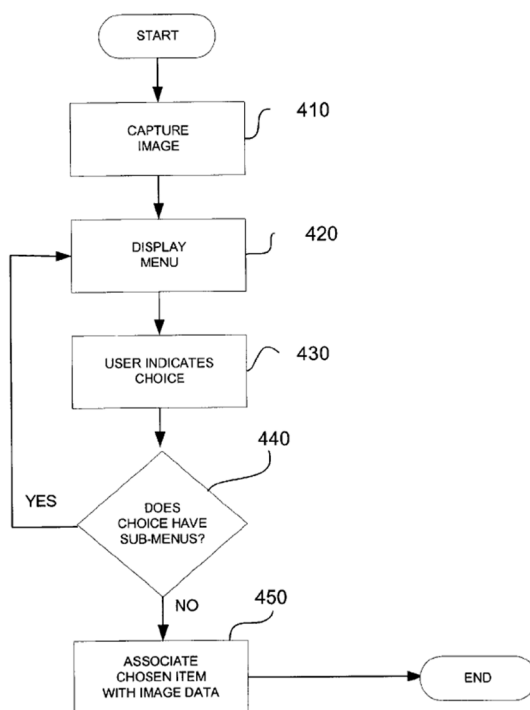
Singh, FIG. 1 (excerpted)

A POSITA would have further understood that including the coordinates in the image constitutes generating “a second image data” because after appending the coordinates to the image (i.e., “first image data”) the image has been modified to include new or additional metadata. *Id.*, ¶95.

Singh does not expressly disclose “prompting a user to choose whether or not

to” append the geographic coordinates to the image as metadata. This feature nevertheless would have been obvious in view of *Singh* in combination with *Abram*. *Id.*, ¶96.

Abram discloses, with reference to Figure 4, a “process of associating descriptive data with a digital image file.” *Abram*, 4:4-6. *Michalson*, ¶97.

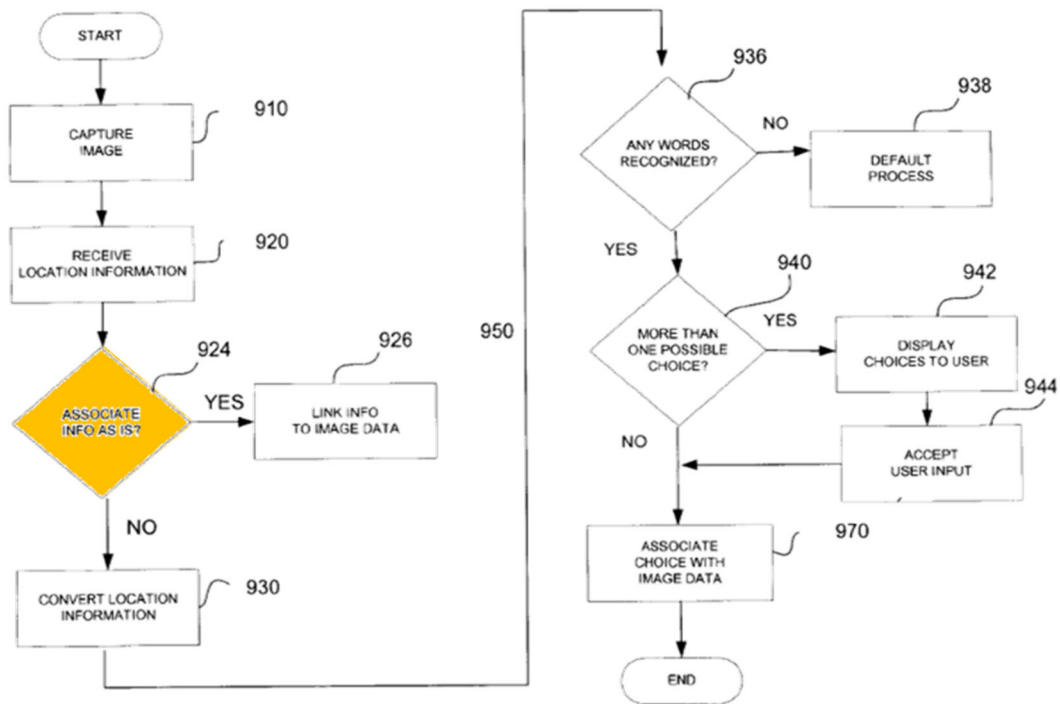


Abram, FIG. 4

After acquiring an image (stage 410), “a menu is displayed to the user (stage 420).” *Abram*, 4:4-8, FIG. 4. The menu is activated manually or automatically by the act of acquiring an image. *Id.*, 4:7-12. *Michalson*, ¶98. The menu allows the user to choose the metadata to be associated with the image file. *Abram*, 1:61-63 (“the user selects at least one of the descriptive terms for association with the digital image

file” from a menu); 4:32-35 (“the user indicates one or more of the displayed items by, for example, manipulating a scroll wheel, pushing a button, or speaking a command.”). *Michalson*, ¶99.

Abram further teaches that the “[m]enu items may be, for example, descriptive terms, categories of content, relationships, or stored information created by the user.” *Abram*, 4:17-19. *Abram* also teaches its disclosed system and method may be used to “associat[e] descriptive data obtained from [a] location determination device with a digital image file.” *Id.*, 2:55-63. More particularly, with reference to Figure 9, *Abram* discloses that after receiving the location information (e.g., coordinates), a decision is made about whether the coordinates are to be associated with the file as is or not. *Id.*, 6:26-28, FIG. 9 (**stage 924 “Associate info as is?”**). If yes, “the coordinates are simply linked to the image data.” *Id.* (stage 926). If no, the coordinates are not associated with the image as-is, and the coordinates may be converted into city or location names, if available, and the user can select from among the possible names. *Id.*, 5:51-54, 6:29-56. *Michalson*, ¶100.



Abram, FIG. 9 (annotated)

In view of the above, a POSITA would have understood *Abram* to teach (1) after the image is captured, displaying a menu to the user so as to give the user choices about the metadata to associate with an image file, (2) that the choices of metadata may be “descriptive data obtained from an location determination device,” and (3) that the user should be given a choice about whether to associate location data (e.g., coordinates) “as-is” or not. *Michalson*, ¶101. To be sure, the embodiment in *Abram*’s Figure 9 does not explicitly disclose displaying a menu for the purpose of receiving a user selection of yes or no in step 924, but a POSITA would have understood that *Abram*’s menu teachings are not limited to selecting, e.g., city names, and that *Abram* broadly teaches using a menu for associating any metadata

with an image file, including location coordinates. *Id.* Moreover, a POSITA would have understood *Abram* to suggest using a displayed menu to receive a yes/no selection from the user in step 924 of Figure 9 because *Abram* is concerned with giving the user the choice of location information to associate with the image file, and *Abram* does not otherwise disclose that any other entity (i.e., besides the user) would have control over the metadata to be associated with the image file. *Id.*

A POSITA would have understood that it was advantageous to give the user of *Singh*'s capturing device control over whether to append the location coordinates as metadata to *Singh*'s image. *Id.*, ¶102. *Abram* disparages prior art techniques that automatically associated information with a captured image in favor of displaying a menu to the user. *Abram*, 1:12-20. It was also known that interference with GPS positioning systems could occur. *Michalson*, ¶102 (citing *Ogura*, 4:4-10).⁸ Because *Singh* discloses that the location data is used to calculate a path for the receiving user, a POSITA would have understood the importance and desirability of ensuring that the device appends correct location information to the first image data. *Id.* A POSITA would have understood that one way to ensure the correctness of information involves the user providing confirmation before appending the

⁸ *Ogura* is only being cited for this limitation as evidence of the knowledge of a POSITA.

information. *Id.* This feature was also taught by other prior art references, and the applicant did not dispute the Patent Office’s determination that this feature was obvious during prosecution. *Id.* (citing *Paolini*, [0027] (“If, however, there is no hit in the database associated with the particular geographic location, then in step 318, a determination is made if the image is annotated with the raw position data, and physical parameters. The determination may be made in response to a user selection.”); EX1013, 8-9.

Thus, a POSITA would have considered the combination to amount to the application of a known technique (*Abram*’s teachings related to displaying a menu after an image is captured allowing the user to choose whether or not the coordinates are “associated with the file as is”) to a known method (*Singh-Abram*’s method with devices capturing images and appending location information) ready for improvement (*Singh*’s method and device is capable of displaying information to the user and receiving input/selections from the user) to yield predictable results (*Singh*’s method including a step for displaying a menu to the user with the choice of whether to append the location coordinates to the image or not). *Michalson*, ¶103.

A POSITA also would have considered the combination to amount to the use of a known technique (*Abram*’s teachings related to displaying a menu after an image is captured allowing the user to choose whether or not the coordinates are “associated with the file as is”) to improve similar devices (*Singh* and *Abram* are similar devices

concerned with associating location information with a captured image) in the same way (to provide the user with more control over whether location coordinates should be associated with the captured image). *Id.* ¶104.

A POSITA would have had a reasonable expectation of success in making the combination, as *Abram* provides this teaching, and modifying *Singh*'s method to include *Abram*'s software teachings in *Singh*'s devices would have straightforward and well within a POSITA's ordinary skill. *Id.*, ¶105. *Singh* and *Abram* both disclose devices that capture images and include GPS units and processors. *See Singh*, [0015] (disclosing the GPS unit). [0036] (disclosing its techniques being implemented on a "processor containing system"); *Abram*, 3:39-54 (disclosing GPS receiver), 6:64-67 (disclosing "the described implementation includes software"). *Michalson*, ¶105.

Accordingly, a POSITA would have understood the *Singh-Abram* combination to teach that, after the image is captured, displaying a menu through which the user chooses whether to append the coordinates as metadata to the image as is ("prompting a user to choose whether or not to insert the received location data into the first image data to generate a second image data") and if the user chooses to do so, appending the coordinates as metadata to the image such that they are included in the image ("inserting the received location data into the first image data to generate a second image data"). *Michalson*, ¶106.

- e. **[1d], [13d] transmitting the second image data, the second image data including the first image data and the location data, to another terminal;**

Singh-Abram teaches this feature. *Michalson*, ¶¶107-111.

Singh discloses that, after the location coordinates are appended to the captured image, “[i]f the user 101 wishes to share the captured digital image, via step 306 ... then the image is posted on the photo sharing server 105, or alternatively, it can be sent directly to a receiving user’s 108 mobile device 109.” *Singh*, [0020], [0015] (“The device 102 can upload any captured digital images 106 onto the photo sharing server 105.”), [0017] (“The digital image 106 and its appended information 107 are then uploaded to a photo sharing server 105.”), [0018], FIG. 3. *Michalson*, ¶108. If uploaded to the server, then “[t]he mobile device 109 can receive the digital images 106 and appended information 107 by accessing the photo sharing server 105 via the network 103.” *Singh*, [0016], [0025] (“First, the receiving user 108 receives digital images onto his device 109, either from the photo sharing server 105 or directly from the capturing user 101, via step 501.”). *Michalson*, ¶108.

A POSITA would have understood that sending the image directly to the receiving user’s mobile device 109 constitutes “transmitting” the image to mobile device 109. *Michalson*, ¶109. A POSITA would have understood that for the receiving user’s mobile device 109 to receive the digital images from the photo sharing server 105, the photo sharing server transmits the digital images to the

mobile device 109. *Id.* A POSITA would have also understood that the receiving user's 108 mobile device 109 is "another terminal." *Id.*

Thus, a POSITA would have understood *Singh* to teach that the capturing device 102 transmits the image with the included coordinates ("second image data") to mobile device 109 (to "another terminal"). *Id.*, ¶110. Separately and independently, a POSITA would have understood that if the device 109 receives the images with included coordinates from the photo sharing server 105, the server 105 transmits the image including the appended coordinates ("second image data") to the mobile device 109 ("to another terminal"). *Id.*

Accordingly, a POSITA would have understood the *Singh-Abram* combination teaches that the capturing device or a server sends the captured digital image with the included coordinates ("transmitting the second image data") to a receiving user's mobile device ("to another terminal"), where the captured digital image includes appended coordinates ("the second image data including the first image data and the location data"). *Id.*, ¶111.

- f. [1f], [13f] displaying, at the another terminal, an image corresponding to the first image data, and a menu inquiring about whether to select a location-based service;⁹

Singh-Abram in combination with *Odashima* teaches this feature. *Michalson*, ¶¶112-125.

With reference to Figure 5, *Singh* teaches a method for requesting a path. “[T]he receiving user 108 receives digital images onto his device 109, either from the photo sharing server 105 or directly from the capturing user 101, via step 501.” *Singh*, [0025]. Then, the receiving user 108 selects a digital image (step 502). *Id.* Receiving user 108 then “selects any direction or relationship needed to satisfy an informational message, prompt, or alert by the mobile device 109.” *Id.* Then “the

⁹ There is no logic or grammar in the claims that requires element [1f], [13f] to occur after element [1e], [13e]. “Unless the steps of a method actually recite an order, the steps are not ordinarily construed to require one.” *Interactive Gift Express, Inc. v. CompuServe Inc.*, 256 F.3d 1323, 1342 (Fed. Cir. 2001). “[A] claim requires an ordering of steps when the claim language, as a matter of logic or grammar, requires that the steps be performed in the order written, or the specification directly or implicitly requires an order of steps.” *Mformation Techs., Inc. v. Research in Motion Ltd.*, 764 F.3d 1392, 1398-99 (Fed. Cir. 2014).

receiving user 108 requests that the device 109 or the map server 104 generate paths to the location using a path search algorithm.” *Id. Michalson*, ¶113.

A POSITA would have understood that for the receiving user of mobile device 109 to “select the digital image” and to make a request to generate a path to the location, *Singh*’s mobile device 109 displays the image(s) and an option for requesting a path to the images. *Michalson* ¶114. At a minimum, *Singh*’s disclosure suggests that the mobile device 109 displays the image(s) and an option for requesting a path to the images because a POSITA would have understood that the device would need to display the images and options for the user to select them. *Id.*

Odashima discloses a system and method similar to *Singh* and teaches a technique for displaying images and providing options for location-based services to a receiving terminal. *Odashima* discloses a system with transmission terminals, a server, and receiving terminals. *Odashima*, [0020]. The transmission terminals capture and transmit image data and location data to the server. *Id.*, [0020]-[0021]. The server integrates the image data and location data and delivers it to the receiving terminals. *Id.*, [0020]. *Odashima*’s server generates list screen 21 which includes image data G and map button 30a. *Id.*, [0027]-[0028], FIG. 4. *Michalson* ¶115.

Odashima’s list screen 21 shows multiple images in the “Image Preview” section, and provides an image button 29a for viewing an enlarged image G. *Odashima*, [0028] (disclosing the “IMG” button for enlarging the image on the list

screen). *Michalson*, ¶116.

Image preview	No.	Title	Poster name	Dispatch number	Last post date	Image	Map
	1	Road collapse	○○△△	1	YY/MM/DD/HH:mm:ss	[IMG]	[MAP]
	2	Manhole	○○△△	4	YY/MM/DD/HH:mm:ss	[IMG]	[MAP]

Odashima, FIG. 4 (annotated and excerpted)

List screen 21 also includes a map button 30a. *Odashima*, [0028] (disclosing the “MAP” button for displaying a corresponding map). After the user selects the map button 30a, *Odashima* teaches displaying a map with an X placed at a location based on the image data. *Id.*, [0028], [0033], FIG. 6. *Michalson*, ¶117.

In view of the above, a POSITA would have understood *Odashima* to teach that a receiving terminal that displays a preview of each received image and at least two buttons for each preview image — one button provides an option to view an enlarged image, and one button provides an option to display a map of the location of the image. *Michalson*, ¶118. A POSITA would have understood that *Odashima*’s map button 30a provides a location-based service because the ’060Pat discloses “providing map information” as a location-based service. *See* ’060Pat, 1:50-56,

1:63-2:3. A POSITA would have understood that displaying multiple options for multiple images to constitute a “menu” because menus comprise multiple options. *Michalson*, ¶119. A POSITA therefore would have understood *Odashima*’s list screen 21 to comprise “a menu inquiring about whether to select a location-based service.” *Id.*

A POSITA would have considered *Odashima*’s teachings in this regard to be a suitable technique for implementing the functionality of *Singh*’s receiving user’s mobile device 109. Thus, a POSITA would have considered it obvious to apply *Odashima*’s teachings to the *Singh-Abram* combination because it amounts to the application of a known technique (*Odashima*’s teachings related to displaying the image previews and buttons for requesting a location-based service) to a known method (the *Singh-Abram* combination) ready for improvement (*Singh*’s mobile device 109 includes a display and the ability to receive user input) to yield predictable results (providing the *Singh-Abram* combination’s receiving users the ability to view the received images and to select desired location-based services). *Michalson*, ¶120.

In addition, a POSITA would have found this combination obvious because it applies a known technique (*Odashima*’s teachings related to displaying the image previews and buttons for requesting a location-based service) to improve similar devices (the *Singh-Abram* combination) in the same way (providing location-based

information). *Id.*, ¶121.

A POSITA would have had a reasonable expectation of success because implementing the combination would have required nothing more than routine skill for a POSITA because of the similarities between the *Singh-Abram* combination and *Odashima*'s system. *Michalson*, ¶122 (citing *Valloppillil*, FIG. 12 (depicting a “home page 121 of a restaurant” with an image and hyperlinks on a phone)). Applying *Odashima*'s teaching to the *Singh-Abram* combination would have therefore been straightforward to a POSITA and well within the skill of a POSITA at the time. *Id.*

A POSITA would have understood that the *Singh-Abram-Odashima* combination teaches displaying on the receiving user's mobile device previews of the received images, and that this constitutes displaying “an image corresponding to the first image data” because each image preview is a smaller version of the captured image (the “first image data”). *Id.* ¶123. Neither the specification or nor the claims place any limitations on required correspondence between the displayed “image” and the “first image data.” *Id.*

A POSITA would have further understood that the *Singh-Abram-Odashima* combination teaches displaying buttons for requesting a path to the subject of the received images and that this constitutes displaying “a menu inquiring about whether to select a location-based service” because a “menu” is comprised of multiple

options. *Id.*, ¶124.

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination to teach displaying on the receiving user's device ("displaying, at the another terminal") a preview of the received images ("an image corresponding to the first image data") and a button for requesting a path to the location of the image(s) ("and a menu inquiring about whether to select a location-based service"). *Id.*, ¶125.

- g. [1e], [13e] receiving, at the another terminal, a selection input for an image corresponding to the second image data, from the user;**

Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶126-130.

With reference to Figure 5, *Singh* teaches a method for requesting a path. Receiver user 108 receives the digital images on device 109 (step 501). *Singh*, [0025]. Then, the receiving user 108 can select a digital image (step 502). *Id.* A POSITA would have understood that selecting a digital image constitutes "receiving ... at the another terminal, a selection input for an image" because *Singh* discloses that the receiving user receives digital images "onto his device" (i.e., the "another terminal") and the receiving device receives a "selection input for an image" when the user "selects a digital image." *Michalson*, ¶127.

As explained above in §VIII.A.1.f, *Singh-Abram-Odashima* teaches displaying on the receiving user's device a preview of the received images and buttons for requesting a path to the location of the images. A POSITA would have

understood that the *Singh-Abram-Odashima* combination renders obvious the user selecting an image preview. *Id.* ¶128. A POSITA would have understood that the image preview is an image “corresponding to the second image data” because each image preview is a smaller version of the captured image that is part of the image that includes location data appended to it (the “second image data”). *Id.* Neither the specification or nor the claims place any limitations on required correspondence between the displayed “image” and the “second image data.” *Id.*

The *Singh-Abram-Odashima* combination does not expressly disclose that the “capturing user” and the “receiving user” are the same user, and thus, the *Singh-Abram* combination does not expressly disclose “prompting *a user*” (i.e., a user at *Singh*’s capturing terminal) and then “receiving, at the another terminal, a selection input ..., from *the user*.” *Id.*, ¶129. Nevertheless, the *Singh-Abram* combination renders this feature obvious in view of the knowledge of a POSITA. *Id.* *Singh*’s disclosure is not limited to having different people as the capturing user and receiving user. *Id.* And a POSITA would have understood that it was common and advantageous for individuals to have multiple devices from which to access their captured images. *Id.* (citing *Bullock*, 2:49-55 (“Making the waypoints in remote apparatus 200 accessible from means other than just mobile apparatus 100 offers

significant convenience and flexibility to a user.”); *Filley* [0019]).¹⁰ Thus, a POSITA would have understood that by the earliest alleged priority date, in practice, the capturing user and the receiving user of *Singh*’s system would be the same person. *Id.*

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches that the receiving user’s mobile device receives the user’s selection of a digital image preview (“receiving, at the another terminal, a selection input for an image corresponding to the second image data from the user”). *Id.*, ¶130.

- h. [1g], [13g] receiving, at the another terminal, via the displayed menu, a selection input for the location-based service, from the user;**

Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶131-133.

As explained in §VIII.A.1.f, *Singh* teaches that the receiving user requests a path to the location of the image. As explained in §VIII.A.1.f, the *Singh-Abram-Odashima* combination teaches displaying a menu including a button for requesting the path. And as explained in §VIII.A.1.h, a POSITA would have understood that the receiving user would at least sometimes be the same as the capturing user. *Id.*, ¶132.

¹⁰ *Bullock* is only being cited for this limitation as evidence of the knowledge of a POSITA.

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches the user selecting a button displayed as part of the menu on the receiving device to request a path to the location of the image (“receiving, at the another terminal, via the displayed menu, a selection input for the location-based service from the user”). *Id.*, ¶133.

- i. **[1h], [13h] receiving, at the another terminal, location-based service data corresponding to the location data of the selected second image data; and**

Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶134-137.

Singh discloses the generated path is downloaded to the mobile device 109 (step 404). *Singh*, [0024], [0027] (“The generated path can then be downloaded to the mobile device 109 from the map server 104 to provide informational messages, prompts, or alerts to the receiving user 108”). *Michalson*, ¶135.

Singh discloses the map server 104 receives the receiving user’s 108 current location “as a source location in the generated path” using the device’s 109 GPS unit. *Singh*, [0027]. “The mobile device can also send the geographic position of the subject of the digital image 106 that is included as metadata to the image to map server 104.” *Id.* “Using this positional information, the map server 104 can generate a path from the source location to the subject.” *Id.* Because the *Singh* generated path is from the source location to the subject, a POSITA would have understood the downloaded path to constitute “location-based service data corresponding to the

location data of the selected second image data.” *Michalson*, ¶136.

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches downloading to the receiving user’s device a generated path (“receiving, at the another terminal, location-based service data”) wherein the generated path includes the location data of the subject of the digital image (“corresponding to the location data of the selected second image data”). *Michalson*, ¶137.

- j. **[1i], [13i] providing the location-based service to the another terminal by using the received location-based service data.**

Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶138-140.

Singh discloses “the generated paths can be displayed to the receiving user 108 using the mobile device 109, via step 506.” *Singh*, [0026], [0027] (“The generated path can then be downloaded to the mobile device 109 from the map server 104 to provide informational messages, prompts, or alerts to the receiving user 108”). A POSITA would have understood *Singh*’s displaying the generated path (that was downloaded from the map server), and providing “information messages, prompts, or alerts” teaches providing the location-based service to another terminal. *Michalson*, ¶139.

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches displaying a generated path at the receiving user’s device or

providing informational messages, prompts, or alerts to the receiving user device (“providing the location-based service to the another terminal”) where the generated path is downloaded to the mobile device from map server (“by using the received location-based service data”). *Id.*, ¶140.

2. Claims [4], [14]

Singh-Abram-Odashima teaches claims 4 and 14. *Michalson*, ¶¶141-158.

Singh discloses that its method provides a generated path displayed to the receiving user 108. *Singh*, [0026] (“The device 109 or map server 104 can generate the paths, and the generated paths can be displayed to the receiving user 108 using the mobile device 109, via step 506.”), [0005] (“A path to the subject from the source location can then be generated based on a geographic position of the source location and the metadata included with the digital image.”). *Michalson*, ¶142.

In particular, *Singh* discloses that “the receiving user 108 requests that the ... the map server 104 generate paths.” *Singh*, [0026]. The receiving mobile device 109 sends “the receiving user’s 108 current location to the map server 104 as a source location in the generated path, for example, using the device’s 109 GPS unit” and “the geographic position of the subject of the digital image 106” to map server 104 which generates “a path from the source location to the subject.” *Id.*, [0027]. “The generated path can then be downloaded to the mobile device 109 from the map server 104 to provide informational messages, prompts, or alerts to the receiving user 108.”

Id. Michalson, ¶143.

- a. [4pre], [14pre] The location-based service method according to claim 1 / The location-based service method according to claim 13,

[4a], [14a] wherein the location-based service is a guiding service, / wherein the location-based service is a guiding service, and

Singh-Abram-Odashima teaches these features. *Michalson* ¶¶144-146.

A POSITA would have understood that the path that is downloaded to the mobile device 109 and the associated messages, prompts, or alerts function to guide the receiving user from the receiving user's current location to the geographic position of the subject of the digital image, and that this is consistent with how the '060Pat describes a "guiding service." '060Pat, 5:27-34 ("If the user selects the guiding service, the navigation data corresponding to the location data of the shot location are transmitted to the terminal by the navigation system, and the guiding service by means of a navigator of the terminal, including the shortest route to the shot location, the traffic condition, etc., is displayed on the display section (S406)"). *Michalson* ¶145.

Accordingly, a POSITA would have understood that the *Singh-Abram-Odashima* combination teaches providing the receiving user a generated path with associated messages, prompts, or alerts from the receiving user's current location to the geographical position of the subject of the digital image's metadata ("wherein

the location-based service is a guiding service”). *Michalson*, ¶146.

- b. [4b], [14b] wherein the receiving the selection input comprises transmitting a service request signal and the location data to a navigation system,**

Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶147-150.

A POSITA would have understood that *Singh*’s map server 104, which generates the path, is consistent with how the ’060*Pat* describes a “navigation system.” ’060*Pat*, 5:27-34 (navigation system “generates navigation data” which includes “the shortest route to the shot location”). *Michalson*, ¶148.

A POSITA would have understood that the map server is connected to the user’s mobile device 109 via a network, and that communications between the mobile device and the map server would therefore be accomplished by transmitting signals between them over the network. *Singh*, FIG. 1. *Michalson*, ¶149. Thus, a POSITA would have understood that when the user requests a path, including by sending the source location and the geographic position of the subject of the digital image to the map server, this constitutes “transmitting a service request signal and the location data” to the map server. *Id.*

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches receiving the selection input transmits a signal (“transmitting a service request signal”) and the geographic position of the subject of the digital image (“and the location data”) to the *Singh* map server (“to a navigation system”).

Id., ¶150.

- c. [4c], [14c] wherein the navigation system provides a navigation data corresponding to the location data, as the location-based service data, and

Singh-Abram-Odashima teaches these features. *Michalson*, ¶¶151-153.

Singh discloses that the generated path is “downloaded to the mobile device 109 from the map server 104 to provide informational messages, prompts, or alerts to the receiving user 108.” *Singh*, [0028]. *Singh* further discloses displaying the path and the recommended direction of approach. *Id.*, [0026]. This is consistent with how the ’060pat describes “navigation data” as including, for example, a route. ’060pat, 5:27-34, claim 6 (“wherein the navigation data comprises at least one of the information including the shortest route corresponding to the location data”). Thus, a POSITA would have understood the mobile device downloading the generated path from the map server to constitute “the navigation system provid[ing] a navigation data ... as the location-based service data.” *Michalson*, ¶152. A POSITA would have further understood that *Singh*’s generated paths “correspond[] to the location data” because the generated paths guide, or navigate, the receiving user 108 to the geographic position of the digital image 106. *Singh*, [0027]. *Michalson*, ¶152.

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches the map server 104 (“navigation system”) downloads the generated paths to the mobile device 109 and displays the generated paths (“provides

a navigation data ... as the location-based service data”), where the generated path includes the digital image’s geographic position as the destination (“corresponding to the location data”). *Michalson*, ¶153.

- d. [4d], [14d] wherein the providing the location-based service comprises providing the guiding service by means of a navigator of the another terminal, which is displayed on a display section of the another terminal.**

Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶154-158.

As explained above in §VIII.A.2.a, a POSITA would have understood that the *Singh-Abram-Odashima* combination teaches providing the receiving user a generated path with associated messages, prompts, or alerts from the receiving user’s current location to the geographical position of the subject of the digital image’s metadata (“wherein the location-based service is a guiding service”). *Id.*, ¶155.

Singh discloses “the generated paths can be displayed to the receiving user 108 using the mobile device 109, via step 506.” *Singh*, [0026]. This is consistent with how the *'060pat* describes the claimed “navigator of the another terminal.” *'060pat*, 5:52-54 (“The navigator (not illustrated) of the terminal (60) receives and displays the navigation information on the display section.”). *Michalson*, ¶156.

Singh discloses implementing the mobile device 109 as, e.g., a digital camera or PDA. *Singh*, [0016]. A POSITA would have understood that such devices have display screens. *Michalson* ¶157 (citing *Ogura*, 7:35-40 (digital camera with “a

display section”), *Bullock*, 6:16-21 (vehicle interface 420 with “a display 426 for visually conveying information to the user”), *Suomela*, 5:1-3 (mobile device 210 with display 228), FIGs. 1, 2 (phone with display 228)).¹¹ Moreover, a POSITA would have understood that the mobile device 109 displaying the generated paths to the receiving user would include a display screen. *Id.* A POSITA would have understood this is consistent with how the ’060*Pat* describes a “display section” that displays various items. *Id.* Thus, a POSITA would have understood *Singh* to disclose device 109 includes a display screen for at displaying the generated paths (i.e., that the “navigator” is “displayed on a display section of the another terminal.”). *Id.*

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches downloading the generated paths to the receiving user’s mobile device to provide “informational messages, prompts, or alerts (“providing the guiding service by means of a navigator of the another terminal”) and displaying the generated paths on a screen of the mobile device (“which is displayed on a display section of the another terminal.”). *Id.*, ¶158.

¹¹ *Ogura*, *Bullock*, and *Suomela* are only being cited for this limitation as evidence of the knowledge of a POSITA.

- 3. [7] The location-based service method according to claim 1, wherein the location data are provided by a location data providing system.**

Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶159-161.

Singh teaches that “[t]he location data can include the geographical coordinates and/or altitude of the subject that can be provided by global positioning system (GPS) unit (not shown) included in the device 102.” *Singh*, [0015]. *Michalson*, ¶160. The GPS unit is consistent with how the ’060*Pat* describes this feature. ’060*pat*, 3:63-67 (“The terminal using the GPS (Global Positioning System) means which utilize a satellite receives the location data of the current altitude, direction, etc. through a GPS antenna contained in the terminal from the satellite floating over the earth.”), 3:38-43. *Michalson*, ¶160.

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches the location data being provided by a GPS unit (“the location data are provided by a location data providing system”). *Id.*, ¶161.

- 4. [8] The location-based service method according to claim 7, wherein the location data providing system is configured to provide the location data of the terminal using a Cell Positioning System (CPS).**

Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶162-168.

As explained in §VIII.A.3, *Singh* discloses obtaining the geographical coordinates (“location data”) with a GPS unit. *Singh*, [0021]. *Singh* does not

expressly disclose a “location data providing system” that is “configured to provide the location data of the terminal using a Cell Positioning System (CPS).” Nevertheless, this feature would have been obvious in view of *Odashima*’s teachings. *Michalson* ¶163.

Odashima teaches mobile phones T1, T2 include “[t]he function for acquiring the location data” which includes a GPS system for using GPS satellites or “a function for acquiring a location from a relationship with a PHS base station.” *Odashima*, [0021] (“[i]n addition to the GPS system, there are, for example, cell ID systems that utilize the fact that the service area of the mobile communication is composed of many cells covering each small area, triangulation systems by base stations, and hybrid systems that use these in a composite manner.”). *Michalson* ¶164.

A POSITA would have recognized that *Odashima* suggests the interchangeability of GPS systems and “hybrid systems.” *Michalson*, ¶165. When discussing the server’s latitude and longitude means 10, *Odashima* discloses how GPS location data is generally latitude and longitude and “thus the data is used as is.” *Odashima*, [0025]. *Odashima* also discloses the server’s latitude and longitude means 10 “calculate[s] the latitude and longitude of the location ... in the case of data acquired from a relationship with a PHS base station.” *Id.*, [0021], [0011] (disclosing “even when the location data from the transmission terminal is various

location data ... it is calculated as latitude and longitude data”). A POSITA would have therefore understood that *Odashima* teaches latitude and longitude coordinates may be calculated using “a relationship with a PHS base station,” as used in *Odashima*’s hybrid system. *Michalson*, ¶165 (citing *Asakura*, 122-124; *Takasaki*).

A POSITA would have found this modification of the *Singh-Abram-Odashima* combination obvious because it is a simple substitution of one known element (*Odashima*’s hybrid systems that use cell ID systems using the service areas of the mobile communications network and triangulation systems using the base stations in a “composite manner”) for another (the *Singh-Abram-Odashima* combination with devices using a GPS unit taught by *Singh*) to obtain predictable results (providing location data using cell ID and triangulation systems in a “composite manner”). *Michalson*, ¶166.

A POSITA would have had a reasonable expectation of success because *Odashima* teaches “hybrid systems” as another example, “[i]n addition to the GPS systems,” for acquiring location data in mobile phones T1, T2. *See Odashima*, [0021]. Applying *Odashima*’s “hybrid system” teachings to the *Singh-Abram-Odashima* combination using *Singh*’s devices 102, 109 would have been straightforward and well within the skill of a POSITA. *Michalson*, ¶167.

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches using a “hybrid system” (“the location data providing system”)

including cell ID systems and triangulation systems to provide location data (“is configured to provide the location data of the terminal using a Cell Positioning System (CPS)”). *Id.*, ¶168.

5. **[9] The location-based service method according to claim 7, wherein the location data providing system is configured to provide the location data of the terminal using a Global Positioning System (GPS).**

Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶169-171.

As discussed in §VIII.A.3 for claim 7, *Singh* teaches using the GPS unit. A POSITA would have understood the GPS unit relies on the GPS satellites and therefore teaches using a Global Positioning System (GPS). *Michalson*, ¶170.

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches using a GPS unit (“the location data providing system is configured to provide the location data of the terminal”) that uses the Global Positioning System’s satellites (“using a Global Positioning System (GPS)”). *Id.*, ¶171.

6. **[10] The location-based service method according to claim 1, wherein the location data includes information on latitude and longitude of the terminal or base station.**

Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶172-174.

Singh teaches the “location data can include the geographical coordinates and/or altitude of the subject” provided by the GPS unit of the device 102. *Singh*,

[0015]. A POSITA would have understood the geographic coordinates are latitude and longitude. *Michalson*, ¶173 (citing *Odashima*, [0025] (GPS data “is generally latitude and longitude data”)).

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches the location data from the GPS unit (“the location data”) includes geographic coordinates (“includes information on latitude and longitude of the terminal”). *Id.*, ¶174.

7. [11] The location-based service method according to claim 1, wherein the terminal equipped with the camera includes a camera phone or a digital camera.

Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶175-177.

Singh teaches that the device 102 is “a digital camera, a camera phone, a personal digital assistant including an image capture subsystem.” *Singh*, [0015]. A POSITA would have understood that *Singh*’s mobile device that is “a digital camera, a camera phone” encompasses the requirement that “the terminal equipped with the camera includes a camera phone or a digital camera.” *Michalson*, ¶176.

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches the terminal is a digital camera or a camera phone (“the terminal equipped with the camera includes a camera phone or a digital camera”). *Id.*, ¶177.

8. [12] The location-based service method according to claim 11, wherein the digital camera includes a module for receiving the location data.

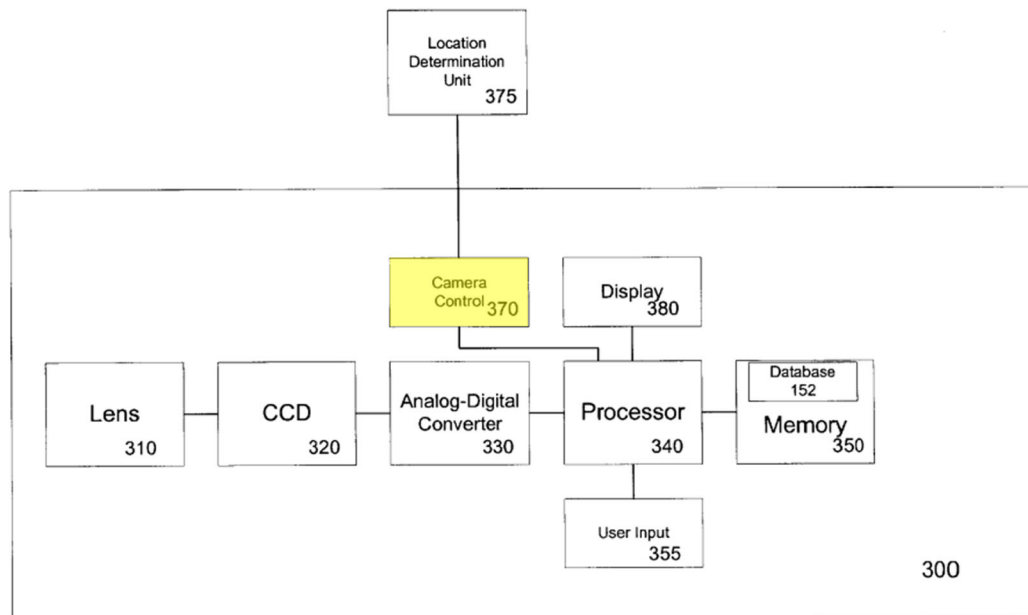
Singh-Abram-Odashima teaches this feature. *Michalson*, ¶¶178-183.

Singh discloses device 102, the digital camera, includes location data “that can be provided by global positioning system (GPS) unit (not shown) included in the device 102.” *Singh*, [0015]. As discussed in §VIII.A.1.b, *Singh* discloses the capturing device 102 receiving geographical coordinates from the GPS unit. *Singh* further discloses that the methods implemented by device 102 are implemented by “instructions of a computer program” embodied in a computer readable medium “for use by or in connection with an instruction execution system, apparatus, or device, such as a computer based system, processor containing system, or other system that can fetch the instructions from the instruction execution system, apparatus, or device and execute the instructions.” *Id.*, [0036]. *Michalson*, ¶179.

In view of these disclosures, a POSITA would have understood *Singh* to teach implementing device 102 as a processor-based device that executes instructions of a computer program. *Michalson* ¶180. A POSITA would have further understood that for such device to receive geographic coordinates from the GPS unit, the device includes a module (e.g., instructions of a computer program) that receives the coordinates. *Id.*

At a minimum, a POSITA would have considered it obvious to implement the

Singh-Abram-Odashima device with such a module in view of *Abram*'s teachings. *Id.*, ¶181. *Abram* is similar to *Singh* and discloses a digital camera 100 including a "a location determination unit 375" that "passes the location information (such as the coordinates or place name) to camera control 370." *Abram*, 3:55-59, FIG. 3. *Abram* further discloses a "computer-readable medium containing instructions for controlling a computer system to perform a method ... the method comprising: ... receiving numeric geographic coordinates from a location determination device." *Id.*, 8:32-38. Thus, a POSITA would have understood *Abram* to teach computer program instructions (i.e., a "module") for receiving geographic coordinates from a location determination unit. *Michalson* ¶181.



Singh, FIG. 3 (annotated)

A POSITA would have considered it obvious to apply *Abram*'s teachings

related to the camera control 370 to *Singh*'s device because the combination amounts to applying a known technique (*Abram*'s camera control 370 implemented with computer readable instructions) to a known device (*Singh*'s device 102) ready for improvement (*Singh*'s device 102 may be a processor-based device that executes program instructions and receives coordinates from a GPS unit) to yield predictable results (*Singh*'s device 102 including a computer program instructions to receive the coordinates from the GPS unit). *Id.*, ¶182.

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima* combination teaches the mobile device is a digital camera ("the digital camera") that includes a processor executing program instructions to receive coordinates from the GPS unit ("includes a module for receiving the location data"). *Id.*, ¶183.

B. Ground 1B: *Singh-Abram-Ogura-Odashima* Renders Claims 1, 4, 7-14 Obvious

1. Claims 1, 13

- a. [1pre] , [13pre] A location-based service method using image data provided by a terminal equipped with a camera, and using location data that includes location information of the terminal, comprising:**

To the extent the preamble is limiting, *Singh* teaches this feature for the same reasons as discussed at §VIII.A.1.a. *Michalson*, ¶184.

- b. [1a], [13a] generating first image data with the terminal at a predetermined location;**
[1b], [13b] receiving location data of the predetermined location

Singh in combination with *Abram* and *Ogura* teaches these features. *Michalson*, ¶¶185-196.

As discussed in §VIII.A.1.a, a POSITA would have understood *Singh* to teach that the capturing device 102 receives geographical coordinates from the GPS unit. As discussed in §VIII.A.1.c, a POSITA would have understood the *Singh-Abram* combination to teach receiving geographic coordinates (“receiving location data”) of the device at the location where the user predetermined to capture the image (“of the predetermined location”). To the extent PO argues or the Board finds that the claimed “predetermined location” is a location predetermined by the terminal (as opposed to predetermined by the user), the claims nevertheless would have been obvious in further view of *Ogura. Id.*, ¶186.

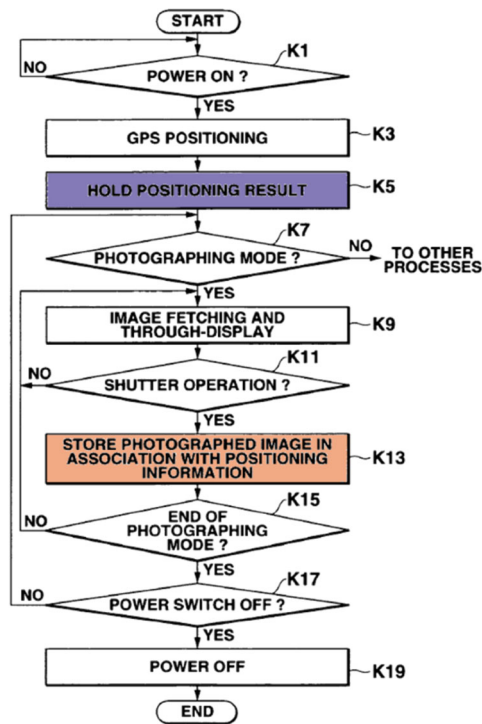
Singh is silent about when the GPS unit of mobile device 102 determines the GPS coordinates corresponding to the subject of the image. *Id.*, ¶187. *Ogura* discloses a digital camera 100 with GPS positioning capability. *Ogura*, 7:33-35. *Ogura*’s camera includes a GPS antenna, a GPS processing section, a control section, temporary memory (DRAM) 5, and saving memory (flash memory) 6. *Id.*, 7:35-40. *Michalson*, ¶187. *Ogura*’s GPS processing section uses the GPS signal to

compute the location position of the digital camera. *Ogura*, 7:41-51. *Michalson*, ¶188. *Ogura* discloses that “DRAM 5 is used as a work memory,” distinct from flash memory 6 which “stores each photographed image.” *Ogura*, 8:27-28. *Michalson*, ¶189.

Ogura teaches acquiring the positioning result “immediately before or immediately after photographing.” *Ogura*, 4:4-7. One embodiment, depicted in FIG. 14, performs positioning when the camera is powered on. *Ogura*, 15:56-58. *Ogura* teaches in this embodiment, the GPS processing section receives the GPS radio waves, computes the local position of the device, and “hold[s] [the] positioning result” in the “positioning result memory area” in RAM 3b or DRAM 5. *Ogura*, 15:63-16:15, FIG. 14 (**step K5 “Hold Positioning Result” (annotated in dark purple)**). *Michalson*, ¶190.

Ogura’s “positioning result memory area” holds the positioning result (FIG. 14, **step K5**), and the positioning result is not yet associated with an image. Only when the image is stored in flash memory 6 is the positioning result retrieved from positioning result memory area and associated with image data. *See Ogura*, 16:40-43 (disclosing after the image is acquired, storing the compressed image data 6 and “[a]t this time, the positioning result ... stored in the RAM 3b in **step K5** is stored in association with the photographed image.”) (**step K13 (annotated in orange)**). Because generally the photographic position is not changed after powering

on the camera, *Ogura* teaches that the stored positioning result will “match[] with the actual photographic location in most cases.” *Ogura*, 17:7-11. *Michalson*, ¶191.



Ogura, FIG. 14 (annotated)

A POSITA would have considered it obvious to modify the *Singh-Abram* combination with *Ogura*’s teachings. *Michalson* ¶192. A POSITA would have also been motivated to obtain positioning “immediately before or immediately after photographing” to reduce interference with, and the power consumption of, the GPS positioning apparatus because “the photographing timing and the positioning timing do not overlap each other.” *See Ogura*, 4:4-12. And because the positioning is performed when the camera is powered on, before acquiring an image, “the user can perform the shutter manipulation” without needed to wait for positioning to

complete. *Id.*, 16:65-17:11; *Michalson*, ¶192.

A POSITA would have considered modifying *Singh* with *Ogura*'s teachings in this regard obvious because it amounts to applying a known technique (*Ogura*'s teachings of acquiring and holding a positioning result in working memory before capturing an image) to a known method (the *Singh* method) ready for improvement (*Ogura* teaches linking the acquiring of a positioning result to each time an image is captured, like *Singh*'s method's devices, increases the possibility of interference with the GPS positioning apparatus and increases power consumption) to yield predictable results (reduced interference and power consumption in the devices used in the *Singh method*). And a POSITA would have had a reasonable expectation of success because of the similarities between the *Singh* method's devices and *Ogura*'s digital camera with a GPS processing section. *Michalson*, ¶193.

In the *Singh-Abram-Ogura* combination, the GPS unit would acquire location data when the device is powered on, as *Ogura* teaches. Once the combination's GPS unit determines the geographic coordinates using the GPS signals, *Ogura* teaches storing the result in working memory. *See Ogura*, 15:63-16:15, FIG. 14 (step K5 "Hold Positioning Result"). The location at which the *Singh-Abram-Ogura* combination's device's GPS unit acquires location data is the required "predetermined location" because it is the location at which the GPS unit obtains the location data, beforehand. *Michalson*, ¶194.

In the *Singh-Abram-Ogura* combination, the distinction between working memory of the location determination device holding location data and the memory storing the image in association with the location data taught by *Ogura* would also exist. *Michalson*, ¶195. By storing the location data as *Ogura* teaches, a POSITA would understand that this does not associate the location data with any image data. Then, when executing *Singh*'s teachings of capturing images (“generating first image data at a predetermined location”), the captured image will be of the “predetermined location” because the GPS unit obtained the location data at that location beforehand, as *Ogura* teaches. A POSITA would have therefore understood that the *Singh-Abram-Ogura* combination teaches that the required “predetermined location” is a location at which the GPS unit acquired location data beforehand. *Id.*

Accordingly, a POSITA would have understood the *Singh-Abram-Ogura* combination teaches that when the device captures the image (“generating first image data”), the device has already acquired the positioning result for a location and holds the positioning result in memory for the location (“with the terminal at a predetermined location”) and then *Singh*'s mobile device receives the coordinates (“receiving location data”) corresponding to the location of the terminal immediately before the image was captured (“of the predetermined location”). *Id.* ¶196.

c. [1c], [13c] – 1[i], 13[i]

Singh-Abram-Ogura in combination with *Odashima* teaches these features for

the same reasons as discussed at §§VIII.A.1.d - VIII.A.1.j. *Michalson*, ¶197.

2. Claims 4, 7-14

The *Singh-Abram-Ogura-Odashima* combination teaches the features of claims 4, 7-14 for the same reasons as discussed at §§VIII.A.2 - VIII.A.8. *Michalson*, ¶198.

C. Ground 1C: *Singh-Abram-Odashima-Bullock* Renders Claims 1, 4, 7-14 Obvious

1. Claims 1, 13

a. [1pre], [13pre] – 1[f], 13[f]

To the extent the preamble is limiting, *Singh* in combination with *Abram* and *Odashima* teaches this feature for the same reasons as §VIII.A.1.a - VIII.A.1.f. *Michalson*, ¶199.

b. [1e], [13e] receiving, at the another terminal, a selection input for an image corresponding to the second image data, from the user;

Singh-Abram-Odashima in combination with *Bullock* teaches this feature. *Michalson*, ¶¶200-207.

As explained in §VIII.A.1.g, the *Singh-Abram-Odashima* teaches the receiving user's mobile device receives the user's selection of a digital image preview ("receiving, at the another terminal, a selection input for an image corresponding to the second image data from the user") because a POSITA would have understood that it was common and advantageous for individuals to have

multiple devices from which to access their captured images. *Id.*, ¶201.

To the extent the PO argues, or the Board finds, that *Singh-Abram-Odashima* does not teach that the user who received the prompting (element [1c]) is the same user from whom the receiving device receives “a selection input for an image corresponding to the second image data” required by this feature, *Bullock* provides such a teaching. *Id.*, ¶202.

Bullock discloses “an arrangement 10 that include a mobile apparatus 100 and a remote apparatus 200” that is “operably coupled to, and remotely located from, mobile apparatus 100.” *Bullock*, 2:23-24, 2:38-44. The “[r]emote apparatus 200 allows the user to retrieve and manipulate the waypoint from both mobile apparatus 100 and an alternative access means 300 that is operably coupled to remote apparatus 200 and remotely located from mobile apparatus 100. Making the waypoints in remote apparatus 200 accessible from means other than just mobile apparatus 100 offers significant convenience and flexibility to a user.” *Id.*, 2:49-55. *Michalson*, ¶203. *Bullock* discloses that when a real estate agent driving through a neighborhood “encounters a house for sale,” the agent marks the location using a device in the car, causing the capture of a digital picture of the house and attaching “other information (i.e., the geographic position and the time).” *Bullock*, 13:21-30. The user shares this information to the service center and later accesses the information from another device at the office. *Id.*, 13:45-59. A POSITA would have understood that *Bullock*’s

real estate agent would use a device in the office that is different from the device used in the agent's vehicle. *Michalson*, ¶204. A POSITA would have therefore understood that *Bullock*'s disclosure of a user (i.e., "real estate agent") interacting with two separate devices (i.e., the vehicle interface and the office) teaches the same user interacting with two different devices. *Id.*

A POSITA would have considered the combination to amount to the use of a known technique (*Bullock*'s disclosure of mobile apparatus 100 and remote apparatus 200 being used by the same user) to improve a similar technique (*Singh-Abram-Odashima*'s method) in the same way (offering significant convenience and flexibility to a user as *Bullock* teaches). Similarly, a POSITA would have considered the combination to amount to applying a known technique (*Bullock*'s disclosure of mobile apparatus 100 and remote apparatus 200 being used by the same user) to a known method (*Singh-Abram-Odashima*'s method) ready for improvement (the same user using two devices, which *Singh-Abram-Odashima*'s method does not expressly disclose) to yield predictable results (offering significant convenience and flexibility to a user as *Bullock* teaches). *Michalson*, ¶205.

A POSITA would have had a reasonable expectation in success in making the combination. *Id.*, ¶206. *Singh* does not expressly restrict the same user from using both the capturing device 102 and the receiving device 109. *Id.* As such, any modifications necessary to apply *Bullock*'s same user teachings to *Singh-Abram-*

Odashima's method would have been straightforward and well within a POSITA's ordinary skill. *Id.*

Accordingly, a POSITA would have understood that the *Singh-Abram-Odashima* combination teaches that the receiving user receives digital images "onto his device" and receives the user's selection of a digital image ("receiving, at the another terminal, a selection input for an image") that was transmitted from the capturing user's device appended with location coordinates as metadata ("corresponding to the second image data"), and that *Bullock* teaches the same user uses the capturing and receiving device ("from the user"). *Id.*, ¶207.

- c. **[1g], [13g] receiving, at the another terminal, via the displayed menu, a selection input for the location-based service, from the user;**

Singh-Abram-Odashima-Bullock teaches this feature. *Michalson*, ¶¶208-210.

As explained in §VIII.A.1.f, *Singh* teaches that the receiving user requests a path to the location of the image. As explained in §VIII.A.1.f, the *Singh-Abram-Odashima* combination teaches displaying a menu including a button for requesting the path. And as explained in §VIII.C.1.b, a POSITA would have understood that *Bullock* teaches that the same user would use the capturing and receiving devices of the *Singh-Abram-Odashima* combination's method. *Id.*, ¶209.

Accordingly, a POSITA would have understood the *Singh-Abram-Odashima-Bullock* combination teaches the receiving user selecting a button displayed as part

of the menu on the receiving device to request a path to the location of the image (“receiving, at the another terminal, via the displayed menu, a selection input for the location-based service”) from the same user using the capturing and receiving devices (“from the user”). *Id.*, ¶210.

- d. [1h], [13h] receiving, at the another terminal, location-based service data corresponding to the location data of the selected second image data; and**

Singh-Abram-Odashima-Bullock teaches this feature for the same reasons as §VIII.A.1.i. *Michalson*, ¶211.

- e. [1i], [13i] providing the location-based service to the another terminal by using the received location-based service data.**

Singh-Abram-Odashima-Bullock teaches this feature for the same reasons as §VIII.A.1.j. *Michalson*, ¶212.

2. Claims 4, 7-14

Singh-Abram-Odashima-Bullock teach these features for the same reasons as §§VIII.A.2 - VIII.A.8. *Michalson*, ¶213.

D. Ground 1D: *Singh-Abram-Ogura-Odashima-Bullock* Renders Claims 1, 4, 7-14 Obvious

1. Claims 1, 13

- a. [1pre], [13pre] A location-based service method using image data provided by a terminal equipped with a camera, and using location data that includes location information of the terminal, comprising:**

To the extent the preamble is limiting, *Singh* teaches this feature for the same reasons as §VIII.A.1.a. *Michalson*, ¶214.

- b. [1a], [13a] - [1b], [13b]**

Singh in combination with *Abram* and *Ogura* teaches these features for the same reasons as §VIII.B.1.b. *Michalson*, ¶215.

- c. [1c], [13c] - [1f], [13f]**

Singh-Abram-Ogura in combination with *Odashima* teaches these features for the same reasons as §§VIII.A.1.d-VIII.A.1.f. *Michalson*, ¶216.

- d. [1e], [13e], [1g], [13g]**

Singh-Abram-Ogura-Odashima-Bullock teaches this feature for the same reasons as §§VIII.C.1.b - VIII.C.1.c. *Michalson*, ¶217.

- e. [1h], [13h], [1i], [13i]**

Singh-Abram-Ogura-Odashima-Bullock teach these features for the same reasons as §§VIII.A.1.i - VIII.A.1.j. *Michalson*, ¶218.

2. Claims 4, 7-14

The *Singh-Abram-Ogura-Odashima-Bullock* combination teaches these features for the same reasons as §§VIII.A.2-VIII.A.8. *Michalson*, ¶219.

E. Ground 2A: *Singh-Abram-Odashima-Suomela* Renders Claims 3, 6 Obvious

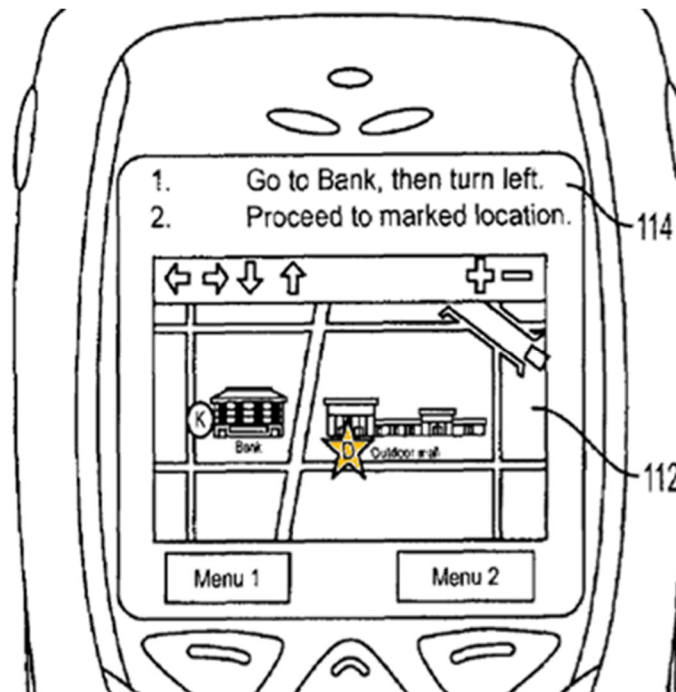
1. [3] The location-based service method according to claim 1, wherein the map includes at least one of geographical information, traffic information, administrative district information, and information including the latitude and the longitude of the location data.

Singh-Abram-Odashima in combination with *Suomela* teaches this feature. *Michalson*, ¶¶220-229.

The *Singh-Abram-Odashima* combination teaches displaying a generated path, but does not expressly disclose providing a map. *See Singh*, [0026] (“The device 109 or map server 104 can generate the paths, and the generated paths can be displayed to the receiving user 108 using the mobile device 109, via step 506.”). *Michalson*, ¶221.

Suomela teaches mobile device 110 is a phone that displays a digital map 112. *Suomela*, 3:43-47, FIG. 1. *Suomela*’s “[m]obile device 110 may comprise a network-enabled wireless device, such as a digital camera, a cellular phone.” *Id.*, 4:25-29. *Suomela*’s mobile device 110 includes a GPS receiver. *Id.*, 5:3-5, FIG. 2. *Suomela*’s digital map 112 provides “a user with directions to a desired destination” identified

by the D symbol. *Id.*, 3:47-50, FIG. 1; *see also id.*, 10:42-46 (identifying “an **Outdoor Mall 804** designated by a “**D**” symbol” as the destination) (**annotated in yellow**). *Suomela*’s FIG. 7 teaches a method for determining navigation instructions including an interactive map 112 displayed on the mobile device 110. *Id.*, 9:23-46. *Michalson*, ¶222.



Suomela, FIG. 1 (excerpted)

Suomela discloses the starting point “may include a user’s current location.” *Suomela*, 3:64-66. Once the route is calculated, using Dijkstra’s shortest path algorithm, for example, *Suomela* discloses providing a “navigation map ... generated by selecting a portion of the graphical map.” *Id.*, 10:25-32, 9:38-46 (disclosing the usage of Dijkstra’s shortest path algorithm), 10:16-19 (same). And

Suomela teaches that “highlighting the recommended route on the navigation map” is one way of providing graphical navigation instructions guiding the user from the starting point to the destination. *Id.*, 10:29-32. *Michalson*, ¶¶223-224.

A POSITA would have recognized *Suomela*’s digital map 112 includes roads and the location of the **destination D**. See *Suomela*, FIG. 1. *Michalson*, ¶225. A POSITA would have therefore understood *Suomela*’s map 112 includes at least geographical information and information about the latitude and longitude of the location data because of the display of roads (“geographical information”) and the location of the destination (“the latitude and longitude of the location data”). *Michalson*, ¶225.

A POSITA would have been motivated to modify the *Singh-Abram-Odashima* combination with *Suomela*’s teachings because doing so would provide graphical navigation instructions in the form of a route on a map with geographical information, and information including the location data, for example. *Id.*, ¶226. A POSITA would have sought to provide such information in a graphical manner, and *Suomela* provides such a teaching and confirms its applicability on a mobile device such as a phone. *Id.*

A POSITA would have found it obvious to modify the *Singh-Abram-Odashima* combination to include the map display teachings from *Suomela* because it is the application of a known technique (*Suomela*’s display of a map providing

graphical navigation instructions to a destination) to a known method (the *Singh-Abram-Odashima* method for generating paths) ready for improvement (*Singh-Abram-Odashima* discloses “the generated paths can be displayed to the receiving user 108 using the mobile device 109, via step 506” but lacks any express disclosure of providing a route on the map using the generated paths). A POSITA would have also found this obvious because it would use a known technique (*Suomela*’s graphical map displayed on a phone with graphical routing information) to improve similar a method (*Singh-Abram-Odashima* generated paths location-based service method) in the same way (providing a graphical map with geographical information). *Id.*, ¶227.

A POSITA would have had a reasonable expectation of success. Like the *Singh-Abram-Odashima* combination, *Suomela* discloses a phone 110, and like *Singh*, *Suomela* teaches using a server 324 providing data “to display map 112.” *Suomela*, 5:47-51. And *Suomela* evidences how graphical maps that provided graphical navigation instructions on a phone existed. *E.g.*, *Id.*, FIG. 1. A POSITA would have therefore had a reasonable expectation of success in modifying the *Singh-Abram-Odashima* combination with *Suomela*’s teachings. *Michalson*, ¶228.

Accordingly, a POSITA would have understood *Suomela* to teach displaying a map with highlighted roads providing the route (“the map includes at least one of geographical information, traffic information, administrative district information”)

and the location of the destination (“and information including the latitude and the longitude of the location data”). *Id.*, ¶229.

2. [6] The location-based service method according to claim 4, wherein the navigation data comprises at least one of the information including the shortest route corresponding to the location data, traffic information and turnaround time.

Singh-Abram-Odashima-Suomela teaches this feature. *Michalson*, ¶¶230-236.

As discussed for claim 4, the *Singh* map server 104 provides the generated path, and a POSITA would have understood *Singh*’s generated path teaches the navigation data. *Michalson*, ¶231. *Singh* discloses a path search algorithm is used to generate paths, via step 505. *Singh*, [0026], [0027]. *Singh* lacks, however, details as to these path search algorithms. *Michalson*, ¶231.

Suomela discloses that the map software uses “an algorithm such as Dijkstra’s shortest path algorithm” to calculate the shortest path between the starting point to the destination. *Suomela*, 9:38-43. “Other known wayfinding methods may be used, such as methods that evaluate the fastest route, the shortest route using highways, and the shortest route using local roads between the starting point and the destination.” *Id.*, 9:43-46. *Michalson*, ¶232. A POSITA would have therefore understood *Suomela* to teach how to obtain the shortest route corresponding to the location data, at a minimum. *Id.*, ¶232.

A POSITA would have been motivated to modify the *Singh-Abram-Odashima* combination because of *Singh*'s mention that "[p]ath search algorithms are known in the art." *Singh*, [0026]. *Suomela* provides one example of known path search algorithms, the Dijkstra shortest path algorithm, and discloses that "[o]ther known wayfinding methods may be used, such as methods that evaluate the fastest route, the shortest route using highways, and the shortest route using local roads between the starting point and the destination." *Suomela*, 9:43-46. A POSITA would have therefore been motivated to apply *Suomela*'s specific algorithmic teachings to the *Singh-Abram-Odashima* combination. *Michalson*, ¶233.

A POSITA would have found such a combination obvious because it amounts to applying a known technique (*Suomela*'s teachings of using the Dijkstra shortest path algorithm and other known wayfinding methods to find the shortest route between the starting point and the destination) to improve a similar method (the *Singh-Abram-Odashima* combination using known path search algorithms) in the same way (providing the shortest route between the starting point and destination). Similarly, a POSITA would have found such a combination obvious because it amounts to applying a known technique (*Suomela*'s technique of using the Dijkstra shortest path algorithm and other known wayfinding methods to find the shortest route between the starting point and the destination) to improve a known method (the *Singh-Abram-Odashima* combination) ready for improvement (the *Singh-*

Abram-Odashima combination uses path search algorithms “known in the art” but offers no details) to yield predictable results (providing the shortest route between the starting point and the destination). *Id.*, ¶234.

A POSITA would have had a reasonable expectation of success because *Singh* contemplates using a path search algorithm, and *Suomela* provides the specific teachings for the Dijkstra shortest path algorithm. Applying *Suomela*’s teachings to the *Singh-Abram-Odashima* combination would have been straightforward and well within the ordinary skill of a POSITA. *Id.*, ¶235.

Accordingly, a POSITA would have understood *Singh-Abram-Odashima-Suomela* to teach finding the shortest route between the starting point to the destination using the Dijkstra shortest path algorithm (“the navigation data comprises at least one of the information including the shortest route corresponding to the location data”). *Id.*, ¶236.

F. Ground 2B: *Singh-Abram-Ogura-Odashima-Suomela* Renders Claims 3, 6 Obvious

Singh-Abram-Ogura-Odashima in combination with *Suomela* teaches the features of claims 3 and 6 for the same reasons as discussed at §VIII.E for *Singh-Abram-Odashima-Suomela*. *Michalson*, ¶237. A POSITA would have been motivated and found it obvious to modify *Singh-Abram-Ogura-Odashima* with *Suomela* for the same reasons as discussed for Ground 2A for modifying *Singh-*

Abram-Odashima with *Suomela*. See §VIII.E.

G. Ground 2C: *Singh-Abram-Odashima-Bullock-Suomela* Renders Claims 3, 6 Obvious

Singh-Abram-Odashima-Bullock in combination with *Suomela* teaches the features of claims 3 and 6 for the same reasons as discussed at §VIII.E for *Singh-Abram-Odashima-Suomela*. *Michalson*, ¶238. A POSITA would have been motivated and found it obvious to modify *Singh-Abram-Odashima-Bullock* with *Suomela* for the same reasons as discussed for Ground 2A for modifying *Singh-Abram-Odashima* with *Suomela*. See §VIII.E.

H. Ground 2D: *Singh-Abram-Ogura-Odashima-Bullock-Suomela* Renders Claims 3, 6 Obvious

Singh-Abram-Ogura-Odashima-Bullock in combination with *Suomela* teaches the features of claims 3 and 6 for the same reasons as discussed at §VIII.E for *Singh-Abram-Ogura-Odashima-Suomela*. *Michalson*, ¶239. A POSITA would have been motivated and found it obvious to modify *Singh-Abram-Ogura-Odashima-Bullock* with *Suomela* for the same reasons as discussed for Ground 2A for modifying *Singh-Abram-Odashima* with *Suomela*. See §VIII.E.

IX. SECONDARY CONSIDERATIONS

There is no evidence in the prosecution history or elsewhere supporting secondary considerations arguments, or evidence of nexus of such alleged evidence to the claims. To the extent PO asserts the existence of any secondary considerations

in its responses, Petitioners reserve the right to address any such evidence. *Michalson*, ¶240.

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

A. Real Parties-in-Interest

Petitioners identify themselves as the real parties-in-interest.

B. Related Matters

To the best of Petitioners' knowledge, the '060*Pat* has only been involved in the following district court litigation:

- *Hermes IP Management LLC v. Samsung Electronics Co., Ltd. et al.*, 2-24-cv-00540 (E.D. Tex.), filed July 16, 2024.

To the best of Petitioners' knowledge, the '060*Pat* has not been challenged in any other *inter partes* review or post-grant review prior to this proceeding.

On April 22, 2025, Petitioners filed a petition for *inter partes* review that challenged U.S. Patent No. 8,855,720 (IPR2025-00872) which is also asserted in the district court litigation.

C. Lead and Backup Counsel

Lead Counsel	Back-Up Counsel
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D. Service Information

Please address all correspondence to lead and back-up counsel at the addresses shown above. Petitioners consent to electronic service by e-mail.

E. Power of Attorney

A power of attorney is filed herewith according to 37 C.F.R. §42.10(b).

XI. FEES

Petitioners concurrently electronically submit the required fees for this Petition. The Board is authorized to charge Arnold & Porter Kaye Scholer LLP's

deposit account, No. 50-2387, for any fee deficiency.

Date: May 1, 2025

Respectfully submitted,

/Ali R. Sharifahmadian/
Ali R. Sharifahmadian (Reg. No. 48,202)
Counsel for Petitioners

CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that the foregoing Petition for *Inter Partes* Review contains 13,751 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.

/Ali R. Sharifahmadian/
Ali R. Sharifahmadian (Reg. No. 48,202)
Counsel for Petitioners

CERTIFICATE OF SERVICE

I certify that on May 1, 2025, I caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 9,613,060 and supporting exhibits to be served via overnight delivery on the correspondence address of record indicated on Patent's Office Patent Center system for U.S. Patent No. 9,613,060:

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