UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

L'OREAL USA, INC.,

Petitioner

v.

BRIGHTEX BIO-PHOTONICS, LLC,

Patent Owner.

PTAB Case No. IPR2025-00971

Patent No. 9,542,595

Issue Date: January 10, 2017

Title: Systems and Methods for Recommending Cosmetic Products for Users with Mobile Devices

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PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,542,595

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a. 5[pre]: A method for analyzing a skin of a subject and identifying a cosmetic product for the subject, comprising: 16

b. 5[a]: at an electronic device with one or more processors and memory storing one or more

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programs for execution by the one or more processors: 17

c. 5[a1]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;....20

d. 5[a2]: displaying the first digital image; 22

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f. 5[a4]: transferring the first digital image; and....25

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3. Bandic discloses or renders obvious each element of Claim 6....33

a. 6[pre]: An electronic device, comprising: 33

b. 6[a]: one or more processors; and 33

c. 6[b]: memory storing one or more programs for execution by the one or more processors, the one or more programs causing the electronic device to perform a method comprising: 33

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d. 6[b1]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;.....33

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f. 6[b3]: displaying the first digital image; 33

g. 6[b4]: dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product; and.....34

h. 6[b5]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values. 34

4. Bandic discloses or renders obvious each element of Claim 11.....34

a. 11[pre]: A non-transitory computer readable storage medium storing one or more programs for execution by one or more processors of an electronic device, the one or more programs causing the electronic device to perform a method comprising: 34

b. 11[a]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and

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f. 11[e]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values. 35

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a. 5[pre]: A method for analyzing a skin of a subject and identifying a cosmetic product for the subject, comprising: 40

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c. 5[a1]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;.....42

d. 5[a2]: displaying the first digital image; 45

e. 5[a3]: dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product; 46

f. 5[a4]: transferring the first digital image; and.....47

g. 5[a5]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values. 49

4. Rubinstenn103 in view of Bandic discloses or renders obvious each element of Claim 6. 51

a. 6[pre]: An electronic device, comprising: 51

b. 6[a]: one or more processors; and 51

c. 6[b]: memory storing one or more programs for execution by the one or more processors, the one or more programs causing the

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electronic device to perform a method comprising: 51

d. 6[b1]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;....52

e. 6[b2]: transferring the first digital image; 52

f. 6[b3]: displaying the first digital image; 52

g. 6[b4]: dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product; and....52

h. 6[b5]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values. 52

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c. 11[b]: transferring the first digital image; 53

d. 11[c]: displaying the first digital image; 53

e. 11[d]: dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product; and 53

f. 11[e]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values. 54

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b. Rubinstenn103 and Bandic 57

3. The Rubinstenn103-Rubinstenn300-Bandic combination discloses or renders obvious each element of Claim 1. 58

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b. 1[a]: at an electronic device with one or more processors and memory storing one or more programs for execution by the one or more processors: 58

c. 1[a1]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels, and wherein calibrating colors of the first digital image is based on a second digital image of one or more color standards; 58

d. 1[a2]: transferring the first digital image, but prior to transferring the first digital image, transferring the second digital image of one or more color standards; 60

e. 1[a3]: using the second digital image of one or more color standards to correlate one or more colors of one or more color standards and one or more colors of the skin pixels, wherein at least one color space value is identified in accordance with a correlation between the one or more colors of one or more color standards and the one or more colors of the skin pixels; and 62

f. 1[a4]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based

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on the color space values. 64

4. Rubinstenn103 discloses or render obvious Claims 2-3. 64

   a. 2: The method of claim 1, wherein transferring the first digital image is one of sending or receiving the digital image. 64

   b. 3: The method of claim 1, including: transferring a modified image, wherein the modified image is prepared based on the first digital image, and at least a portion of the modified image shows a simulated effect of application of the cosmetic product. 65

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1. 9: The electronic device of claim 6, wherein the method includes: transferring a modified image, wherein the modified image is prepared based on the first digital image, and at least a portion of the modified image shows a simulated effect of application of the cosmetic product. 67

2. 13: The computer readable storage medium of claim 11, wherein the method includes: transferring a modified image, wherein the modified image is prepared based on the first digital image, and at least a portion of the modified image shows a simulated effect of application of

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6. 12: The computer readable storage medium of claim 11, wherein calibrating colors of the first digital image is based on a second digital image of one or more color standards. 69

7. 8: The electronic device of claim 7, wherein the method includes, prior to transferring the first digital image, transferring the second digital image of one or more color standards..... 69

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EXHIBIT LIST

Exhibit	Reference
1001	U.S. Patent No. 9,542,595 ("the '595 patent")
1002	Prosecution History of the '595 patent
1003	Declaration of Dr. Milan Sonka
1004	Curriculum Vitae of Dr. Milan Sonka
1005	U.S. Patent App. Pub. No. 2011/0301441 ("Bandic")
1006	U.S. Patent No. 7,634,103 ("Rubinstenn103")
1007	U.S. Patent App. Pub. No. 2003/0063300 ("Rubinstenn300")
1008	Nina Bhatti et al., *Mobile cosmetic advisor: an imaging based mobile service*, Multimedia on Mobile Devices (Jan. 27, 2010)
1009	Hsien-Che Lee, Introduction to Color Imaging Science, Cambridge Univ. Press (2005)
1010	Milan Sonka et al., Image Processing, Analysis, and Machine Vision, Chapman and Hall Publishers (1993)
1011	U.S. Patent App. Pub. No. 2004/0108384
1012	János Schanda, *Colorimetry: Understanding the CIE System,* John Wiley & Sons, Inc. (March 1, 2007)
1013	Yoshi Ohno et al., *CIE Fundamentals for Color Measurements*, IS&Ts NIP16: 2000 International Conference on Digital Printing Technologies (2000) (accessible at https://tsapps.nist.gov/publication/get_pdf.cfm?pub_id=841491 (Accessed May 6, 2025))
1014	Color Calibration Chart, Jason-Jones.com (January 19, 2010) (accessible at https://jason-jones.com/articles/107-photography/303-color-calibration-chart)
1015	*Brightex Bio-Photonics, LLC, v. L'Oreal USA, Inc.*, Case No. 24-cv-07919-JCS, Dkt. No. 34 (Mar. 14, 2025) (Patent Case Management and Pretrial Order (including schedule))
1016	L'Oreal USA's Stipulation Regarding Invalidity Contentions (*Sotera* Stipulation)

LISTING OF CHALLENGED CLAIMS

Reference	Claim Limitation
Claim 1	
1[pre]	A method for analyzing a skin of a subject and identifying a cosmetic product for the subject, comprising:
1[a]	at an electronic device with one or more processors and memory storing one or more programs for execution by the one or more processors:
1[a1]	calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels, and wherein calibrating colors of the first digital image is based on a second digital image of one or more color standards;
1[a2]	transferring the first digital image, but prior to transferring the first digital image, transferring the second digital image of one or more color standards;
1[a3]	using the second digital image of one or more color standards to correlate one or more colors of one or more color standards and one or more colors of the skin pixels, wherein at least one color space value is identified in accordance with a correlation between the one or more colors of one or more color standards and the one or more colors of the skin pixels; and
1[a4]	transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values.
Claim 2	
2	The method of claim 1, wherein transferring the first digital image is one of sending or receiving the digital image.
Claim 3	
3	The method of claim 1, including: transferring a modified image, wherein the modified image is prepared based on the first digital image, and at least a

Reference	Claim Limitation
	portion of the modified image shows a simulated effect of application of the cosmetic product.
Claim 4	
4	The method of claims 1, wherein the first digital image further depicts one or more color standards.
Claim 5	
5[pre]	A method for analyzing a skin of a subject and identifying a cosmetic product for the subject, comprising:
5[a]	at an electronic device with one or more processors and memory storing one or more programs for execution by the one or more processors:
5[a1]	calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;
5[a2]	displaying the first digital image;
5[a3]	dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product;
5[a4]	transferring the first digital image; and
5[a5]	transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values.
Claim 6	
6[pre]	An electronic device, comprising:
6[a]	one or more processors; and
6[b]	memory storing one or more programs for execution by the one or more processors, the one or more programs causing the electronic device to perform a method comprising:
6[b1]	calibrating colors of a first digital image, wherein the first

Reference	Claim Limitation
	digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;
6[b2]	transferring the first digital image;
6[b3]	displaying the first digital image;
6[b4]	dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product; and
6[b5]	transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values.
Claim 7	
7	The method of claim 6, wherein calibrating colors of a first digital image is based on a second digital image of one or more color standards.
Claim 8	
8	The electronic device of claim 7, wherein the method includes, prior to transferring the first digital image, transferring the second digital image of one or more color standards.
Claim 9	
9	The electronic device of claim 6, wherein the method includes: transferring a modified image, wherein the modified image is prepared based on the first digital image, and at least a portion of the modified image shows a simulated effect of application of the cosmetic product.
Claim 10	
10	The electronic device of claim 6, wherein the first digital image further depicts one or more color standards.

Reference	Claim Limitation
Claim 11	
11[pre]	A non-transitory computer readable storage medium storing one or more programs for execution by one or more processors of an electronic device, the one or more programs causing the electronic device to perform a method comprising:
11[a]	calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;
11[b]	transferring the first digital image;
11[c]	displaying the first digital image;
11[d]	dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product; and
11[e]	transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values.
Claim 12	
12	The computer readable storage medium of claim 11, wherein calibrating colors of the first digital image is based on a second digital image of one or more color standards.
Claim 13	
13	The computer readable storage medium of claim 11, wherein the method includes: transferring a modified image, wherein the modified image is prepared based on the first digital image, and at least a portion of the modified image shows a simulated effect of application of the cosmetic product.
Claim 14	
14	The computer readable storage medium of claim 11, wherein the method includes, prior to transferring the first digital image, transferring the second digital image of one or more

Reference	Claim Limitation
	color standards.
Claim 15	
15	The computer readable storage medium of claim 11, wherein the first digital image further depicts one or more color standards.

I. INTRODUCTION

Pursuant to 35 U.S.C. § 311 and 37 C.F.R. § 42.100, L'Oréal USA, Inc. ("Petitioner") requests *inter partes* review ("IPR") of all claims (claims 1-15) of U.S. Pat. No. 9,542,595 ("the '595 patent"; Ex. 1001). This petition demonstrates a reasonable likelihood that Petitioner will prevail in establishing invalidity of at least one of the challenged claims.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(B)

A. Real Party in Interest

The real party in interest is L'Oréal USA, Inc., and there are no other parties in interest to the best of Petitioner's knowledge.

B. Related Matters

The '595 patent is asserted against Petitioner in *Brightex Bio-Photonics, LLC, v. L'Oreal USA, Inc.*, Case No. 3:24-cv-07919 ("the Litigation"), filed in the Northern District of California on November 12, 2024.

C. Counsel and Service Information

Pursuant to 37 C.F.R. §§ 42.8(b)(3), 42.8(b)(4) and 42.10(a), Petitioner appoints the following lead and back-up counsel:

Lead counsel: Cory Owan (Reg. No. 79,841).

Back-up counsel: Ramsey Al-Salam (pro hac vice forthcoming), Jessica Delacenserie (pro hac vice forthcoming), and Sarah Anderson (pro hac vice forthcoming).

These attorneys can be reached by mail at Perkins Coie LLP, 1201 Third Avenue, Suite 4900, Seattle, Washington 98101, by phone at 206-359-8000 and by fax: 206-359-7385.

Petitioner consents to electronic service. All services and communications to the attorneys listed above may be sent to:

LOreal-Brightex-IPR@perkinscoie.com

A Power of Attorney for Petitioner is being filed concurrently.

Petitioner requests authorization to file motions for Ramsey M. Al-Salam, Jessica Delacenserie and Sarah Anderson to appear pro hac vice. Mr. Al-Salam and Ms. Delacenserie represent Petitioner in the Litigation.

III. *INTER PARTES* REVIEW REQUIREMENTS

This Petition complies with all statutory requirements and requirements under 37 C.F.R. §§ 42.104, 42.105 and 42.15 and should be accorded a filing date on the date it was filed, pursuant to 37 C.F.R. § 42.106.

A. Grounds for Standing

Petitioner certifies that the ’595 patent is available for IPR and that the Petitioner is not prevented from requesting this petition. The complaint in the Litigation was served on November 19, 2024.

B. Identification of Challenge

1. Prior Art

Petitioner respectfully requests review and cancellation of all claims of the

'595 patent in view of:

Prior Art
Bandic (U.S. Patent App. Pub. No. 2011/0301441), published on December 8, 2011; prior art at least under § 102(a)(1) [1] (EX1005)
Rubinstenn103 (U.S. Patent No. 7,634,103), issued on December 15, 2009; prior art at least under § 102(a)(1) (EX1006)
Rubinstenn300 (U.S. Patent App. Pub. No. 2003/0063300), published on April 3, 2003; prior art at least under § 102(a)(1) (EX1007)

2. Grounds

Ground	Claim(s)	Reference(s)
1 (§103)	5, 6, 11	Bandic
2 (§103)	5, 9, 11	Rubinstenn103, Bandic
3 (§103)	1, 2, 3, 4	Rubinstenn103, Rubinstenn300, Bandic
4 (§103)	9, 13, 10, 15, 7, 12, 8, 14	Rubinstenn103, Rubinstenn300, Bandic

IV. OVERVIEW OF THE '595 PATENT

A. Technology Background

The technology for "systems and methods for recommending cosmetic products for users with mobile devices"—the title of the '595 patent—was already

[1] All references to 35 U.S.C. §§102, 103 are to the AIA statutory framework. The '595 patent claims priority to a provisional application filed on March 25, 2013.

well established and widely recognized in the field by its filing date of March 2014. EX1003 ("Sonka"), ¶¶ 51-61.

Notably, a 2010 publication titled "Mobile Cosmetics Advisor: An Imaging Based Mobile Service" described a mobile-based cosmetic recommendation system where a user first "photograph[ed] herself using a cell-phone camera while holding a specifically designed color chart[,]" the image was calibrated using the color chart, that calibrated image was sent to a backend server, and the system then analyzed the image to determine the user's ideal foundation makeup color, and transmitted that cosmetic color to the user. EX1008 at 2-3; Sonka, ¶¶ 52-53.

Figure 1 (below) of EX1008 illustrated the method, showing an original picture, color correction, identification of skin pixels to analyze the face, and a recommended makeup color sent via a message. Sonka, ¶¶ 53-57.

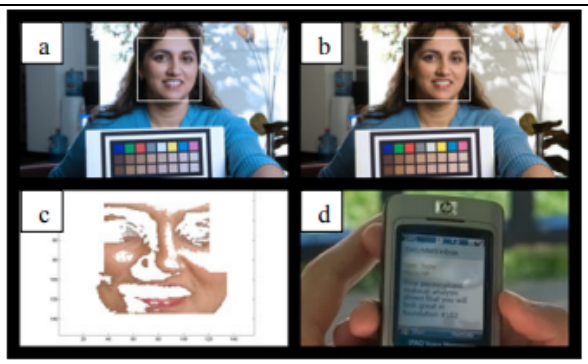


Figure 1. (a) Original image face detection b) color correction, (c) sorted skin pixels, and (d) SMS recommendation.

The paper described solutions for properly determining the skin tone of the user (using a color chart or known color reference) and solutions for ensuring quality control of the captured images and the network architecture that allowed

the service to work. EX1008 at 4-5, 9-10; Sonka, ¶¶ 53-55. Figures 2 and 7 further illustrate the process and architecture, showing that the user's image is transmitted to a server, processed, and a recommendation is sent back. EX1008 at 3, 7-8; Sonka, ¶¶ 54, 61.

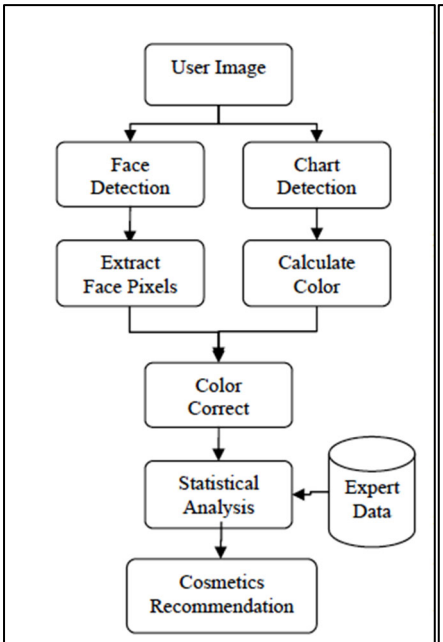


Figure 2. Color Match Service Block Diagram.

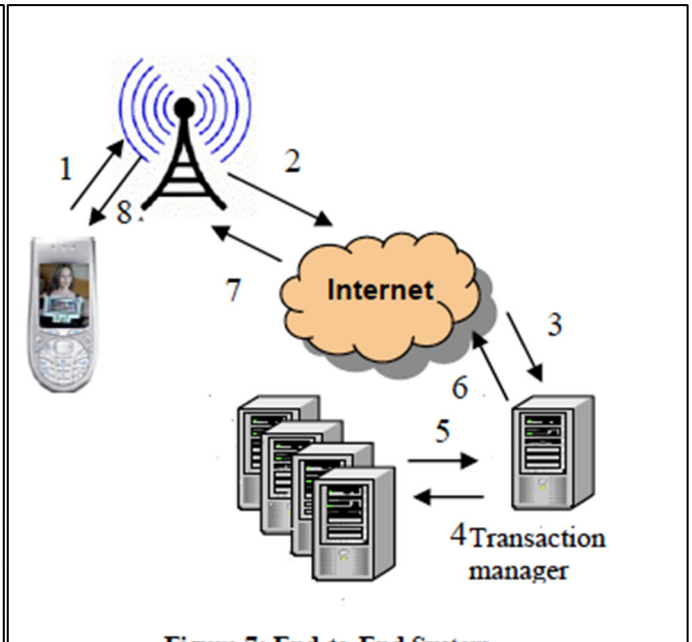


Figure 7: End-to-End System.

B. Overview of the '595 Patent

The '595 patent claims priority to a provisional application filed on March 25, 2013 (EX1001). The '595 patent seeks to address problems with traditional cosmetic selection, such as an individual conducting multiple trials with different products, wasting time, or selecting a wrong cosmetic because their perception of which color is "correct" for their skin tone is incorrect. EX1001 at 1:38-44; Sonka, ¶ 62. Accordingly, the '595 patent purports to create a method and electronic system for "analyzing the skin of a subject and identifying a cosmetic product for

the subject[/user].” EX1001 at Abstract, 1:48-53; Sonka, ¶ 63. The method/system performs (1) transferring a digital image containing a portion of the subject’s face (where the image has pixels), (2) identifying skin pixels from the image, identifying color space values from the skin pixels, and identifying a cosmetic product based on the color space values, and (3) transferring information about that cosmetic product. *Id.* at 1:51-58, 1:61-2:2, 2:6-14; Sonka, ¶ 63.

Figure 1 (annotated below) depicts the alleged system. Sonka, ¶ 64. A **client device 102** includes devices such as a “cell phone, . . . desktop computer, or laptop computer.” EX1001 at 3:6-7[2], 3:12-17. The **client 102** may be connected to a camera module for receiving images. *See* EX1001 at 6:34-37. “**Client 102** is connected to cosmetics identification system 108 via communications network(s) 106,” which could be a variety of networks, such as the Internet or local area network. EX1001 at 3:19-21, 3:53-60. The “[c]osmetics identification system 108 includes one or more servers, such as **server 112,”** which communicates with the **client 102** over the network 106. EX1001 at 3:26-27, 3:39-41, 3:61-62; Sonka, ¶ 64.

[2] Petitioner added the color to all quoted text that is colored.

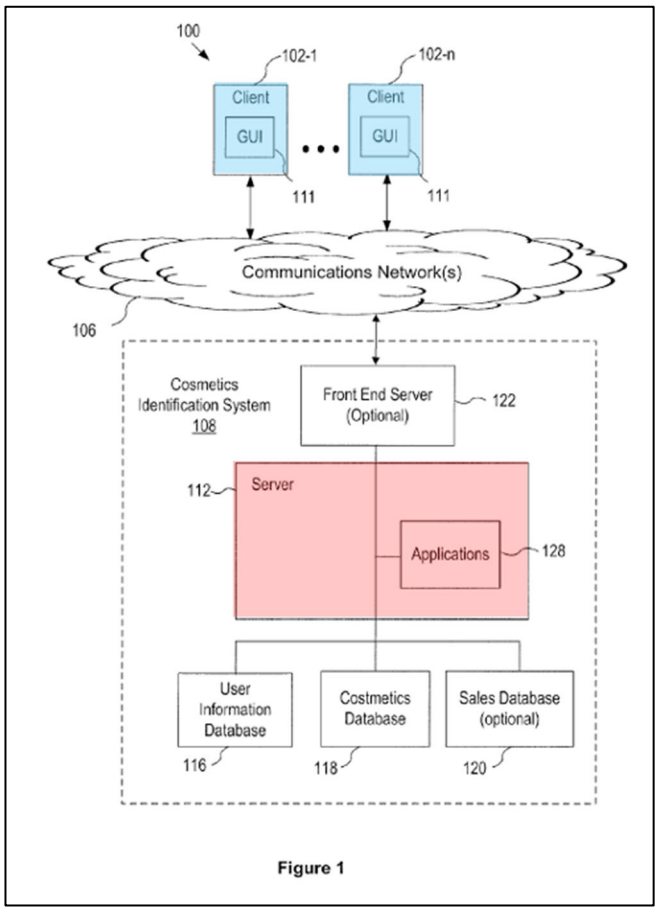


Figure 1

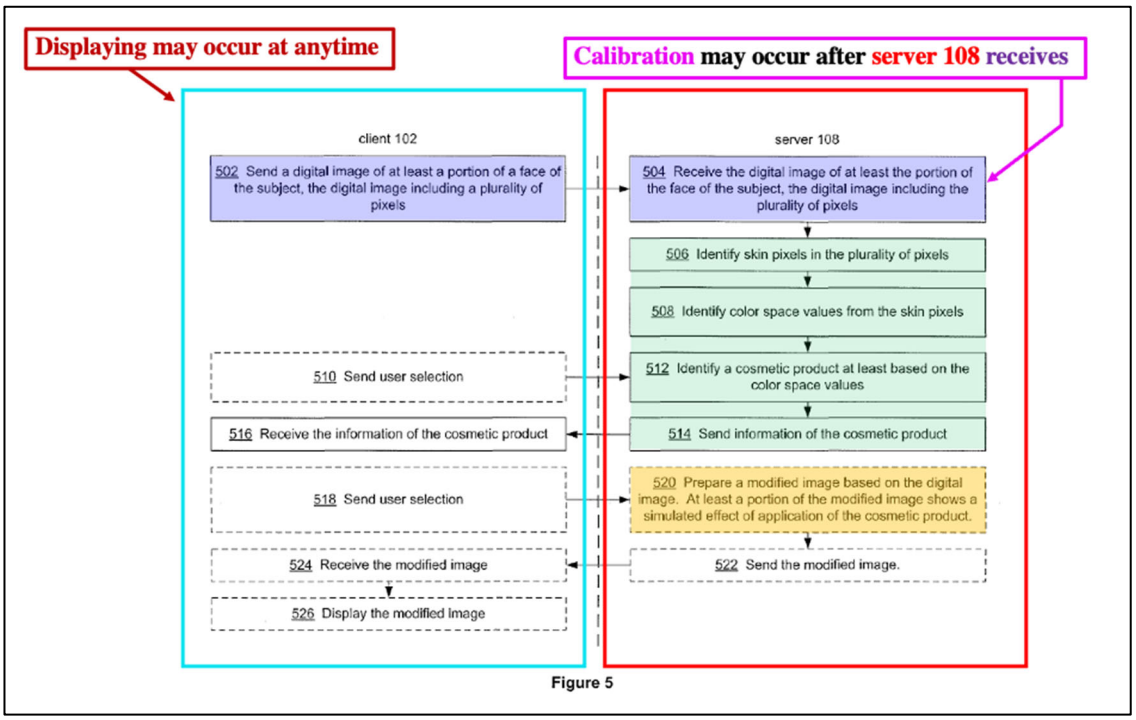
Figure 5 (annotated below) illustrates the functions of Figure 1's modules. Sonka, ¶¶ 65-70. **Client 102** has an "image display module 320 for **displaying** one or more images on display device." EX1001 at 7:2-4; *see id.* at 6:21-22, Fig. 3; Sonka, ¶ 66. The '595 patent does not describe when the **client 102** must **display** the image. Sonka, ¶ 66. **Client 102** may "**send**[] (502) a digital image of at least a portion of a face of the subject (e.g., a user) to **server 108**." EX1001 at 8:20-22.[3]

[3] The '595 patent interchanges "server 116" and "server 108" when describing Figure 5.

Next, the "**server 108 receives** (504) the digital image" (which contains multiple skin pixels). EX1001 at 8:20-24; Sonka, ¶ 67.

Server 108 may calibrate the image once it receives image and calibration information. EX1001 at 12:12-47, 12:22-24; Sonka, ¶ 68. While not shown in Figure 5, **server 108** may use or receive various calibration information, such as generic equations, illumination condition information, an image of a color standard, such as a color wheel, before receiving the facial image, or an image containing the facial image and color standard. EX1001 at 8:40-9:21, 9:24-29, 12:38-42, 11:35-47, 12:32-36, 12:5-11, 12:32-36; Sonka, ¶¶ 67-69.

After calibrating the image, the **server 108** analyzes it. Sonka, ¶¶ 68-69. Specifically, **server 108** "identifies (506) skin pixels in the digital image," "identifies (508) color space values from the skin pixels," "identifies (512) a cosmetic product at least based on the color space values," and then "sends (514) information of the identified cosmetic product to [the] client 102." EX1001 at 8:25-26, 8:40-41, 9:54-55, 10:17-18. The **server 108** then **prepares a modified image based on the digital image**, which may include dividing the digital image into two sides where one side has no cosmetic product applied and the other side simulates application of the cosmetic. EX1001 at 10:33-40. The modified image is sent (522) to the **client 102**, which can display (526) the modified image. EX1001 at 11:6-9.



EX1001 at Fig. 1 (annotated); Sonka, ¶ 70.

Independent claim 5 recites an electronic device performing steps similar to those described above. Sonka, ¶ 71. They are in a different order than what Figure 5 describes, but nothing in the claim or specification requires that the steps must be in that order.[4, 5] Sonka, ¶ 71. Claim 5 is representative of independent claims 6 and

[4] Petitioner uses Figure 5 as an example to describe the steps discussed in the '595 patent, but Petitioner does not limit the claims to only Figure 5's embodiment or to its order. Sonka, ¶ 71 n.2.

[5] The "first digital image" is recited in multiple limitations and may be displayed in different renditions, such as before or after calibration, in a specific

11. Sonka, ¶¶ 72.

Independent claim 1 is similar to the other independent claims but requires "a second digital image of one or more color standards," where calibrating the first digital image is based on the second image, the second image is transferred before the first image, and the second digital image is used to correlate one or more colors. *See generally* EX1001 at 13:6-33, Fig, 6 (below); Sonka, ¶ 73.

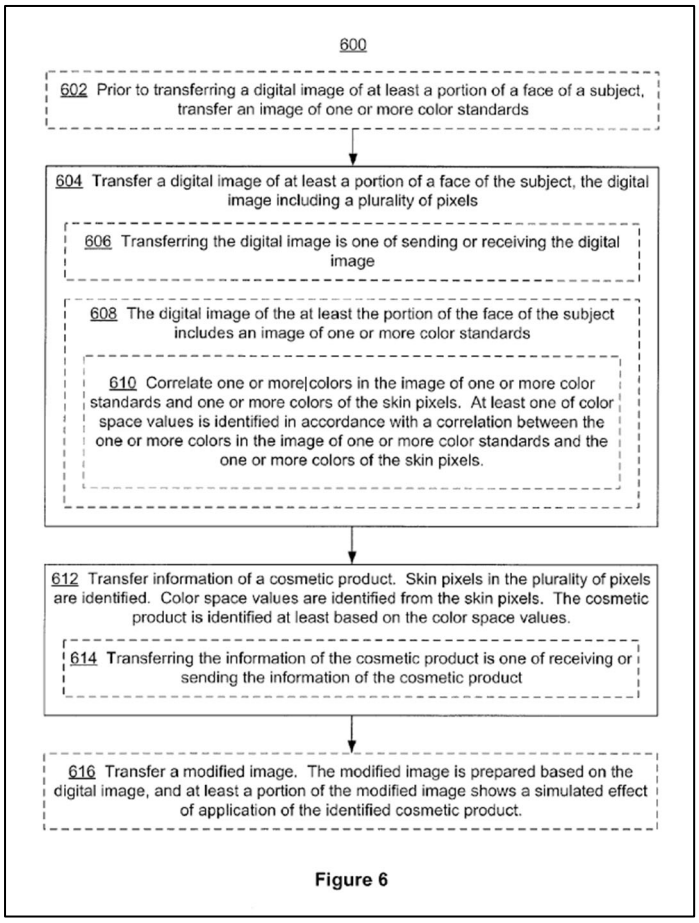


Figure 6

color space representation, or after simulated product application. The "first digital image" as recited in the claims refers to any and all such renditions. Sonka, ¶ 71.

C. Prosecution History

In the initial Office Action on September 17, 2015, the examiner rejected claims 1-3, 5-11, 13-17, and 19-20 as being anticipated by U.S. Patent 8,693,768 ("LaForgia"), and rejected claims 4, 12, and 18 as being obvious over LaForgia in view of U.S. Pat. Pub. 2012/0223956. EX1002 at 72-77. The applicant responded, amending the claims and arguing that LaForgia did not disclose (1) identifying skin pixels from a plurality of pixels and then identifying color space values from the skin pixels, (2) calibrating colors of a digital image, (3) transferring an image of color standards, and (4) dividing a display into two sides where one side shows a cosmetic applied and one side does not. EX1002 at 63-64 (March 17, 2016, Response).

In a second office action on August 23, 2016, the examiner maintained the objection to all claims, noting that the applicant's arguments that LaForgia did not describe certain limitations were unpersuasive. The examiner rejected certain claims as being obvious over LaForgia in view of U.S. Patent 7,577310 ("Kinjo") and acknowledged that some dependent claims would be allowable if written into independent form. EX1002 at 42-48.

In a request for continued examination on August 23, 2016, the applicant cancelled and amended some claims, rewriting some of the dependent claims into independent form. EX1002 at 31-39 (describing the specific rewriting at page 38).

In response, the examiner allowed the claims. EX1002 at 11.

V. LEVEL OF ORDINARY SKILL IN THE ART

As of March 25, 2013, a person of ordinary skill in the art ("POSITA") for the technology of the '595 patent would have had a (1) Bachelor's degree in electrical engineering, computer engineering, biomedical engineering, or comparable field of study such as physics, and (2) approximately two to three years of practical experience in image analysis. Sonka, ¶ 26. Additional experience can substitute for the level of education, and vice-versa. *Id*.

Dr. Sonka was at least a POSITA in the field as of March 2013, and is qualified to offer opinions here. Sonka, ¶¶ 27-28.

VI. CLAIM CONSTRUCTION

Claims should be construed "in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." 37 C.F.R. §42.100(b); *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Petitioner is unaware of any "prior claim construction determination" related to the '595 patent. *See* 37 C.F.R. §42.100(b).

Petitioner has not proposed any terms for construction because no

constructions are necessary to resolve any disputes identified in this Petition.[6] *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

VII. THERE IS A REASONABLE LIKELIHOOD THAT AT LEAST ONE CLAIM OF THE '595 PATENT IS UNPATENTABLE

All claims of the '595 patent are unpatentable for the reasons below. The prior art presented in this Petition was neither cited nor considered by the Patent Office during prosecution of the '595 patent application.

A. Ground 1: Bandic Renders Obvious Claims 5, 6, and 11.

1. Bandic (EX1005)

Bandic discloses methods and apparatus that collect dermal images, analyze those images, make skin condition assessments, and provide "skin care regimen recommendation[s]." Bandic, ¶ 0006; Sonka, ¶ 77. Bandic, like the '595 patent, discloses "a method for determining skin characteristics and cosmetic features using color analysis [which] may include a step of analyzing color of skin images in a pixel by pixel manner in a Red Green Blue (RGB) color system for an acquired digital image." *Id.* at ¶ 0075. Bandic discloses a way to determine the color of a person's skin by "converting colors obtained in device dependent RGB color system into device independent standard RGB color system (sRGB)." *Id.*, ¶

[6] If trial is instituted, Petitioner reserves the right to address construction of any terms raised at trial, or in the related district court actions.

0076. Sonka, ¶ 77.

Bandic's Figure 1 is reproduced and annotated below. Sonka, ¶¶ 78-83. The system comprises "**host hardware 108**, such as an **imaging device 108** [and] . . . **a user interface 102** interfacing with the host hardware 108," and "a **host system 104** for processing and analyzing captured information such as by employing an algorithm 150." Bandic, ¶ 0303 (describing Fig. 1). The **host hardware 108** can be an "imaging device 108 to capture images of skin structures," such as a webcam or an iPhone camera. *Id.*, ¶¶ 0304, 0311. The **user interface 102** may be operable as an application running on a **device 108**, a computer, server, . . . a mobile platform 123, and the like." Bandic, ¶ 0460. The **host hardware 108** or the **user interface 102** may contain a display that displays images taken. Bandic, ¶¶ 0318, 0530; Sonka, ¶¶ 79-80.

The **host system 104** may be a device, such as a server, that offers processing and data/program storage memory that (i) interfaces with peripheral devices (such as a third party hardware's webcam 109), (ii) uses algorithms 150, analysis tools/API's 154, and data integration 152" to track a skin state 158, and (iii) receives product information 190 to support recommending a product. *See* Bandic, ¶¶ 0384, 0480, 0459, 0482, 0486; Sonka, ¶ 81.

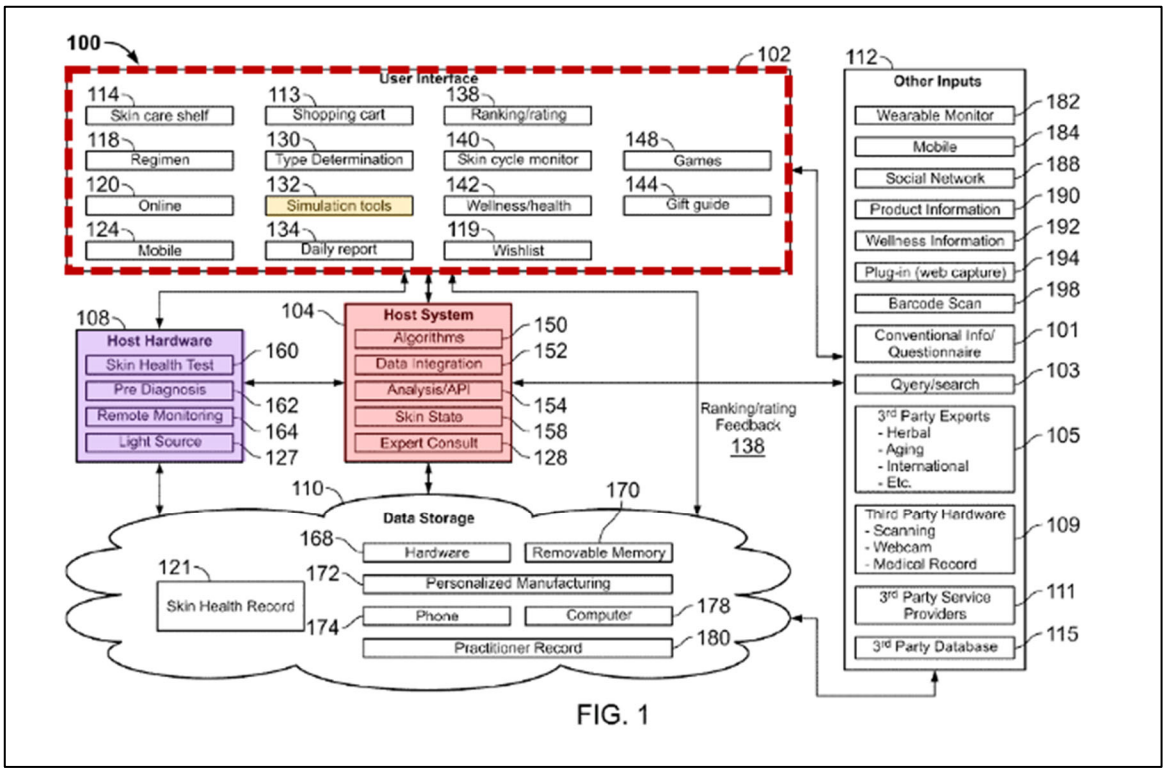


FIG. 1

Bandic's system performs like the '595 patent's system. Sonka, ¶ 82. For example, the imaging **device 108** may "transmit[] images to [the **host system 104's]** analysis facility 154" and the **host system 104's** algorithm 150 may analyze 154 the images (in analysis block 154). *See* Bandic, ¶¶ 0312, 0392, Fig. 1; Sonka, ¶ 82. Analysis 154 calibrates the image's colors in a pixel by pixel manner by converting the device dependent RGB (e.g., red green blue) colors to device independent "standard" RGB values. Bandic, ¶¶ 0427, 0429; Sonka, ¶ 82. Algorithm 150 analyzes 154 the image using an RGB color analysis to determine a skin state 158. Bandic, ¶¶ 0427-0429, 0431, 0436, 0388, 0392. "Given the current skin state 158, a new product or regiment 118 may be recommended." Bandic, ¶ 0498. A **simulation tool 132** in the **user interface 102** can then use the skin state

158 to simulate a "cosmetic regimens 118," which may "include a split image with the original face on one half and a new simulated output on the other half." Bandic. ¶ 0423; Sonka, ¶ 83.

2. Bandic discloses or renders obvious each element of claim 5.

a. 5[pre]: A method for analyzing a skin of a subject and identifying a cosmetic product for the subject, comprising:[7]

To the extent limiting, Bandic teaches or renders obvious 5[pre]. Sonka, ¶¶ 84-87. Bandic teaches "[r]eal-time analysis of digitally captured skin characteristics facilitates timely skin condition assessment [and] skin regimen recommendation . . . ." Bandic, ¶ 0053; *see id.*, ¶¶ 0006, 0057, 0067, 0293, Fig. 1; Sonka, ¶ 85. Bandic's "system for skin health, analysis, monitoring, and recommendation" is depicted at Figure 1. Bandic, ¶ 0303. This comprises "algorithms 150 . . . [with] analysis tools/APIs 154." Bandic, ¶ 0384. "[A]ny captured data or image may be subject to algorithmic analysis" and "determining a skin state 158 may comprise employing an analysis 154." Bandic, ¶ 0388. This "algorithm 150 may be useful for . . . determining a skin state 158," and can help "make a quantitative assessment of . . . cosmetic indications, such as . . . skin color." Bandic, ¶ 0392; Sonka, ¶ 85.

[7] A labelled list of the Challenged Claims precedes the Introduction.

"Given the current skin state 158, a new product or regimen 118 may be recommended." Bandic, ¶ 0498; Sonka, ¶ 86. "Various products and regimens 118 [can be for] skin care, [or] cosmetic" purposes. Bandic, ¶ 0466. Bandic's analysis "may be useful in recommendation of a cosmetic product." Bandic, ¶ 0456; *see also id.*, ¶¶ 0075 (method for determining cosmetic features), 0292 (products includes cosmetics). Accordingly, a POSITA would understand Bandic's analysis to determine cosmetic features and a skin state for a regimen includes identifying a cosmetic. Sonka, ¶ 87.

b. 5[a]: at an electronic device with one or more processors and memory storing one or more programs for execution by the one or more processors:

Bandic teaches or renders obvious 5[a]. Sonka, ¶¶ 88-95. As to "*an electronic device*,"[8] Bandic teaches a system comprising "**host hardware 108**, . . . **a user interface 102** interfacing with the **host hardware 108**," and "a **host system 104** for processing and analyzing captured information . . . ." Bandic, ¶ 0303[9].

[8] Claim language is indicated with italics throughout this Petition.

[9] The discussion about Bandic in this Petition does not combine separate or distinct embodiments. Sonka, ¶ 95. Bandic generally uses the phrase "in an embodiment" to refer to aspects of the system, and a POSITA would understand

"[T]he **user interface 102** may be operable as an application running on a **device 108**, a computer, server, . . . a mobile platform 123, and the like." Bandic, ¶ 0460; *see id.*, ¶ 0461. "[T]he **device 108** may [also] integrate with **user interface 102**." Bandic, ¶ 0386; Sonka, ¶¶ 89-90.

Bandic describes "the system 104 may be home based . . . [where] the device 108 may integrate with a user interface 102 . . . to perform analysis 154, skin state 158 record keeping, obtain referrals/analysis from a . . . algorithm 150." Bandic, ¶ 0386. Implementation of the **host system 104** may be flexible and "may comprise server architecture" but can be "technology agnostic" Bandic, ¶ 0384. Sonka, ¶¶ 89-91.

Bandic also teaches that data storage 110 may be integrated into the host system 104/user interface 102/host device 108. *See* Bandic, ¶ 0312 ("[d]ata may be stored in an internal device memory 168."); Sonka, ¶ 92.

Given that the user interface 102 could integrate with the device 108 and that the host system 104 could encompass the user interface 102 and device 108 to perform analysis, a POSITA would find it obvious that the **device 108**, **user**

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that Bandic is referring to options for a given embodiment and the options are not mutually exclusive. Sonka, ¶ 95.

interface 102, and **host system 104** could all be in one device. Sonka, ¶ 93. Additionally, this device would have data storage 110 because data storage 110 can occur in an internal device memory 168. Sonka, ¶¶ 92-93. *See* Bandic at Fig. 1 (annotated below illustrating single device via the dashed-blue line).

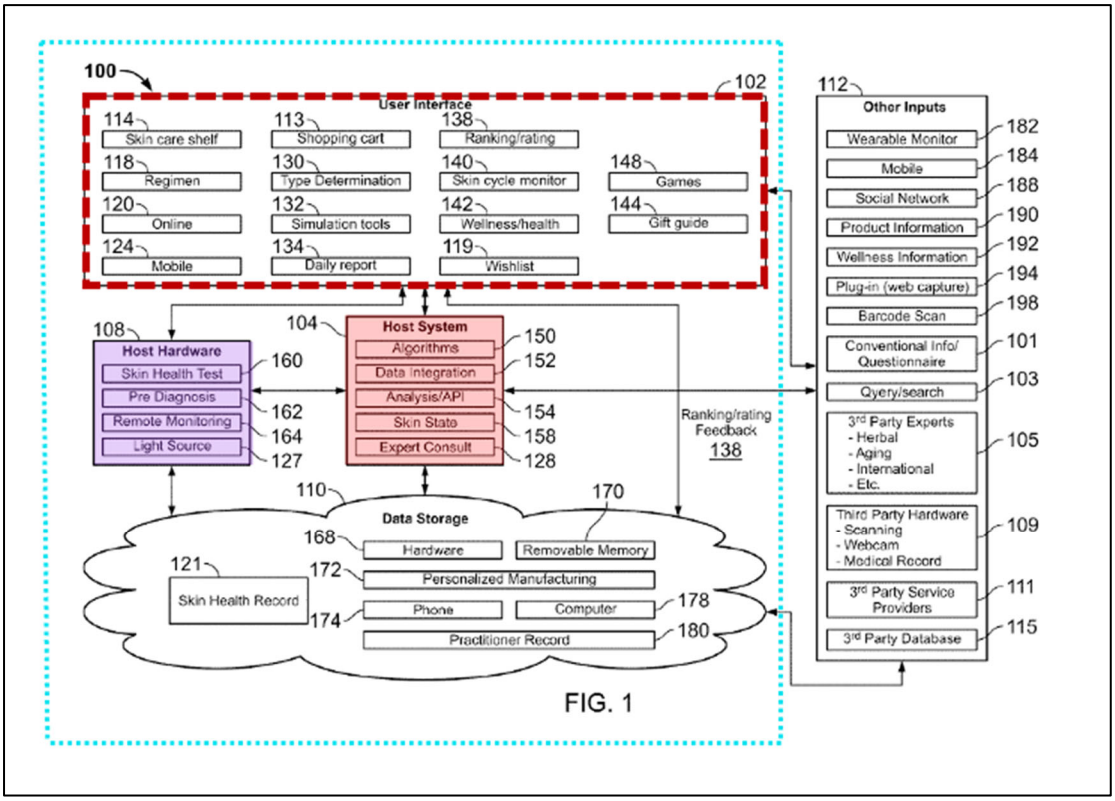


FIG. 1

As to "*processors and memory storing one or more programs for execution*," Bandic teaches that in all embodiments, the "depicted elements and the functions thereof may be implemented on machines through computer executable media having a processor capable of executing program instructions stored thereon . . . ."), Bandic, ¶¶ 1687-89. Because the **device 108**, **user interface 102**, **host system 104**, and data storage 110 could all be in one device, a POSITA would

understand that this device could be a computer, server, or mobile platform, which would necessarily include a processor and memory that would store programs for execution of the processors. Sonka, ¶ 94.

c. 5[a1]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;

Bandic teaches or renders obvious limitation 5[a1]. Sonka, ¶¶ 96-102. As to "*first digital image*," Bandic teaches capturing a first digital image comprising pixels. Sonka, ¶¶ 96-99. **Host hardware 108** can be an "imaging device 108 to capture images of skin structures." Bandic, ¶ 0304; Sonka, ¶ 97. The imaging system may be a variety of sources, such as a "camera embedded in a cell phone or iPhone" and may capture an "image [of] any size area, such as . . . **the full face** . . . ." Bandic, ¶ 0311 (emphasis added). Instead of the host hardware 108 capturing the image, the image could be captured using third-party hardware 109, such as a webcam. Bandic, ¶ 0311 ("[A] sensor for detecting . . . light . . . maybe in embodied in . . . webcam"); *id.* at Fig. 1 (showing third party hardware 109 comprises webcam); Sonka, ¶ 98. Additionally, "color digital images are made up of pixels." Bandic, ¶ 0602; Sonka, ¶ 99.

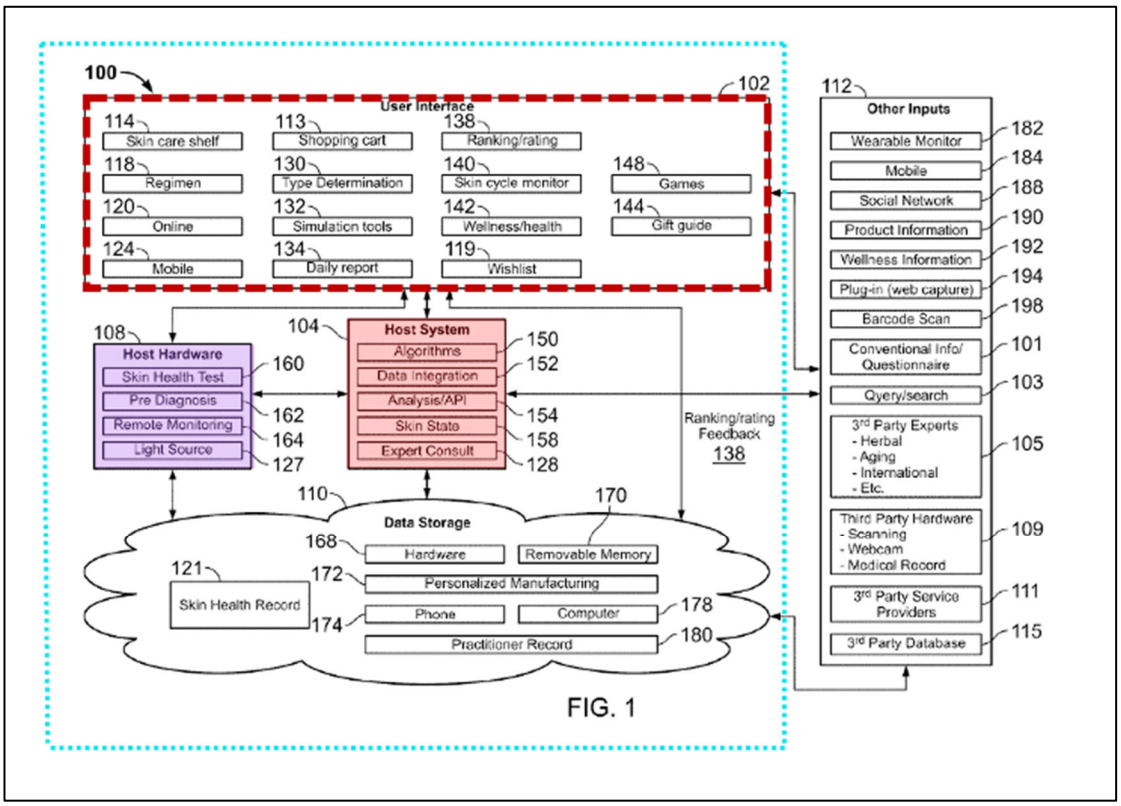


FIG. 1

Bandic at Fig. 1 (annotated).

As to "*calibrating colors of a first digital image*," the **imaging device 108** can send the digital image to the **host system 104**, which can analyze 154 the image using algorithm 150. Bandic, ¶¶ 0312, 0392, 0427, 0429; Sonka, ¶¶ 100-02. The analysis may calibrate the acquired digital image via color offset correction. Sonka, ¶ 101. Algorithm 150 "may use RGB color analysis." Bandic, ¶¶ 0427; *see also id.*, ¶¶ 0429, 0428, 0435, 0439. The color analysis includes "analyzing the color of skin images in a pixel by pixel manner." Bandic, ¶ 0429. As part of this analysis, "colors obtained in a device dependent RGB color system are then converted into a device independent standard RGB color system (sRGB)." Bandic,

¶ 0429; Sonka, ¶ 101; *see also id.* ¶¶, 0430 (using a color standard space), 0435, 0439, at Fig. 58 (describing color offset) and Fig. 59 (depicting pixel view of image of subject's face).

A POSITA would understand that the color offset correction calibrates the colors of the first digital image because it converts device dependent colors into device independent colors. Sonka, ¶ 102 (citing EX1009); *see also* Bandic, ¶ 1144 (describing "calibration" meaning).

d. 5[a2]: displaying the first digital image;

Bandic discloses or renders obvious limitation 5[a2]. Sonka, ¶¶ 103-07. Bandic discloses that the "**user interface 102** to the **device 108** may display a real time view of the imaging." Bandic, ¶ 0318 (color added). Bandic's use of "digital imaging" implies "display of such images." Bandic, ¶ 0530. A POSITA would understand that a display or the user interface 102 could show a real time image of what is being captured and thus could show the captured facial image. Sonka, ¶ 104.

Bandic's Figures 6 and 7 further teach displaying the initial facial image. Sonka, ¶ 105-107. Figure 6 depicts an interactive modeling tool of Bandic's skin care system. Bandic, ¶ 0113. Bandic teaches that as shown in "Fig. 6, a user may use a user interface 102 to access the simulation tools 132. In the example, the image of an entire face may be used . . . . After selecting or capturing a starting

image, a user may indicate the kind of simulation they would like to perform." Bandic, ¶ 0423. Thus, Bandic teaches that the first digital image could be displayed on the user interface 102's display, such as on the simulation tool 132 (*see* Fig. 6 below lower left image). Sonka, ¶ 106.

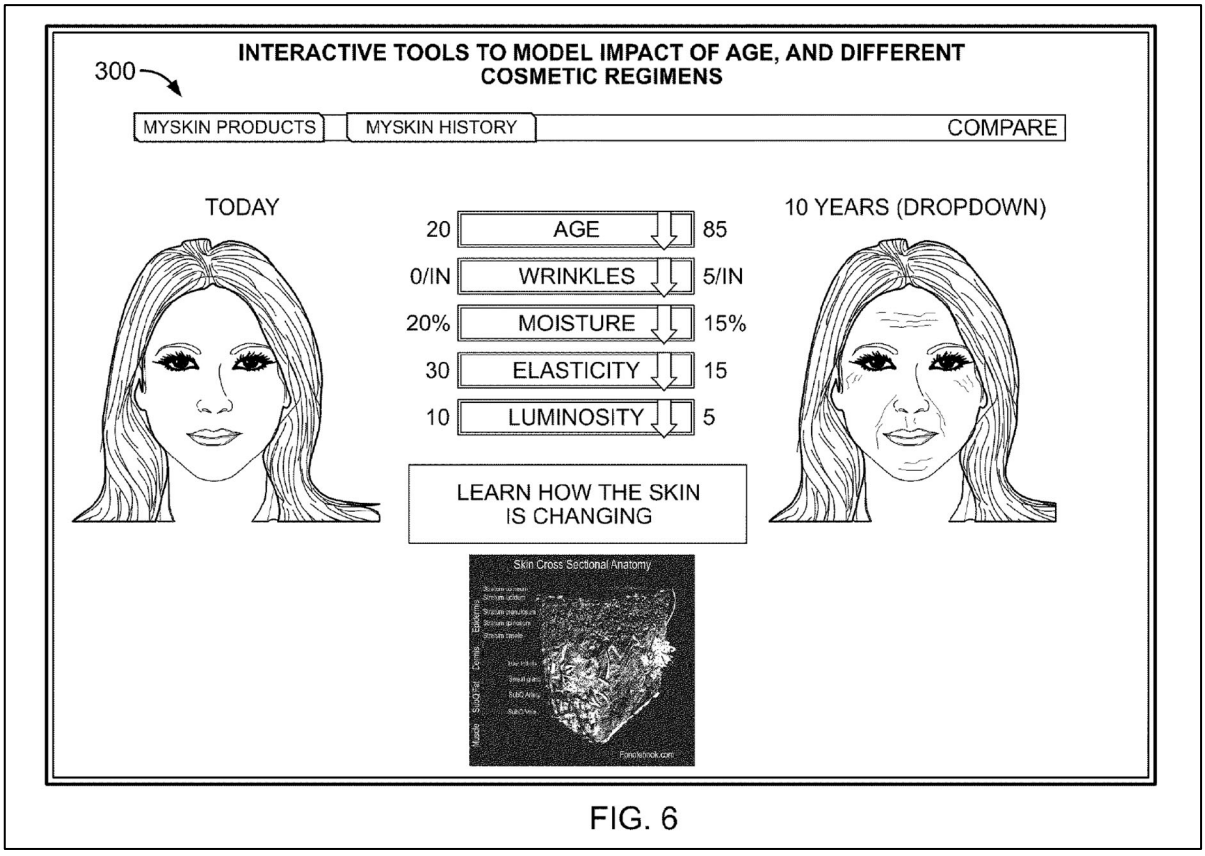


FIG. 6

Bandic at Fig. 6.

Similarly, Figure 7 is a recommendation page of the skin care system. *Compare* Bandic, ¶ 0107 (Fig. 1 is skin care system) *with* ¶ 0114 (Fig. 7 is a recommendations page). A POSITA would understand that Fig. 7 illustrates a webpage or visual shown on the display of user interface 102. Bandic at ¶ 0114 ("FIG. 7 depicts a recommendations page of a skin care system."); Sonka ¶ 107.

Bandic's Figure 7 teaches that the user may acquire an initial image, (Bandic, ¶ 0488), and Figure 7 below discloses that this initial image is displayed on the left.

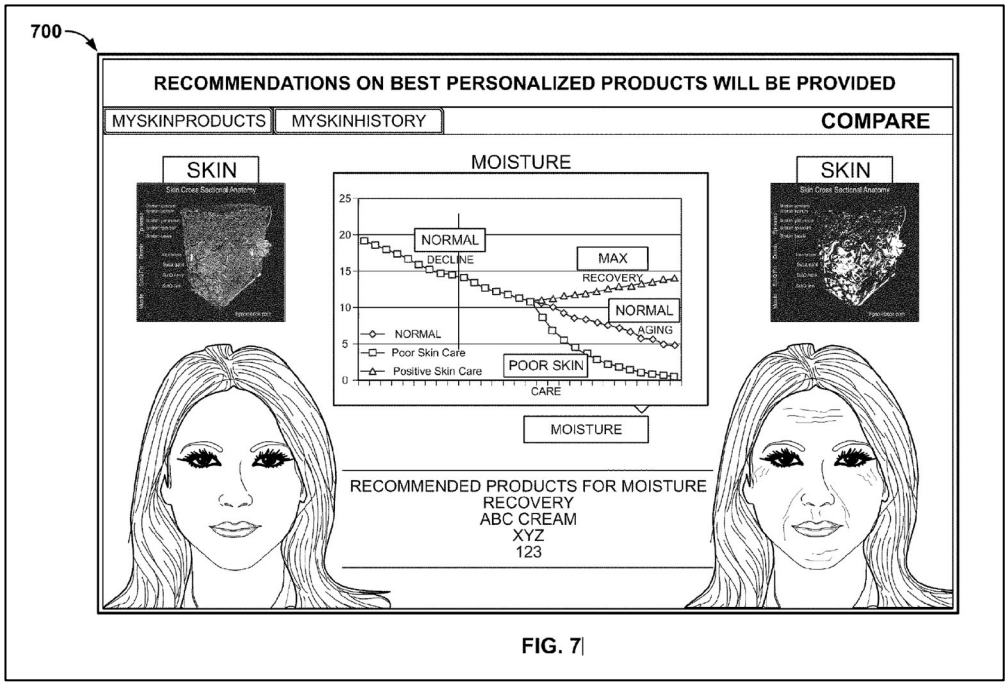


FIG. 7

Bandic at Fig. 7.

Accordingly, a POSITA would find it obvious that the user interface could display the first digital image. Sonka, ¶ 103.

e. 5[a3]: dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product;

Bandic discloses or renders obvious limitation 5[a3]. Sonka, ¶¶ 108-110. Bandic's user interface 102 contains a simulation tool 132 that divides an image into two halves and simulates a cosmetic applied on one of the halves. Sonka, ¶ 109. Specifically, Bandic teaches "a user may use a user interface 102 to access the

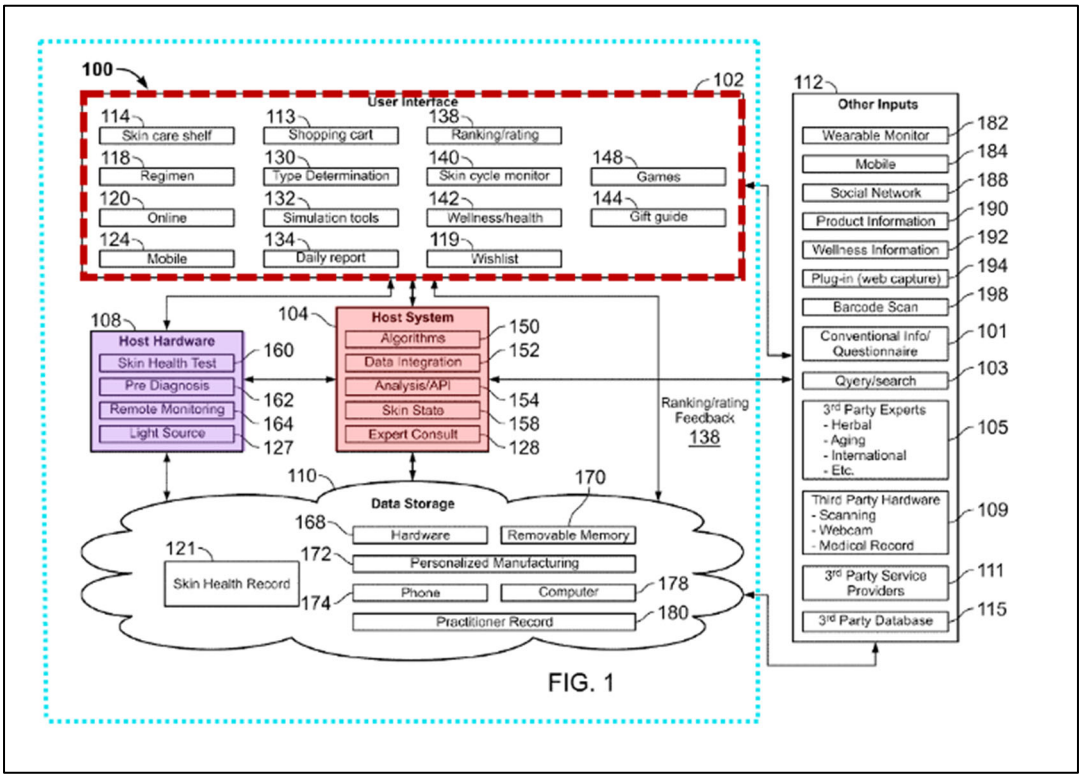
simulation tools 132," and the "algorithm 150 for determining a skin state 158 may enable prediction/simulation tools 132." Bandic, ¶ 0423. Bandic further describes that, using "[t]he simulation tool 132 may return data on . . . product usage simulation . . . . For example, the output may also include a split image with the original face on one half and a new simulated output on the other half." *Id.* Because the simulation tool 132 could simulate product usage on the facial image, a POSITA would find it obvious that the simulation could be for a cosmetic product. Sonka, ¶ 109.

It would also be obvious to a POSITA that the simulation tool could simulate application of the cosmetic which was determined by the host system 104. Sonka, ¶ 110 (also citing *infra* 5[a5] discussion).

f. 5[a4]: transferring the first digital image; and

Bandic discloses or renders obvious limitation 5[a4]. Sonka, ¶¶ 111-115. Bandic's system transfers (receives) the first digital image from a peripheral that is used to capture the image. Sonka, ¶ 112. The claimed "device" may be a single device where the host hardware 108, user interface 102, host system 104, and data storage 110 are integrated into a single device. *See supra* § VII.A.2.b (5[a]); Sonka, ¶ 112. A mobile phone may transmit the first digital image to the user interface 102. Bandic, ¶ 0503 ("mobile phone may have an attachment or an integrated feature that may enable a user to take an image of the skin and

input/capture data and have it connect via the web, wirelessly or via cable, to the user interface 102 and enable seamless connectivity and data transfer."). Sonka, ¶ 112. Images can be sent from the webcam (which is an external input) to the user interface 102 or the host system 104. *See* Bandic, ¶ 0311 ("a sensor for detecting reflected light . . . from the skin may be embodied in a . . . webcam), *id.* at Fig. 1 (showing webcam (in third party hardware 109) can transmit to the user interface or the host system). Sonka, ¶¶ 112-13.



Bandic at Fig. 1 (annotated).

Bandic's system can also transmit images from the **device 108** to the **host system 104**. Sonka, ¶ 114. The **device 108** can be an imaging device to capture images (Bandic, ¶ 0304) and may transmit captured images to an analysis facility

154 (which is part of the **host hardware 104**) (Bandic, ¶ 0312). Bandic, ¶ 0312 ("device 108 may store captured images for analysis and/or transmittal to an analysis facility 154."). The images "may be transmitted over . . . a wired connection," *Id*; Sonka, ¶ 114.

g. 5[a5]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values.

Bandic discloses or renders obvious limitation 5[a5]. Sonka, ¶¶ 116-129. As to "*skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels*," Bandic teaches that the algorithm 150 (which is in the **host system 104**) conducts an RGB color analysis. Bandic, ¶¶ 0427-0428. The color analysis includes analyzing each pixel's color after converting each pixel from a device dependent color to a device independent standard value:

> In an exemplary embodiment of the present invention, a method for determining skin characteristics and cosmetic features using **color analysis includes a step of analyzing the color of skin images in a pixel by pixel manner in a Red Green Blue (RGB) color system** for an acquired digital image. . . . The step of analyzing the color of skin images in a pixel by pixel manner in a sRGB color system for an acquired digital image comprises analyzing a picture of a part of a person's skin by generating a table of most frequent colors appearing in the picture.

Bandic, ¶ 0429 (emphasis added). As part of the analysis, the pixels are converted into values for a color space, such as into standard RGB color space values.

Bandic, ¶¶ 0430, 0431 ("The step of generating a sample of most frequent sRGB colors responsive to analyzing the color of skin images in the sRGB color system for the acquired digital image comprises preserving a plurality of sRGB color values."); Sonka, ¶ 116.

Figure 58 (a process for determining a skin phototype), illustrates this, describing that an image of a subject is analyzed in a pixel-by-pixel manner, the device dependent RGB colors are calibrated (*e.g.*, converted into standard (device independent) "sRGB" color values), and those values are generated in a range between 0 and 255. Bandic, ¶ 0436, Fig. 58 (annotated); *see also* Bandic, ¶ 0505, Fig. 19; Sonka, ¶ 117; *see also* Sonka, ¶ 118.

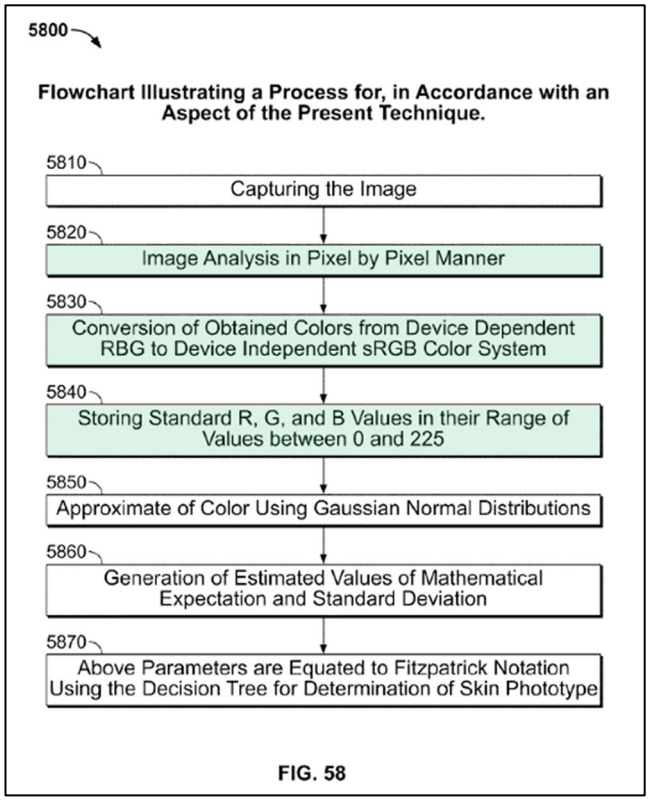


FIG. 58

As to "*the cosmetic product is identified at least based on the color space values*," Bandic's algorithm 150 can be used to determine skin phototype and skin state. Sonka, ¶¶ 119-20. For example, algorithm 150's color analysis can determine skin phototype. Bandic, ¶ 0427; Sonka, ¶ 119. Algorithm 150 may be used to determine skin state 158, such as "mak[ing] a quantitative assessment of . . . cosmetic indications, such as . . . skin color." Bandic, ¶ 0392. Bandic discloses that a skin state provides a comprehensive description of the skin from the images, and skin phototype and skin color are elements of skin state. Bandic, ¶ 0554; Sonka, ¶¶ 119-21.

The skin state 158 may be used to "recommend and design personalized products based on skin health . . . ." Bandic, ¶ 0388; *see also* Bandic, ¶ 0498 ("Given the current skin state 158, a new product or regimen 118 may be recommended."). Bandic also teaches that a POSITA would appreciate that its RGB color analysis "may be useful in recommendation of a cosmetic product." *See* Bandic, ¶ 0456; Sonka, ¶ 119.

Given these broad disclosures, a POSITA would find it obvious that Bandic discloses that its algorithm 150's use of color analysis can be used to identify a cosmetic product for a subject based on the color of the image skin pixels. Sonka, ¶¶ 122.

As to "*transferring information of a cosmetic product*," Bandic describes

that the system of Fig. 1 may comprise **product information 190**, which may comprise "usage parameters, . . . color . . . and other such parameters that may be obtained and/or maintained to assist in the selection of the best product suited to the users' individual preferences or conditions to obtain the best beauty or medical outcome for their skin." Bandic, ¶ 0480; Sonka, ¶ 123. This **product information 190** "may be an input 112 to the **system 104** and user interface 102." Bandic, ¶ 0480; *see also id.*, ¶ 0303 (describing inputs into the host 104). Using the skin state/skin phototype determined above and this product information 190, Bandic's system can identify a specific cosmetic product for a user. Sonka, ¶ 123; *see also* Bandic, ¶ 0489 ("analysis 154 of images obtained from the device 108 . . . may also be used to determine a skin state 158. Based on the skin state 158, either derived from user input, [or] analysis of images, . . . users may be able to determine products and regimens 118 that may work best for their skin state 158 by connecting to a database containing . . . product information 190 . . . .").

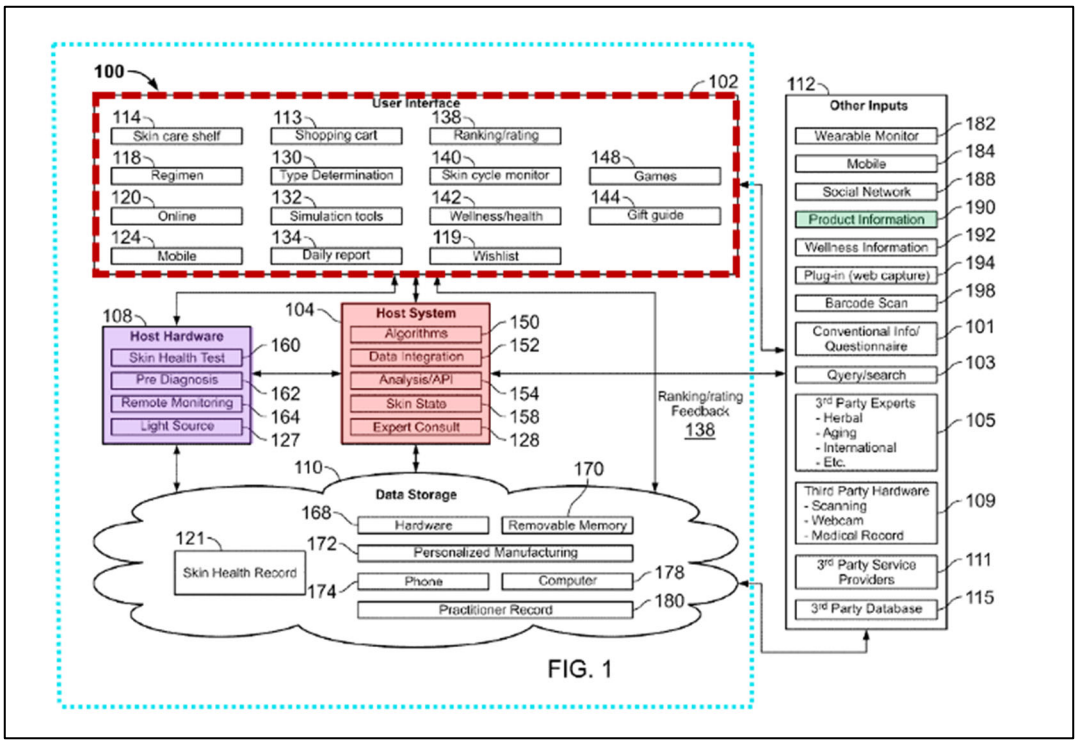


FIG. 1

As a recommended cosmetic has been identified, information about the cosmetic is transferred (e.g., received) into the host system 104 or the user interface 102. Sonka, ¶¶ 124-29. Various figures showing the user interface 102 illustrate that a cosmetic is recommended, and thus, the cosmetic information must have been transferred (e.g., received) by the user interface 102 as an input from product information 190. Sonka, ¶¶ 125-28. For example, Bandic describes that "[o]nce a skin state 158 is determined, it may be accessible by and/or integrated with any element of the user interface 102 . . . ." Bandic, ¶ 0421. Fig. 7, which would be shown on the display of the user interface 102, shows that the user interface can show specific "recommended products," such as "ABC CREAM." Bandic at ¶¶ 0114 ("FIG. 7 depicts a recommendations page of a skin care

system."), 0488 ("The system may automatically recommend certain products based on the moisture level that may be effective given the moisture level, a skin state 158 . . . ."), Fig. 7 (annotated below); Sonka, ¶ 125.

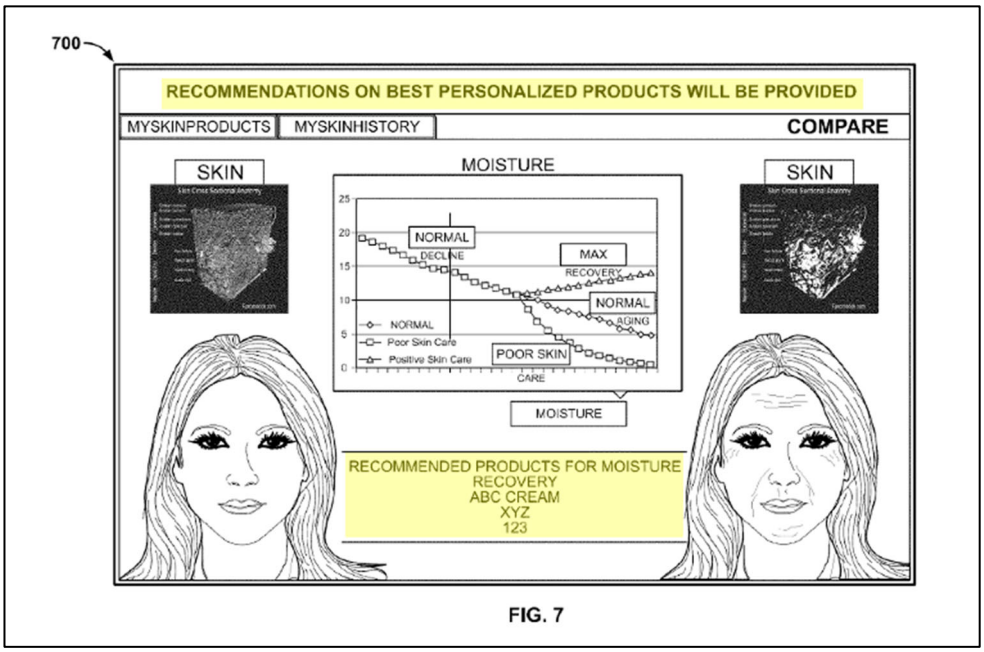


FIG. 7

Bandic's other examples disclose that the user interface receives a recommended product. *See* Sonka, ¶ 126 (citing Bandic, ¶ 0508 and Fig. 22, showing the recommended cosmetic is sent to the user's "beauty shelf" on the user interface), Sonka, ¶ 127 (citing Bandic, ¶ 0509 and Fig. 23, showing the "Info for Me" page on the user interface 102 has new cosmetics identified), Sonka, ¶ 128 (citing Bandic, ¶ 0509, and Fig. 24, showing products are sent to the user's MBeauty shelf), Sonka, ¶ 128 (citing Bandic at Fig. 25, showing cosmetic in user's "beauty shelf").

Thus, Bandic discloses or renders obvious this transferring information of a

cosmetic product because a specific cosmetic product is identified (using the skin state/phototype) and that information is then transmitted from the external input 112's product information 190 into the user interface 102 to be shown to the user. Sonka, ¶ 129.

3. Bandic discloses or renders obvious each element of Claim 6.

See Sonka, ¶¶ 130-37.

a. 6[pre]: An electronic device, comprising:

See supra § VII.A.2.b (5[a]); Sonka, ¶ 130.

b. 6[a]: one or more processors; and

See supra § VII.A.2.b (5[a]) Sonka, ¶ 131.

c. 6[b]: memory storing one or more programs for execution by the one or more processors, the one or more programs causing the electronic device to perform a method comprising:

See supra § VII.A.2.b (5[a]); Sonka, ¶ 132.

d. 6[b1]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;

See supra § VII.A.2.c (5[a1]); Sonka, ¶ 133.

e. 6[b2]: transferring the first digital image;

See supra § VII.A.2.f (5[a4]); Sonka, ¶ 134.

f. 6[b3]: displaying the first digital image;

See supra § VII.A.2.d (5[a2]); Sonka, ¶ 135.

g. 6[b4]: dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product; and

See supra § VII.A.2.e (5[a3]); Sonka, ¶ 136.

h. 6[b5]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values.

See supra § VII.A.2.g (5[a5]); Sonka, ¶ 137.

4. Bandic discloses or renders obvious each element of Claim 11.

See Sonka, ¶¶ 138-43.

a. 11[pre]: A non-transitory computer readable storage medium storing one or more programs for execution by one or more processors of an electronic device, the one or more programs causing the electronic device to perform a method comprising:

See supra § VII.A.2.b (5[a]). *See also, e.g.,* Bandic, ¶¶ 1686-88, 89 ("[E]ach method described above and combinations thereof may be embodied in computer executable code that, when executing on one or more computing devices, performs the steps thereof.").

b. 11[a]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;

See supra § VII.A.2.c (5[a1]); Sonka, ¶ 139.

c. 11[b]: transferring the first digital image;

See supra § VII.A.2.f (5[a4]); Sonka, ¶ 140.

d. 11[c]: displaying the first digital image;

See supra § VII.A.2.d (5[a2]); Sonka, ¶ 141.

e. 11[d]: dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product; and

See supra § VII.A.2.e (5[a3]); Sonka, ¶ 142.

f. 11[e]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values.

See supra § VII.A.2.g (5[a5]); Sonka, ¶ 143.

B. Ground 2: Rubinstenn103 in view of Bandic Renders Obvious Claims 5, 6, and 11.

1. Rubinstenn103 (EX1006)

Rubinstenn103 discloses a "method and system for enabling simulated use of an aesthetic feature on a simulated facial image." Rubinstenn103 at 4:15-17; Sonka, ¶¶ 144-49. Rubinstenn103's system includes user access devices 12-18 such as "personal computers, internet access terminal, such as thin client devices, hand-held devices, such as palm pilots, or any other device with a computing module" which can connect to host sites 20-26 through a network. Rubinstenn103

at 18:32-46, Fig. 11 (reproduced below). A host site device may be a server. Rubinstenn103 at 18:51-55. The communications network may be the Internet, a local area network, etc. Rubinstenn103 at 18:56-62; Sonka, ¶ 144.

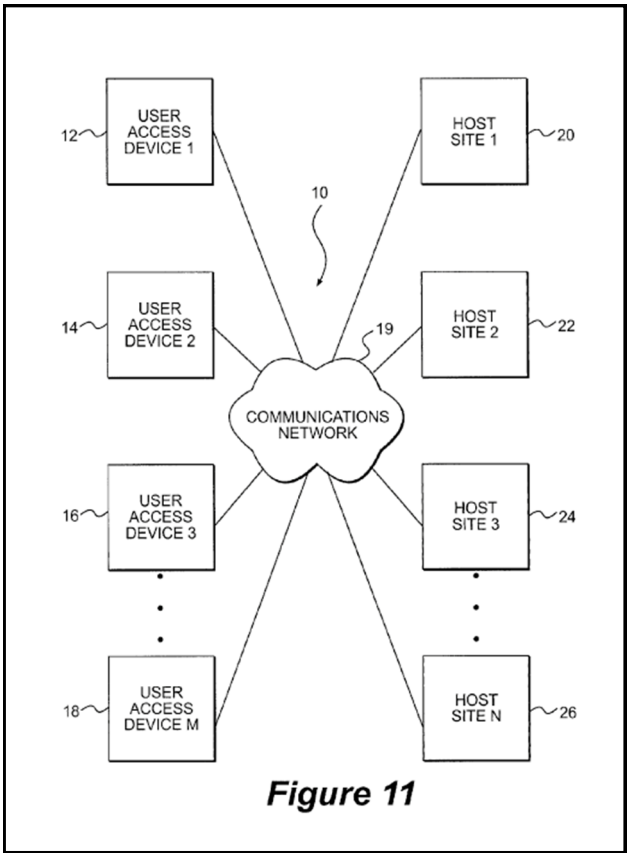


Figure 11

Rubinstenn103 also describes three methods. First, it describes a calibration method (e.g., Figs. 6A and 6B) where a captured facial image may be displayed and then the user may "calibrate the color of the image when the subject perceives a difference between the displayed image and the actual color." *See id.* at 11:17-28. Figs. 6A & 6B; Sonka, ¶¶ 145-147. Second, Rubinstenn103 discloses that a first cosmetic product is offered based on the subject's response to a query and a simulated application of that cosmetic can be applied to the facial image.

Rubinstenn103 at 8:66-9:7, 10:58-59; Sonka, ¶ 148. Third, in Figure 8, a three-dimensional image may be made from the facial image, and "the method may also include facilitating a simulation of use of an aesthetic feature on the three-dimensional facial image and/or processing of the three-dimensional facial image to enable a beauty analysis (S.442)." Rubinstenn103 at 12-47-49, 13:46-50; Sonka, ¶ 139. Analyzing may also include using image processing techniques to propose a cosmetic product. Rubinstenn103 at 15:12-16 ("facilitating of step S.442 may involve providing the subject with access to software configured to analyze an external body condition. For example, the software could use image processing techniques, such as those that may be capable of identifying the extent and severity of external body conditions. The software may be configured to propose a beauty product to the subject."); *see also id.* at 14:62-15:19; Sonka, ¶ 139.

2. Motivation to Combine

a. Rubinstenn103's Embodiments Would be Combined

A POSITA would be motivated to combine cosmetic selection and simulation method of Figures 4A and 4B with the calibration method of Figs. 6A and 6B. Sonka, ¶¶ 150-51. The simulation method of Figures 4A/4B recites a calibration step, causing a POSITA to turn to the calibration method Figs. 6A/6B to determine that process. Sonka, ¶ 151; Rubinstenn103 at 11:24-27, 12:40-43.

A POSITA would be motivated to combine the methods of Figures 4A and

4B and Figs. 6A & 6B with Figure 8. Sonka, ¶ 152. The simulation method of Figures 4A/4B relies on the subject to calibrate the image based on perceived differences between the displayed image and their skin tone, but this calibration could be wrong because subjects are notorious for not correctly perceiving their skin tone. Sonka, ¶ 152; *see also* EX1001 at 1:42-43 ("[A] cosmetic product that has been selected solely based on a visual perception of the user may not be a correct cosmetic product for the user."). A POSITA would look to Figure 8's method so that user-error is not present in the cosmetic selection. Sonka, ¶ 152.

b. Combining Rubinstenn103 with Bandic

A POSITA would have been motivated to combine Rubinstenn103 with Bandic because both concern analyzing a subject's skin and identifying a recommended cosmetic. Sonka, ¶¶ 153-66. They differ, however, in how they identify a cosmetic: Rubinstenn103 generally determines a first cosmetic in response to a query answered by the subject. Sonka, ¶ 154. On the other hand, Bandic's device analyzes the skin pixels according to color value. *Id.*

Rubinstenn103, however, describes that a query may indicate just a general category of cosmetics, and that "analytic techniques" may be used to analyze the subject's image to identify a compatible cosmetic. Sonka, ¶¶ 155-58. If a subject responds to the query explaining that they would like a lipstick, Rubinstenn103 explains that "analytic techniques may be used to identify lip stick likely to be

compatible with the subject." Rubinstenn103 at 9:48-52; Sonka, ¶ 158.

Rubinstenn103 later explains that captured images (which can make up a 3D image), can show an external body condition and "the method may also include proposing a beauty product to the subject . . . wherein the proposing may be based on least partially on analyzing the external body condition." Rubinstenn103 at 14:62-15:9. Analyzing this external body condition can be based on "image processing techniques." Rubinstenn103 at 15:13. Sonka, ¶ 159.

Rubinstenn103 does not describe the specifics of image processing techniques used to determine a cosmetic, and thus, a POSITA would be motivated to turn to other references that describe analyzing skin images to recommend a cosmetic. Sonka, ¶ 160. Bandic describes image processing techniques of skin images for recommending a cosmetic, and thus, a POSITA would be motivated to turn to Bandic for its image processing techniques. Sonka, ¶¶ 160-61.

Additionally, a POSITA would be motivated to combine Rubinstenn103 with Bandic for Bandic's calibration technique. Sonka, ¶¶ 162-166. In Rubinstenn103, the calibration may be incorrect due to a subject wrongly perceiving their skin type, and thus, a POSITA would be motivated to use Bandic's objective calibration principles. Sonka, ¶¶ 163-64; Bandic, ¶ 0439. Because Rubinstenn103's user access device could perform the "image processing techniques" of Bandic, it could also perform Bandic's calibration of converting

device-dependent pixel color values to device independent "standard" values. Sonka, ¶¶ 162-66.

3. Rubinstenn103 in view of Bandic discloses or renders obvious claim 5.

a. 5[pre]: A method for analyzing a skin of a subject and identifying a cosmetic product for the subject, comprising:

To the extent limiting, Rubinstenn103 in view of Bandic discloses or renders obvious limitation 5[pre]. Sonka, ¶¶ 167-170. Rubinstenn103 teaches that a user's facial image is calibrated (e.g., Fig. 6A). *Id.* at 11:17-27. Rubinstenn103 further teaches a method (e.g., Fig. 4A) where a first cosmetic product is offered based on the subject's response to a query, and a simulated application of that cosmetic can be applied to the subject's facial image. *Id.* at 8:66-9:7. Rubinstenn103 also teaches a method (Fig. 8) three-dimensional image may be created from that facial image and a cosmetic may be simulated on the facial image (e.g., Fig. 8). *Id.* at 12:45-49, 13:46-50, 13:57-14:3. Given these methods, Rubinstenn103 teaches a method where a subject's facial image may be analyzed to determine a cosmetic product. Sonka, ¶ 168.

As described above, Rubinstenn103 does not explicitly disclose the image processing technique needed for the user access to itself recommend a cosmetic for an image, but Bandic discloses such a method, and a POSITA would be motivated to combine Rubstenn '103 with Bandic to perform image analysis and recommend

a product. *See* Sonka, ¶¶ 169-70; *supra* § VII.B.2.b (motivation to combine Rubinstenn103-Bandic for image analysis), § VII.A.2.a (Ground 1, 5[pre]). Thus, the Rubinstenn103-Bandic combination renders this limitation obvious.

b. 5[a]: at an electronic device with one or more processors and memory storing one or more programs for execution by the one or more processors:

Rubinstenn103 discloses or renders obvious limitation 5[a]. Sonka, ¶¶ 171-74. Rubinstenn103's user access devices are electronic devices with processors and memory for storing programs that may be executed on the processors. Sonka, ¶¶ 171-72.

Rubinstenn103 recites a user access device, which, by itself, may carry out the methods described through the specification. *See* Rubinstenn103 at 19:33-34 ("[T]he invention may be carried out in whole or in part within the environment of FIG. 12." (describing the user access device in Fig. 12)); *see also id.* at 26:62-27:4 Sonka, ¶ 172. A "user access device may include a computing module 30, a display 32, . . . an image capture device 41 and a removable data storage device 42." *Id.* at 19:17-20; Sonka, ¶ 173. The "computing module 30 may include at least one CPU 50, at least one memory 52, and at least one storage device 54." Rubinstenn103 at 19:35-38. Rubinstenn103 also teaches that "one skilled in the art will appreciate that information may be stored on or read from various computer-readable media, such as secondary storage devices, like hard disks, floppy disks,

and CD-ROM; a carrier wave received from a network like the Internet; or other forms of ROM or RAM." *Id.* at 19:44-49; Sonka, ¶ 173.

c. 5[a1]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;

Rubinstenn103 in view of Bandic discloses or renders obvious limitation 5[a1]. Sonka, ¶¶ 175-79.

As to "*calibrating*," Rubinstenn103 teaches that, after an image is captured, the subject is prompted "to compare a color of the displayed image with the subjects actual color (S.350); [which] enabl[es] the subject to calibrate the color of the image when the subject perceives a difference between the displayed image and the actual color (S.360) . . . ." Rubinstenn103 at 11:24-27; Sonka, ¶ 175. Rubinstenn103 teaches that "'color-calibrating' includes, but is not limited to, matching an actual color of the Subject's skin with, for example, a color of the subject's skin that is displayed on a display device."). 11:29-32. These steps S.350 and S.360 of annotated Figure 6A ("a flow chart of an exemplary calibration method" (*id.* at 11:17), are shown below:

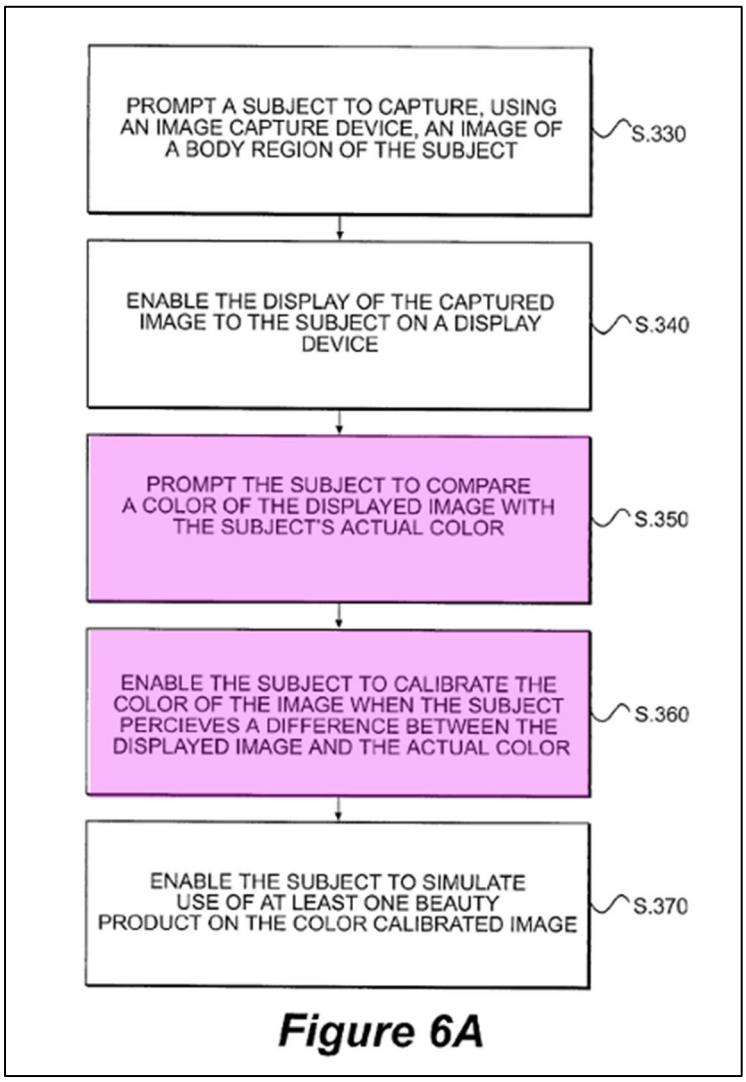


Figure 6A

Figure 7 "illustrates how a subject might compare the color of the displayed image 180 with the actual color of her hand 190 by placing her hand adjacent to the display device 342" and selecting a displayed color closest to their body's region. Rubinstenn103 at 11:58-61; Rubinstenn103 at 12:3-17, Fig. 7 (below); Sonka, ¶¶ 176-77.

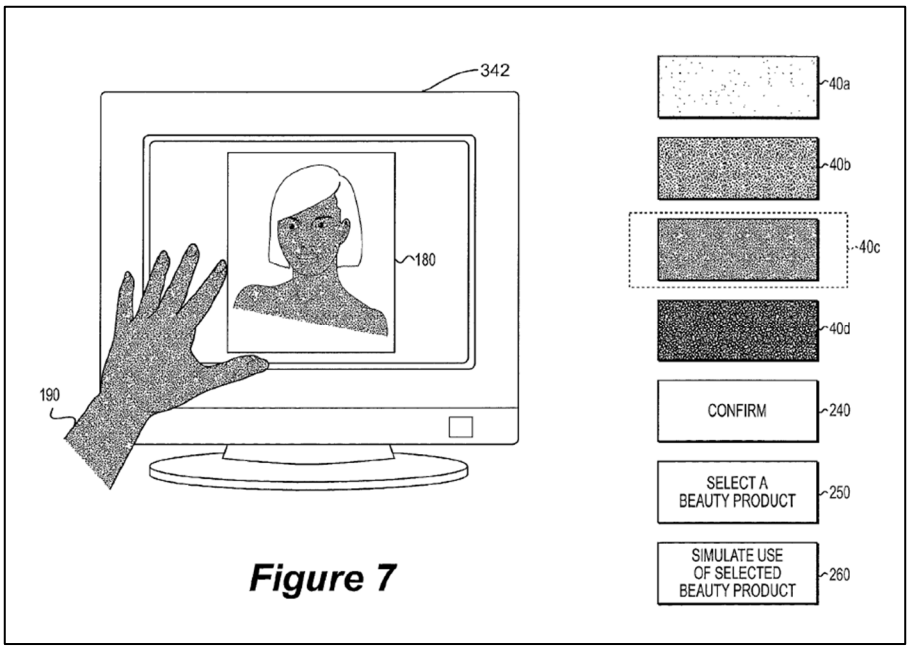


Figure 7

Rubinstenn103's method relies on a user's perception to calibrate, and thus, the calibration may be incorrect due to user error or display imperfections. Sonka, ¶ 178. A POSITA would be motivated to look to other references that describe a calibration technique where the user error is not an issue. *Id.* A POSITA would find such calibration principles (without user-error) in Bandic. Sonka, ¶ 178; *see* Bandic, ¶ 0439 (calibration occurring by converting device-dependent color values to device-independent color values); *see supra* § VII.A.2.d (Ground 1, 5[a2]). Rubinstenn103's user access device could implement Bandic's calibration technique. *See* Sonka, ¶ 178; Rubinstenn103 at 15:3-13.

As to "*the first digital image depicts . . . a portion of a face of the subject*," "FIG. 7 shows an example of a captured image 180 being displayed on a display device 342." Rubinstenn103 at 11:46-47; Sonka, ¶ 179. Figure 7 shows a subject's

face at 180 (*see* above).

As to "*the first digital image includes a plurality of pixels*," A POSITA would understand that any digital image necessarily requires multiple pixels. Sonka, ¶ 179.

d. 5[a2]: displaying the first digital image;

Rubinstenn103 discloses or renders obvious limitation 5[a2]. Sonka, ¶ 180. Fig. 6A's, method comprises "enabling the display of the captured image to the subject on the display device (S.340)." Rubinstenn103 at 11:21-22. This is further demonstrated by Figure 7 (below) showing "an example of a captured image 180 being displayed on a display device 342." Rubinstenn103 at 11:46-47. The user access device can include that display 32. *Id.* at 19:17-18; Sonka, ¶ 180.

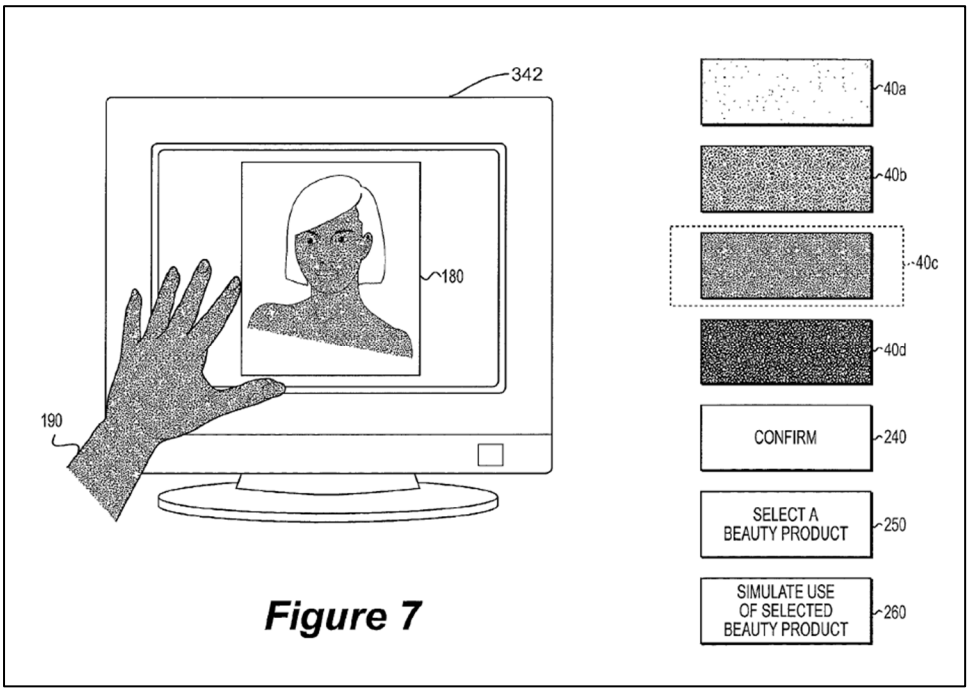


Figure 7

e. 5[a3]: dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product;

Rubinstenn103 discloses or renders obvious limitation 5[a3]. Rubinstenn103 teaches that a cosmetic product may be simulated on a subject's facial image. Sonka, ¶¶ 181-87.

Rubinstenn103 describes a method (Fig. 4A) where, a beauty product may be offered to a subject based on a question answered by the subject, and that beauty product may be simulated on the representative facial image. Rubinstenn103 at 9:2-7 ("selecting a first beauty product based on the subject's response to the query (S.130); enabling a display, on a display device, of a simulation of the first beauty product applied on a representative facial image (S.140)"); Sonka, ¶ 181.

While Rubinstenn103 does not state that the display is divided, a POSITA would find this obvious. Sonka, ¶¶ 182-86. For example, Rubinstenn103 teaches that a facial image without any cosmetic simulated and a facial image with a cosmetic simulation can be displayed side by side. Rubinstenn103 at 10:40-45; Sonka, ¶ 183. Figure 7, teaches that images with full-face display without and with application of the beauty product can be displayed in rapid succession. *See id.* at Fig. 7, 12:21-34; Sonka, ¶ 184. Figure 8 allows for simulation of an aesthetic

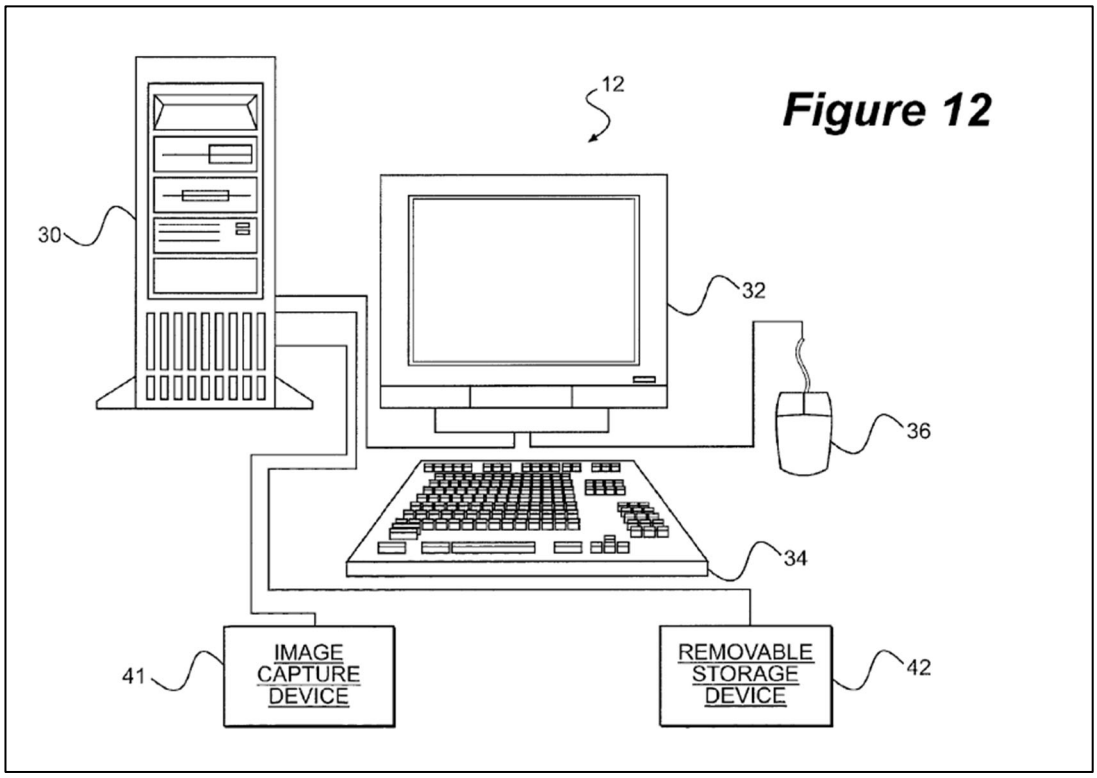
feature on a three-dimensional facial image. Rubinstenn103 at 12:45-49, 13:46-50. There, Rubinstenn103 teaches of dividing the display in separate regions to show a facial image with regionally-specific simulated application of a product. Rubinstenn103 at 14:6-18; Sonka, ¶ 185. Fig. 10A teaches of dividing a face using templates and displaying simulated facial image of one or more facial portions with a beauty product simulation (S.550, S.560, S.570). Rubinstenn103 at 16:20-37, Figs. 10A, 10B, and 10C. Fig. 10C suggest to select a half-face template to display a specific beauty product simulation. *Id.* at 16:45-51; Sonka, ¶ 186.

Accordingly, a POSITA would be motivated to implement these above features on a single divided image with one half showing a simulation and the other half not showing a simulation. By using one single image, the image is more easily viewable on a small screen, which is particularly helpful if the user access device is a small device, such as a palm pilot. Sonka, ¶ 187; *see* Rubinstenn103 at 18:42-45.

f. 5[a4]: transferring the first digital image; and

Rubinstenn103 discloses or renders obvious limitation 5[a4]. Sonka, ¶¶ 188-96. Transferring occurs when the device receives an image from a peripheral image capturing device. Sonka, ¶ 188. Rubinstenn103 describes that a user access device "may include . . . . an image capturing device 41." Rubinstenn103 at 19:19-20; Sonka, ¶ 189. Fig. 12 depicts that this image capturing device may be a peripheral

device. *See id.* at Fig. 12 (block 41); Sonka, ¶¶ 189-91. The image must necessarily be transferred from the image capturing device to the user access device in order for the techniques recited in Rubinstenn103 to be performed. Sonka, ¶ 191.



Transferring also occurs internally to the device where the first digital image is transferred from the storage to the software performing the image analysis. Sonka, ¶¶ 192-94. For example, Rubinstenn103 teaches that cosmetic product recommendation may be based on "an image, such as a picture" of the subject, (*id.* at 25:57-63, 26:8-10) and also determines that there are analytic techniques to recommend the cosmetic (*id.* at 9:30-38); Sonka, ¶ 193. One analytic technique is image processing. Rubinstenn103 at 15:10-19; *see also* Sonka, ¶ 195-95 (describing AI engines as an analytical technique). A POSITA would understand that any use of

such beauty-selection analytic techniques that recommends a beauty product based on an image requires the first digital image be transferred for subsequent use in the analytic technique. Sonka, ¶¶ 195-196.

g. 5[a5]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values.

Rubinstenn103 in view of Bandic renders obvious limitation 5[a5]; Sonka, ¶¶ 197-204.

As to "*wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values*," the Rubinstenn103-Bandic combination renders this obvious. Sonka, ¶¶ 198-201.

As described above (*supra* § VII.B.2.b (motivation to combine, analysis portion)), Rubinstenn103 describes that a query may not actually determine a cosmetic, but may indicate just a general category of cosmetics, and that "analytic techniques," such as image processing, may be used to analyze the subject's image to identify a compatible cosmetic. Sonka, ¶ 199. For example, if a subject responds to the query explaining that they would like a lipstick, Rubinstenn103 explains that "analytic techniques may be used to identify lip stick likely to be compatible with the subject." Rubinstenn103 at 9:48-52. One of those analytic techniques may be

"image processing." Rubinstenn103 at 14:62-15:9; Sonka, ¶ 200. Because Rubinstenn103 does not describe the specifics of image processing techniques used to determine a cosmetic, a POSITA would be motivated to turn to other references that describe analyzing skin images to recommend a cosmetic. Sonka, ¶ 201. Bandic describes image processing techniques of skin images for recommending a cosmetic, and thus, a POSITA would use Bandic's image processing techniques, which were described *supra* § VII.A.2.g (ground 1, 5[a5]). Sonka, ¶ 201.

As to "*transferring information of a cosmetic product*," Rubinstenn103 describes that the host site 130 may include a storage device 136 that may include "a server side beauty products database 150." Rubinstenn103 at 55:60; Sonka, ¶ 202. Rubinstenn103 also further describes that, "[o]nce a subject is presented with one or more acceptable products, the Subject may be provided with purchasing information. Such purchasing information may include, but is not limited to, pricing information, at least one location of a store selling the product, a link to a website selling the product, and/or information enabling a product purchase." Rubinstenn103 at 10:52-57; Sonka, ¶ 202.

A POSITA would find it obvious that once the user device identified a cosmetic for an individual using Bandic's image processing techniques, that user access device could transmit (e.g., receive) the information (such as a name or link to website selling it) from the host site's server site product database to the user

access device at the request of the user access device. Sonka, ¶ 203.

Rubinstenn103 also discloses that the identified cosmetic product would be transferred when the user access device transmits the cosmetic product information to the display. Sonka, ¶ 204. For example, Figure 5 of Rubinstenn103 illustrates that a cosmetic product is simulated on the subject's facial image. Rubinstenn103 at Fig. 5, 9:58-60. Thus, the cosmetic product information is the cosmetic (e.g., foundation) applied to the image, and this information is necessarily transferred from the user access device to the peripheral display. *See* Rubinstenn103 at Fig. 12 (display at 32), 19:17-18.

4. Rubinstenn103 in view of Bandic discloses or renders obvious each element of Claim 6.

See Sonka, ¶¶ 205-212.

a. 6[pre]: An electronic device, comprising:

See supra § VII.B.3.b (5[a]); Sonka, ¶ 205.

b. 6[a]: one or more processors; and

See supra § VII.B.3.b (5[a]); Sonka, ¶ 206.

c. 6[b]: memory storing one or more programs for execution by the one or more processors, the one or more programs causing the electronic device to perform a method comprising:

See supra § VII.B.3.b (5[a]); Sonka, ¶ 207.

d. 6[b1]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;

See supra § VII.B.3.c (5[a1]); Sonka, ¶ 208.

e. 6[b2]: transferring the first digital image;

See supra § VII.B.3.f (5[a4]); Sonka, ¶ 209.

f. 6[b3]: displaying the first digital image;

See supra § VII.B.3.d (5[a2]); Sonka, ¶ 210.

g. 6[b4]: dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product; and

See supra § VII.B.3.e (5[a3]); Sonka, ¶ 211.

h. 6[b5]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values.

See supra § VII.B.3.g (5[a5]); Sonka, ¶ 212.

5. Rubinstenn103 and Bandic disclose or render obvious each element of Claim 11.

See Sonka, ¶¶ 213-218.

a. 11[pre]: A non-transitory computer readable storage medium storing one or more programs for execution by one or more processors of an electronic device, the one or more programs causing the electronic device to perform a method comprising:

See supra § VII.B.3.b (5[a]); Sonka, ¶ 213. *See also, e.g.,* Bandic, ¶¶ 1686-88, 89 ("Thus, in one aspect, each method described above and combinations thereof may be embodied in computer executable code that, when executing on one or more computing devices, performs the steps thereof.").

b. 11[a]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels;

See supra § VII.B.3.c 5[a1); ; Sonka, ¶ 214.

c. 11[b]: transferring the first digital image;

See supra § VII.B.3.f 5[a4]); Sonka, ¶ 215.

d. 11[c]: displaying the first digital image;

See supra § VII.B.3.d (5[a2]); Sonka, ¶ 216.

e. 11[d]: dividing the display of the first digital image into two sides, wherein one side of the first digital image is displayed with no cosmetic product applied, and one side of the first digital image is displayed with a simulated application of a cosmetic product; and

See supra § VII.B.3.e ([5a3]); Sonka, ¶ 217.

f. 11[e]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values.

See supra § VII.B.3.g (5[a5]); Sonka, ¶ 218.

C. Ground 3: Rubinstenn103 in view of Rubinstenn300 and Bandic Render Obvious Claims 1, 2, 3, and 4 of the '595 Patent.

1. Rubinstenn300 (EX1007)

Rubinstenn103 incorporates Rubinstenn300 by reference. *See* Rubinstenn103 at 20:36-37, 20:49-50; Sonka, ¶¶ 219, 227.

Rubinstenn300 is directed to "methods and systems . . . for calibrating image capturing for use in beauty analysis." Rubinstenn300 at Abstract; Sonka, ¶ 219. One of the calibration methods that Rubinstenn300 discloses includes "displaying an image on a calibrated display device" (302), "instructing a subject to place a body part adjacent the reference image" (304), "capturing a calibrating image of the body part adjacent the reference image using an image capture device" (306), and "calibrating information by processing the calibrating image and information reflective of the reference image." Rubinstenn300, ¶ 64, 72, 74, 76, Fig. 3 (below); Sonka, ¶ 220.

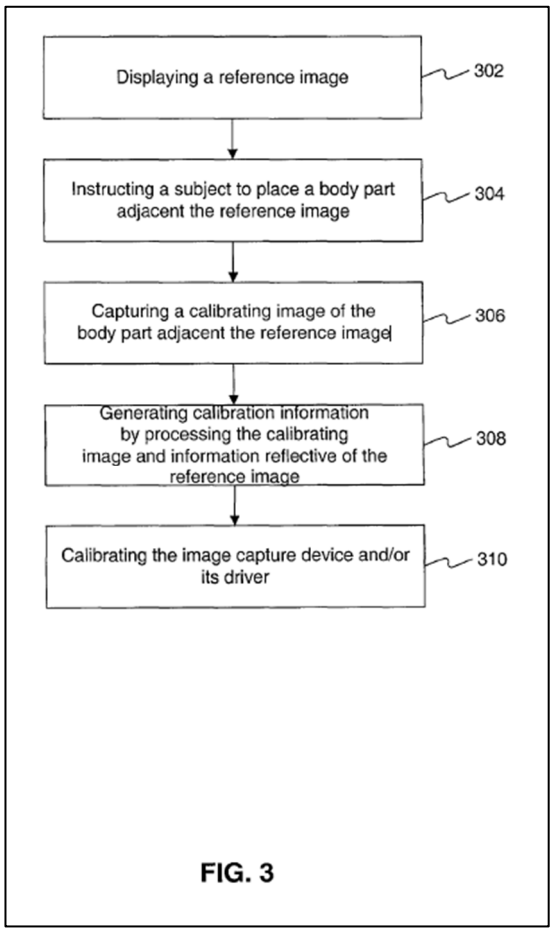


FIG. 3

2. Motivation to Combine

a. Rubinstenn103 and Rubinstenn300

A POSITA would be motivated to combine Rubinstenn103 with Rubinstenn300. Sonka, ¶¶ 221-28.

Rubinstenn103 describes a calibration method (e.g., FIG. 6A) in the context of a beauty analysis which relies on the user to verify whether a color displayed on the screen is accurately reflected on the display (e.g., Rubinstenn103 at 11:17-12:34), but a POSITA would recognize that user error could cause the calibration method to be wrong. Sonka, ¶ 221. Thus, a POSITA would turn to another method

where an electronic device calibrates the image without potential user error. Sonka, ¶ 221.

Rubinstenn300 describes such calibration methods. Sonka, ¶¶ 222-26. Rubinstenn300 describes several methods of calibration where the device performs the calibration by matching the color of the captured image with a "reference image" that comprises established color standards. Sonka, ¶¶ 222-26; Rubinstenn300, ¶¶ 70; *see also id.*, 77-78. A reference image is an image of a color standard, and using those known values, an image captured of the reference image can be corrected to account for discrepancies. *See* Sonka, ¶¶ 222-25.

Rubinstenn300 generally describes a calibration method where the user takes an image of their body part adjacent to a reference image to calibrate the image to conduct a beauty analysis. Rubinstenn300, ¶¶ 2, 64; Sonka, ¶ 225. Rubinstenn300 teaches "displaying an image on a calibrated display device" (302), "instructing a subject to place a body part adjacent the reference image" (304), "capturing a calibrating image of the body part adjacent the reference image using an image capture device" (36), and "calibrating information by processing the calibrating image and information reflective of the reference image." Rubinstenn300, ¶ 64, 72, 74, 76. The reference image "may include a color bar of multiple colors and/or a swatch of multiple colors." Rubinstenn300, ¶ 70; Sonka, ¶ 223, 225.

Rubinstenn300 describes a number of methods suited for specific image

capturing environments. Sonka, ¶ 226. For example, Rubinstenn300 discloses using a display to display a reference image with the color standard, placing a body part next to the display, and then capturing them simultaneously in an image to calibrate it (Rubinstenn300, ¶ 72) or capturing the body part in the first image and the reference image in the second image under the same lighting conditions (*id.*, ¶¶ 77-78); Sonka, ¶ 226. Because the device could perform this calibration, a user would not need to, and a POSITA would be motivated to rely on Rubinstenn300 for calibration-specific techniques. Sonka, ¶ 226-227.

Rubinstenn103 also incorporates Rubinstenn300 by reference. Sonka, ¶ 227. Rubinstenn103 recites that "[t]he following concurrently filed U.S. patent applications are also incorporated herein by reference: . . . Calibrating Image Capturing, Ser. No. 10/024,334." Rubinstenn103 at 20:36-37, 49-50. The Application No. of Rubinstenn300 (U.S. Pat. Pub. No. 2003/006300) is 10/024,334, it shares the same inventor (Gilles Rubinstenn), was filed on the same date as Rubinstenn103, and contains the same title as described in Rubinstenn103. A POSITA would view Rubinstenn300 as part of Rubinstenn103's disclosure and be more motivated to use '300's calibration methods to overcome '103's user-based calibration; Sonka, ¶¶ 221-28.

b. Rubinstenn103 and Bandic

A POSITA would be motivated to combine Rubinstenn103 and Bandic. *See*

supra § VII.B.2.b.; Sonka, ¶ 221.

3. The Rubinstenn103-Rubinstenn300-Bandic combination discloses or renders obvious each element of Claim 1.

a. 1[pre]: A method for analyzing a skin of a subject and identifying a cosmetic product for the subject, comprising:

To the extent 1[pre] is limiting, Rubinstenn103 in view of Bandic discloses or renders it obvious. *See supra* § VII.B.3.a (5[pre]); Sonka, ¶ 229.

b. 1[a]: at an electronic device with one or more processors and memory storing one or more programs for execution by the one or more processors:

Rubinstenn103 discloses or renders obvious 1[a]. *See supra* § VII.B.3.b (5[a]); Sonka, ¶ 230.

c. 1[a1]: calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels, and wherein calibrating colors of the first digital image is based on a second digital image of one or more color standards;

Rubinstenn103 in view of Bandic and Rubinstenn300 renders obvious 1[a1]. Sonka, ¶¶ 231-39.

Rubinstenn103 in view of Bandic discloses or renders obvious "*calibrating colors of a first digital image, wherein the first digital image depicts at least a portion of a face of the subject, and the first digital image includes a plurality of pixels*." *See supra* § VII.B.3.c (5[a1]). Rubinstenn103 describes that a first image

may be calibrated by comparing it to the subject's actual color. *See supra id.* (describing Rubinstenn103's method where the user adjusts the displayed image according to their skin tone would be combined with Bandic's teaching of the electronic device calibrating by converting device-dependent color values to device-independent color values); *see also supra* § VII.A.2.c (Ground 1, 5[a1]); Sonka, ¶ 232.

As to "*calibrating colors of the first digital image is based on a second digital image of one or more color standards*," Rubinstenn103 does not explicitly describe using a second image of a color standard, but Rubinstenn103 in view of Rubinstenn300 renders this obvious. Sonka ¶¶, 233-39. As described above, Rubinstenn103's method has limitations because of user-error, and a POSITA would be motivated to turn to any existing color calibration method that could match the actual color of a subject's skin, and Rubinstenn300 describes a method of doing so. Sonka, ¶¶ 234; *see supra* § VII.C.2.a. A POSITA would be motivated to rely on Rubinstenn300 for calibration-specific techniques that a device could perform. Sonka, ¶ 234; *see supra* § VII.C.2.a.

Rubinstenn300 describes a method where the calibration is based off a second digital image of a color standard. Sonka, ¶¶ 235-36; Rubinstenn300, ¶¶ 77-78; 80. Specifically, Rubinstenn300 describes that one way to achieve calibration is by "comparing at least one color of the body part in the calibrating image [(i.e.,

the first image)] to at least one known color of the reference image [(i.e., the second image)]. Rubinstenn103, ¶ 77; Sonka, ¶ 235. A POSITA would understand that the reference image would be of "colors on the color bar [that] are known quantities," which would represent a color space standard. Rubinstenn103, ¶ 78; Sonka, ¶ 236. Rubinstenn300 teaches that the user takes an image of their body part adjacent to a reference image, and the calibration separates the body region from the reference image (which is the second image). Sonka, ¶ 237; *see* Rubinstenn300, ¶ 78 ("Alternatively, if a color bar or Skin replica bar is provided to the Subject in physical form, the image capture device might capture an image of the color bar on or near the skin within the same image."). The reference image "may include a color bar of multiple colors and/or a swatch of multiple colors." Rubinstenn300, ¶ 70.

Thus, the calibration method shows a second digital image (called a reference image, that contains a color standard such as a color bar or swatch) on a display adjacent to the subject's body part, an image is captured of the body part and the display showing the reference image, and the captured image of the body part is calibrated according to the reference image. Sonka, ¶ 238.

d. 1[a2]: transferring the first digital image, but prior to transferring the first digital image, transferring the second digital image of one or more color standards;

Rubinstenn103 in view of Rubinstenn300 discloses or renders obvious

limitation 1[a2]. Sonka, ¶¶ 240-42. As to "*transferring the first digital image*," Rubinstenn103 discloses or renders obvious this requirement. *See supra* § VII.B.3.f. ((5[a4], describing that transferring occurs when (i) the first digital image (e.g., the image capturing the subject's face) must be transferred from the image capturing device to the user access device and (ii) when the first digital image is transferred from the storage to the software performing the image analysis); Sonka, ¶ 241.

As to "*but prior to transferring the first digital image, transferring the second digital image of one or more color standards*," Rubinstenn300 teaches that subsequent captured images (*e.g.*, the first digital image) could be calibrated based off first received calibration information (*e.g.*, the second digital image). *See* Rubinstenn300, ¶ 80 ("'Calibrating' may include enabling an adjustment on a subsequent captured image based upon the calibration information. For example, a color, tone, or skin replica/pattern of a subsequent captured image may be adjusted to resemble a color, tone, or skin replica/pattern that is stored as calibration information."); Sonka, ¶ 242; *see also* Rubinstenn300, ¶¶ 77-78 ("[g]enerating calibration information may also include comparing at least one color of the body part in the calibrating image [(i.e., the first image)] to at least one known color of the reference image."). A POSITA would understand that the second digital image (which is the reference image showing the color standard and which is the

"calibration information") would necessarily need to be sent before the first digital image because otherwise the first digital image cannot be correctly adjusted (calibrated) if the reference image's color standard is not known. Sonka, ¶ 242.

e. 1[a3]: using the second digital image of one or more color standards to correlate one or more colors of one or more color standards and one or more colors of the skin pixels, wherein at least one color space value is identified in accordance with a correlation between the one or more colors of one or more color standards and the one or more colors of the skin pixels; and

Rubinstenn103 in view of Rubinstenn300 renders obvious limitation 1[a3]. Sonka, ¶¶ 243-50.

As to "*using the second digital image of one or more color standards to correlate* . . . [colors of the standards and skin pixels]," Rubinstenn300 describes that its calibration method includes correlating color standards to the colors of the body part. Specifically, Rubinstenn300 teaches that "[g]enerating calibration information may also include **comparing at least one color of the body part in the calibrating image to at least one known color of the reference image**." Rubinstenn300, ¶ 77 (emphasis added). Additionally, the skin image may be used to determine a predominate color of the skin and "[a]fter determining the predominate color or tone, the filtered calibration image may be compared to at least one known color of the reference image." *Id.*, ¶ 78; Sonka, ¶ 244.

As described above, (*see supra* § VII.C.3.c (1[a1])) it would be obvious that

a second digital image could capture the reference image, and thus, a POSITA would find it obvious that Rubinstenn300 teaches that the first digital image (comprising the facial image) could be compared to the second digital image of reference image (e.g., the color standards) to correlate the colors between the skin image and the reference color image to determine the actual color of the skin. Sonka, ¶ 245.

As also described above in limitation 1[a1], any digital image comprising a subject's face would contain a plurality of skin pixels. *See supra* § VII.C.3.c; Sonka, ¶ 246.

As to "*wherein at least one color space value is identified in accordance with a correlation between the one or more colors of one or more color standards and the one or more colors of the skin pixels*," Rubinstenn300 does not explicitly state that a color space value is identified in accordance with the correlation, but a POSITA would find it obvious. Sonka, ¶¶ 247-50. This is because Rubinstenn300 describes several calibration methods that all inherently require image color values to be represented in color space standards. Sonka, ¶ 248. For example, displaying images on a display requires that the image data is sent to the display in a compatible color-space representation. Sonka, ¶ 248. Similarly, an image's colors in each location must be present in one or more color space standards for the color to be represented uniquely to be calibrated. Sonka, ¶ 248. Rubinstenn300 further

discloses that its calibration techniques (of which the correlation is a part of) "are employed by, for example, Hewlett Packard and Lexmark printer drivers which account for a transfer from a RGB display mode to a CMYK print mode." Rubinstenn 300, ¶ 66.

Accordingly, a POSITA would find it obvious that, to correlate a color of a color standard to the color of the skin pixel, a device would need to identify the color (e.g., a numeral value) within a certain color standard. Sonka, ¶ 250.

f. 1[a4]: transferring information of a cosmetic product, wherein skin pixels in the plurality of pixels are identified, color space values are identified from the skin pixels, and the cosmetic product is identified at least based on the color space values.

Rubinstenn103 in view of Bandic renders obvious 1[a4]. *See supra* § VII.B.3.g (5[a5]).

4. Rubinstenn103 discloses or render obvious Claims 2-3.

a. 2: The method of claim 1, wherein transferring the first digital image is one of sending or receiving the digital image.

Rubinstenn103 discloses or renders obvious claim 2. Sonka, ¶¶ 252-53. "*Sending*" occurs when the first digital image is transferred from the storage to the software performing the image analysis. *See supra* § VII.B.3.f (5[a4]). "*Receiving*," occurs when the device receives an image from a peripheral image capturing device. *Id.*

b. 3: The method of claim 1, including: transferring a modified image, wherein the modified image is prepared based on the first digital image, and at least a portion of the modified image shows a simulated effect of application of the cosmetic product.

Rubinstenn103 discloses or renders obvious claim 3. Sonka, ¶¶ 254-57.

Specifically, as to the "*modified image is prepared based on the first digital image, and at least a portion of the modified image shows a simulated effect of application of the cosmetic product*," as described *supra* § VII.B.3.e (limitation 5[a3]) Rubinstenn103 teaches that "[i]n the method illustrated in FIG. 4A, the simulation of the first beauty product applied on the representative facial image (e.g., U.140 in FIG. 5) may be replaced on the display device by a new image U.150. Alternatively, as shown in the example of FIG. 5, images U.140 and U.150 may be simultaneously displayed." Rubinstenn103 at 10:40-45; Sonka, ¶ 255. Figure 5 shows a user interface in which 3 face images are displayed side by side: (i) full face without applying a beaty product, (ii) the same face image after applying the first recommended beauty product, and (iii) the same face image after applying the second recommended beauty product. *See* Fig. 5; Sonka, ¶ 255.

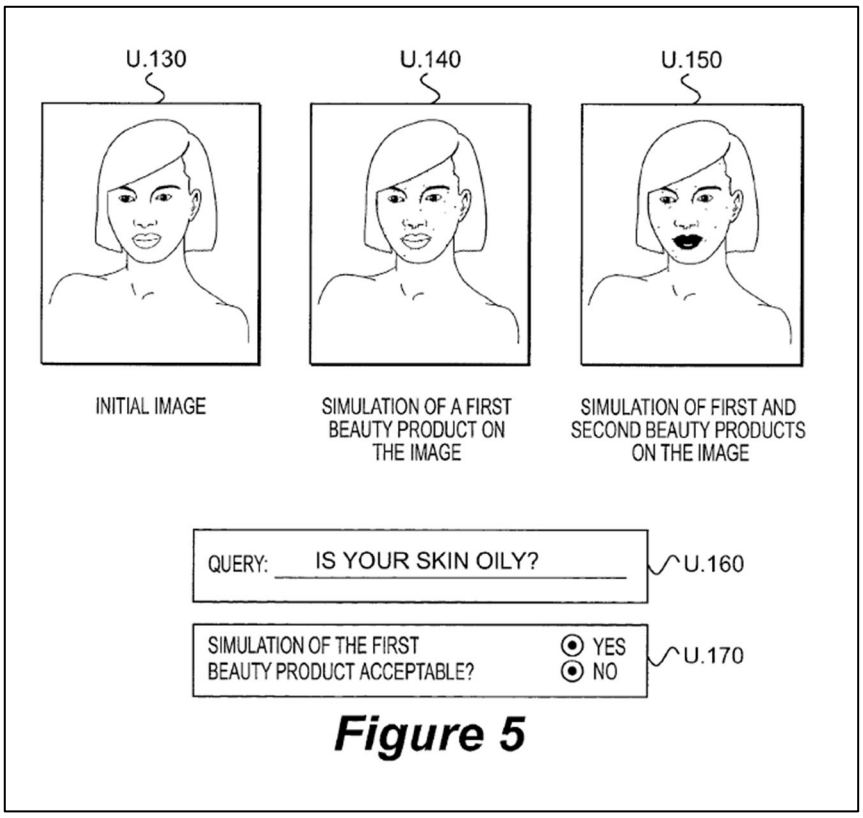


Figure 5

Thus, Rubinstenn103 teaches that a modified image, such as image U.140 in Fig. 5, shows a simulated effect "of the first beauty product applied on the representative facial image (e.g., U.140 in FIG. 5)." Rubinstenn103 at 10:40-45; Sonka, ¶ 256.

As to "*transferring a modified image*," the user access device's computing module could be coupled to a display 21. *Id.* at 19:17-20. The modified image could be displayed on a display (*see* Fig. 5 above), and Rubinstenn103 defines that "displaying" may encompass "transmission." (*Id.* at 23:16-21 ("Forms of the word 'displaying' and like terms may also include indirect acts such as providing content for transmission over a network to a display device, regardless of whether the

display device is in the custody or control of the sender. Any entity in a chain of delivering information for display performs an act of 'displaying', as the term is used herein."). Sonka, ¶ 257. Thus, a POSITA would understand that the modified image could be transmitted to a display. *Id*.

5. Rubinstenn103 in view of Bandic and Rubinstenn300 renders claim 4 obvious.

a. 4: The method of claim 1, wherein the first digital image further depicts one or more color standards.

Rubinstenn103 in view of Bandic and Rubinstenn300 discloses or renders obvious claim 4. *See supra* § VII.C.3.c (1[a]1); Sonka, ¶ 258. Because the first digital image may be a photo taken of a subject's body part adjacent to the reference image, and the reference image contains a color standard, such as a color bar in RGB, the first digital image depicts one or more color standards. Sonka, ¶ 258; Rubinstenn300, ¶¶ 78, 70.

D. Ground 4: Rubinstenn103 in view of Bandic and Rubinstenn300 discloses or renders obvious claims 9 and 13, 10 and 15, 7 and 12, and 8 and 14.

Dependent claims 7, 8, 9 and 10 stem from independent claim 6 and claims 12, 13, 14 and 15 stem from independent claim 11. Sonka, ¶¶ 259-173

1. 9: The electronic device of claim 6, wherein the method includes: transferring a modified image, wherein the modified image is prepared based on the first digital image, and at least a portion of the modified image shows a simulated effect of application of the cosmetic product.

Rubinstenn103 discloses or renders this claim obvious. *See supra* §

VII.C.4.b (claim 3 describing that the simulated image is transferred to a display); Sonka, ¶ 260.

2. 13: The computer readable storage medium of claim 11, wherein the method includes: transferring a modified image, wherein the modified image is prepared based on the first digital image, and at least a portion of the modified image shows a simulated effect of application of the cosmetic product.

Rubinstenn103 discloses or renders this claim obvious. *See supra* §§ VII.C.4.b (claim 3), VII.D.1 (claim 9); Sonka, ¶ 261.

3. 10: The electronic device of claim 6, wherein the first digital image further depicts one or more color standards.

Rubinstenn103 in view of Bandic and Rubinstenn300 discloses or renders this claim obvious. *See supra* § VII.C.5.a (claim 4); Sonka, ¶ 262.

4. 15: The computer readable storage medium of claim 11, wherein the first digital image further depicts one or more color standards.

Rubinstenn103 in view of Bandic and Rubinstenn ’300 discloses or renders this claim obvious. *See supra* §§ VII.C.5.a (claim 4), VII.D.3 (claim 10); Sonka, ¶ 263.

5. 7: The method of claim 6, wherein calibrating colors of a first digital image is based on a second digital image of one or more color standards.

Rubinstenn103 in view of Bandic and Rubinstenn300 disclose or render this claim obvious. A facial image of the subject is calibrated based on an earlier image of a reference image, which displayed a color standard. *See supra*, § VII.C.3.c

(1[a1]); Sonka, ¶ 264.

6. 12: The computer readable storage medium of claim 11, wherein calibrating colors of the first digital image is based on a second digital image of one or more color standards.

Rubinstenn103 in view of Bandic and Rubinstenn300 disclose or render this claim obvious. *See supra* § VII.D.5 (claim 7), VII.C.3.c (1[a1]); Sonka, ¶ 265.

7. 8: The electronic device of claim 7, wherein the method includes, prior to transferring the first digital image, transferring the second digital image of one or more color standards.

Rubinstenn103 in view of Rubinstenn300 discloses or renders this claim obvious. Sonka, ¶ 266. Rubinstenn ’130 and Rubinstenn300 describe a user device which could receive images from a webcam, and Rubinstenn300 describes that the second image could be transmitted before the first digital image of the user’s face is transmitted. *See supra*, § VII.C.3.d (1[a2]); Rubinstenn300, ¶ 70. The second image could be transmitted before the first so that the first could be calibrated properly using the information extracted from the second image. *See* Rubinstenn300, ¶ 70; Sonka, ¶ 266.

8. 14: The computer readable storage medium of claim 11, wherein the method includes, prior to transferring the first digital image, transferring the second digital image of one or more color standards.

Rubinstenn103 in view of Rubinstenn300 disclose or render this claim obvious. *See supra* §§ VII.D.7 (claim 8), VII.C.3.d (1[a2]); Sonka, ¶ 267.

VIII. DISCRETIONARY DENIAL IS UNWARRANTED[10]

A. 35 U.S.C. § 314(a)

Consideration of the *Fintiv* factors—as applied per the March 24, 2025, Guidance on the USPTO recission of the Interim Procedure—confirms that institution of review is appropriate. *See Apple v. Fintiv*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020).

1. Petitioner Will Seek a Stay

Factor 1 either weighs in favor of or is neutral in not exercising discretion to deny institution. Petitioner intends to move for a stay if inter partes review is instituted. The Board need not speculate as to the likelihood of Judge Spero entering a stay after institution. *See Western Digital v. Kuster*, IPR2020-01391, Paper 10 at 9 (PTAB Feb. 16, 2021). Courts in the Litigation's district (the Northern District of California) routinely stay patent cases where IPR has been instituted on one or more patents or even where institution is still pending. *See, e.g.*, *Finjan, Inc. v. Symantec Corp.*, 139 F. Supp. 3d 1032, 1035 (N.D. Cal 2015); *Google LLC v. EcoFactor, Inc.*, No. 21-cv-03220-HSG, 2022 WL 6837715 (N.D. Cal. Oct. 11, 2022).

[10] Petitioner presents these arguments without waiving additional briefing under the USPTO's March 26, 2025 "Interim Process for Workload Management."

2. Proximity of Parallel Proceeding Trial Date

Factor 2 weighs against discretionary denial. No trial date has been set. EX1015 at 3.

3. Investment in Parallel Proceeding

Factor 3 weighs against discretionary denial. Petitioner has filed this Petition at an early stage of Litigation—a fact that "has weighed against exercising the authority to deny institution." *Apple v. Seven Networks*, IPR2020-00156, Paper 10 at 11-12 (PTAB June 15, 2020). Fact discovery recently opened on April 4, 2025. The parties have not expended serious resources. Petitioner has not served its invalidity contentions. The parties have not exchanged preliminary positions on claim construction or invalidity. The *Markman* hearing is scheduled for October 29, 2025. *See* EX1015 at 2-3. Institution is proper where the parties have not yet invested significant resources directed to invalidity. *See Sand Revolution*, IPR2019-01393, Paper 24 (PTAB June 16, 2020).

4. Stipulation Favors Institution

Factor 4 weighs heavily in favor of institution. *See Google LLC v. Sonos*, IPR2021-01563, Paper 14 at 13 (PTAB Apr. 12, 2022). Petitioner stipulates that, if IPR is instituted, Petitioner will not assert that any of the claims challenged in district court litigation are invalid on any ground that Petitioner raised or reasonably could have raised during this IPR. *See* EX1016. The Board has found that this type of stipulation weighs "strongly in favor of not exercising discretion to

deny institution" because it "ensures that an inter partes review is a 'true alternative' to the district court proceeding." *Sotera Wireless, Inc. v. Masimo Corporation*, IPR2020-01019, Paper 12 at 19 (PTAB Dec. 1, 2020).

Further, given that there is no trial date set, the final written decision will likely pre-date the district court trial, and any overlap will be eliminated because Petitioner will likely be statutorily estopped in the district court under 35 USC §315(e)(2).

5. Identity of the Parties

Although Petitioner and Patent Owner are both parties to the Litigation, this factor is neutral given the minimal issue overlap (Factor 4). *See Apple v. Maxell*, No. IPR2020-00204, Paper 21 at 6-7 (PTAB Dec. 15, 2020). Therefore, a "holistic view" favors institution. *Samsung Elecs. Co. Ltd. V. Dynamics Inc.*, IPR2020-00505, Paper 11, at 15 (Aug. 12, 2020).

6. Merits Heavily Favor Institution

The strength of Petitioner's challenges on the merits further weighs in favor of institution. *See Fintiv*, Paper 11 at 14-15. This is Petitioner's only challenge against this patent. In sum, taking a "holistic view" of the *Fintiv* factors, the "efficiency and integrity of the [Patent] system are best served" by instituting review here. *See Apple v. Maxell*, No. IPR2020-00204, at 6.

B. 35 U.S.C. § 325(d)

The Board should institute review of the '595 patent notwithstanding its

discretion under 35 U.S.C. § 325(d). *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (P.T.A.B. Dec. 15, 2017) (identifying six factor test under § 325(d)); *Advanced Bionics, LLC v. Med-El Electromedizinishce Geräte GMBH*, IPR2019- 01469, Paper 6 at 10 (P.T.A.B. Feb. 13, 2020) (precedential).

Factors (a), (b), and (d): Each of the prior art references addressed in this petition were not raised during prosecution. This Petition does not present the same or substantially the same art or arguments that were previously presented.

Factors (d), (e) and (f): The combinations above present new and distinct invalidity challenges that better reflect the state of the prior art than what was considered during the ’595 patent’s original examination. These grounds show fatal defects in the challenged claims that the Examiner did not consider.

I. CONCLUSION

For the reasons above, Petitioner respectfully submits that it has demonstrated a reasonable likelihood that it will prevail in establishing invalidity of at least one of the challenged claims. Petitioner further submits that the challenged claims are invalid based on the grounds discussed above and should be cancelled.

Dated: May 12, 2025

Respectfully submitted,

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CERTIFICATE OF WORD COUNT UNDER 37 CFR §42.24(D)

Under 37 C.F.R. §42.24(d), the undersigned certifies that the word count for this *Petition for Inter Partes Review* totals 13,991, excluding the parts exempted by 37 C.F.R. §42.24(a).

The word count was made using the built-in word count function in the Microsoft® Word software used to prepare this document.

Dated: May 12, 2025

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that true copies of this *Petition for Inter Partes Review* and supporting materials (Exhibits 1001-1016 and Power of Attorney) have been served in their entireties on the patent owner by Federal Express at the correspondence address of record for the ’595 patent shown in the Office’s Public Patent Center system:

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In addition, the undersigned certifies that a true copy of the petition and supporting materials have been served on Patent Owner via email to its legal counsel:

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