

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner

v.

FACETOFACE BIOMETRICS, INC.,
Patent Owner

Inter Partes Review Case No. IPR2023-00833
U.S. Patent No. 11,042,623 B2

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,042,623**

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I. INTRODUCTION

Petitioner Apple Inc. requests *Inter Partes* Review of Claims 1-20 (collectively, the “Challenged Claims”) of U.S. Patent No. 11,042,623 (the “’623 Patent”).

II. THE ’623 PATENT

A. The ’623 Patent’s Alleged Invention

The ’623 Patent is generally directed to a messaging system capable of expression-based communication and/or expression-based actions. ’623 Patent (Ex. 1001), Abstract. The ’623 Patent proposes a computing device running a messaging system capable of monitoring a camera feed to perform user authentication and detect human expressions. *Id.*, 8:4-13; *see also* 7:60-8:1, 4:20-31. The messaging system captures an image of a user’s face, performs facial recognition to authenticate the user, and performs expression recognition to determine a user’s expression state. *Id.*, Abstract, 7:32-8:13. Figure 3 below depicts the method of a processor programmed to implement “an expression recognition process,” *Id.*, Fig. 3, 7:61-64; *see also* 8:31-57 (describing the individual processing steps represented in Fig. 3).

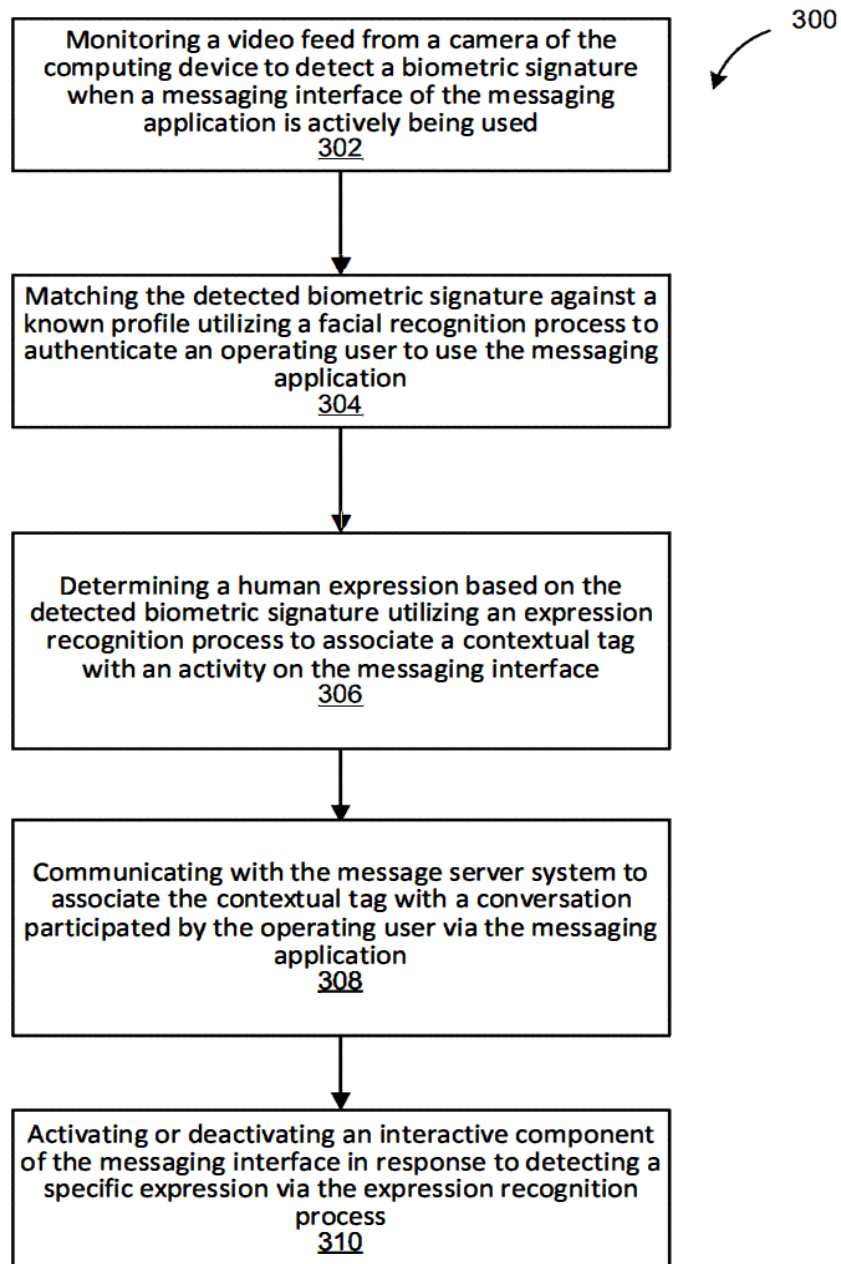


FIG. 3

When the computing device runs the messaging application, the messaging system monitors a video feed to detect the user's biometric signature (facial profile) (step 302). Facial recognition compares the detected biometric signature to a known profile to authenticate the user (step 304). *Id.*, 8:37-48. The computing device further determines a human expression based on the detected biometric signature using an expression recognition process to create a contextual tag that associates the human facial expression with an activity on the messaging interface (step 306). *Id.*, 8:49-52. The contextual tag is then embedded as an emoticon when a message is composed and sent as part of the message to another conversation participant (step 308). *Id.*, Fig. 3, 8:53-64, 5:4-8 (disclosing the "messaging application can use the expression recognition process to add context to conversations between users of the messaging system" and to "add an emoticon to a message").

B. Priority Date of the Challenged Claims

For purposes of this Petition, Apple applies March 10, 2014, as the priority date for the Challenged Claims without waiver of its ability to challenge this claim in litigation.

C. The '623 Patent's Prosecution

During prosecution, Applicant faced multiple rejections citing a combination of references that monitor a user's facial expressions as user input. Ultimately the Examiner rejected the independent claims for lack of written description and

obviousness in view of U.S. Patent Application Publication 2015/0015690 to Roh et al. (“*Roh*”) in view of U.S. Patent Application Publication 2013/0185648 to Kim (“*Kim*”), and further in view of U.S. Patent Application Publication 2008/0218472 to Breen et al. (“*Breen*”). ’623 *File History* (Ex. 1002), 276-297. Applicant amended the independent claims to recite: “monitor a sensor feed provided by one or more sensors of the computer device to detect a plurality of human facial expression states” and “automatically generate a dynamic emoticon that simulates the detected plurality of human facial expression states on the selected emoticon based on the sensor feed of the plurality of human facial expression states.” *Id.*, 312-315.

Applicant argued *Roh* neither taught nor suggested monitoring the sensor feed to detect a plurality of human facial expression states, automatically generating a dynamic emoticon that simulates the detected plurality of human facial expression states on the selected emoticon based on the sensor feed of the plurality of human facial expression states or routing a message with the dynamic emoticon to a second computer device. *Id.*, 317. Then the Examiner issued a notice of allowance *Id.*, 324-332.

D. A Person of Ordinary Skill in the Art

A person of ordinary skill in the art (“PHOSITA”) at the time of the ’623 Patent would have had a bachelor’s degree in computer engineering, computer science, electrical engineering, or a related field, with at least two years of

experience in the fields of image processing and graphical user interfaces. Additional education or experience might substitute for the above requirements. *Dec.*, ¶32-35¹.

III. REQUIREMENTS FOR IPR UNDER 37 C.F.R. § 42.104

A. Standing Under 37 C.F.R. § 42.104(A)

Apple certifies the '623 Patent is available for IPR, and Apple is not barred or estopped from requesting IPR challenging the claims of the '623 Patent. Apple is not the owner of the '623 Patent, has not filed a civil action challenging the validity of any claim of the '623 Patent, and this Petition is filed less than one year after Apple was served with a complaint alleging infringement of the '623 Patent.

B. Challenge Under 37 C.F.R. § 42.104(B) and Relief Requested

In view of the prior art and evidence presented, claims 1-20 of the '623 Patent are unpatentable and should be canceled. 37 C.F.R. § 42.104(b)(1). Based on these prior art references, IPR of the Challenged Claims should be granted. 37 C.F.R. § 42.104(b)(2).

Proposed Grounds of Unpatentability		Exhibit
<u>Ground 1:</u>	U.S. Patent Publication No. 2013/0235045 to <i>Corazza et al.</i> (“ <i>Corazza</i> ” Ex. 1004) renders claims 1, 4-6, 8, 11, and 14-20 anticipated.	Ex. 1004
<u>Ground 2:</u>	<i>Corazza</i> in view of U.S. Patent 8,620,850 to <i>Brown et al.</i> (“ <i>Brown</i> ” Ex. 1005) renders claims 1, 2, 4-8, 11, 12, and 14-20 obvious.	Ex. 1004 Ex. 1005

¹ All citations to “*Dec.*” are to paragraph numbers in Ex. 1003, Declaration of Benjamin B. Bederson.

<u>Ground 3:</u>	<i>Corazza</i> in view of <i>Brown</i> and in further view of U.S. Patent No. 9,256,748 to <i>Gates et al.</i> (“ <i>Gates</i> ” Ex. 1006) renders claims 3, 9, 10, and 13 obvious.	Ex. 1004 Ex. 1005 Ex. 1006
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Section IV identifies where each Element of the Challenged Claims is found in the prior art. 37 C.F.R. § 42.104(b)(4). The exhibit numbers of the supporting evidence relied upon to support the challenges are provided above and the relevance of the evidence to the challenges raised are provided in Section IV. 37 C.F.R. § 42.104(b)(5). Exhibits 1001–1018 are also attached.

C. Claim Construction Under 37 C.F.R. § 42.104(b)(3)

In this proceeding, claims are interpreted under the same standard applied by Article III courts (e.g., the *Phillips* standard). 37 C.F.R. § 42.100(b); 83 Fed. Reg. 197 (Oct. 11, 2018); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*). Petitioner applies the plain and ordinary meaning of all claim terms. Petitioner does not waive any argument in any litigation that claim terms in the Patent are indefinite or additional terms need construction.

IV. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. Ground I: Claims 1, 4-6, 8, 11, and 14-20 are anticipated in view of *Corazza*

U.S. Patent Publication No. 2013/0235045 to *Corazza et al.* (“*Corazza*”) (Ex. 1004) was filed on March 6, 2013, published on September 12, 2013, and is prior art to all Challenged Claims of the ’623 Patent under at least 35 U.S.C. § 102(a)(1) and

102(a)(2) (post-AIA). *Corazza* was not cited or considered during prosecution of the '623 Patent.

Corazza describes “systems and methods for creating, and distributing modifiable animated video messages.” *Corazza* (Ex. 1004), ¶¶45, 52, 57. *Corazza*’s “animated video messages can be generated by tracking human facial expressions in captured video images and using the tracked expressions to drive animation of a facial model of a character,” which is “used to render video for display.” *Corazza*, ¶45, Abstract, ¶¶46, 69, 80.

1. Claim 1

1(Pre) A computer device comprising at least one processor in communication with at least one memory device, wherein the at least one processor is programmed to:

If limiting, *Corazza* disclosed a device comprising a processor that communicates with storage (e.g., memory). *Corazza* teaches a “processor configured via an appropriate software application can generate animated video messages,” such a processor being “resident upon a networked computing device.” *Corazza*, ¶53. The networked computing device (e.g., networked computing device 104) includes a processor and “storage containing an animated message application.” *Id.*, ¶6; Abstract. The “animated message application configures the processor to: capture a video sequence using the video camera; detect a human face within a sequence of video frames... apply motion data to animate the 3D character model...

and transmit the encoded video to a remote device via the network interface.” *Id.*, Abstract; ¶53, *see also* Figure 1; ¶¶27, 53-55. *Corazza* disclosed Element 1(Pre). *Dec.*, ¶61-62.

1(a) receive a selection of an emoticon;

Corazza’s processor is programmed to receive a selection of 2D/3D characters via a user interface. *Supra* Element 1(Pre). *Corazza* disclosed “the process of generating an animated message includes selecting a character from a library of multiple characters.” *Id.*, ¶48. Such a character “includes a 2D or a 3D facial model.” *Id.*, ¶47. The “generation of an animated video message can take place on the networked computing device 104,” which “can receive a selection of a 3D character via a user interface.” *Id.*, ¶56. *Corazza* disclosed Element 1(a). *Dec.*, ¶63-65.

1(b) monitor a sensor feed provided by one or more sensors of the computer device to detect a plurality of human facial expression states;

Corazza’s processor is programmed to monitor (e.g., capture, receive) a sensor feed for detecting changes in human facial expressions. *Corazza*’s processor is “configured via an appropriate software application” to “generate animated video messages using video images captured by a video camera and/or any of a variety of other sources of input including (but not limited to) sensors, touch screens, and/or microphones.” *Id.*, ¶53, Abstract (“the animated message application configures the processor to: capture a video sequence using the video camera; detect a human face within a sequence of video frames; track changes in human facial expression of a

human face detected within a sequence of video frames”). The “generation of an animated video message can take place on the networked computing device 104 that captured the video of a human face.” *Id.*, ¶56.

Corazza illustrates the steps of process 300 for generating animated video messages in Fig. 3:

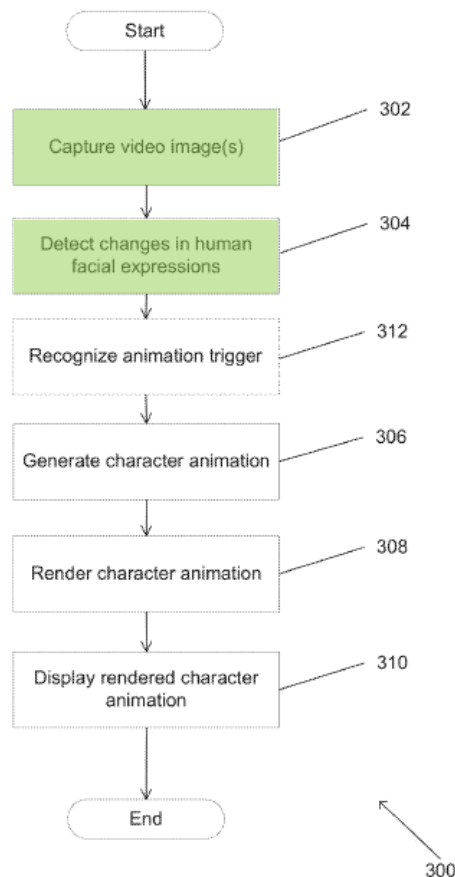


FIG. 3

Id., Fig. 3, ¶61.

Step 302 illustrates “various video images can be captured (302) by a video camera. This video camera can be integrated with or otherwise connected with a networked computing device.” *Id.*, ¶61, *see also Id.*, ¶51, ¶55. “From the video

images, changes in human facial expressions indicative of human facial animation from a human face captured within the video images can be detected (304).” *Id.*

Corazza provides three examples (the plurality) of detected human facial expression states captured by the sensors, as illustrated in Figures 8A-8C. Figure 8A illustrates “a surprised human facial expression 804 captured within a video image.” *Id.*, ¶82. Figure 8B illustrates “an angry human facial expression 824 captured within a video image.” *Id.* And Figure 8C illustrates “a neutral human facial expression 844 captured within a video image.” *Id.* The surprised human facial expression 804, the angry human facial expression 824, and the neutral human facial expression 844 are examples of a plurality of human facial expression states detected by the video camera of *Corazza*. *Id.* *Corazza* disclosed Element 1(b). *Dec.*, ¶66.

1(c) automatically generate a dynamic emoticon that simulates the detected plurality of human facial expression states on the selected emoticon based on the sensor feed of the plurality of human facial expression states; and

Patent Owner’s own interpretation² of a “dynamic emoticon” appears to include graphics, symbols, emojis, videos, characters, avatars, or the like, that reflect

² Patent Owner contends Petitioner’s “Memoji[s]” are a “dynamic emoticon that simulates a detected human facial expression.” Ex. 1007, Complaint ¶¶4-5; *10X Genomics, Inc.*, IPR2020-00086, Paper 8, at 20 (35 U.S.C. § 301(a)(2) “expressly

the expressions a sender captured and apply those in a message to give emotional context. And the '623 Patent describes “the recognized expression of a sender user can be added as an emoticon to a message.”’623 *Patent*, 5:6-8. The '623 Patent explains, “the message server system can include sending the contextual tag as an emoticon.” *Id.*, 8:60-64. Based on Patent Owner’s statements, the background of the technology, and the '623 Patent, a dynamic emoticon includes graphics, symbols, characters, emojis, videos, avatars, or the like, that reflect the expression a sender uses to help explain the context of the message.

Corazza’s processor is programmed to create a dynamic emoticon by animating the selected 2D/3D character (e.g., emoticon) with motion data to simulate the detected plurality of human facial expressions captured in the video images. *See* Element 1(b). *Corazza* disclosed the processor is programmed to “map tracked changes in human facial expression to motion data, where the motion data is generated” to animate the 2D/3D character model and “apply motion data to animate the 3D character model.” *Id.*, Abstract; ¶47 (“enable the mapping of feature vectors from the PCA space of human faces and facial expressions to the PCA space of the 2D or 3D character’s facial expression” and allowing for the animation of the 2D/3D

permits Petitioner to cite ‘at any time’ a Patent Owner’s statements filed in a Federal court in which patent owner took a position on the scope of a patent claim”).

facial model of the selected character). The processing steps of mapping tracked changes in human facial expression to motion data and applying motion data to animate the 2D or 3D character are shown in processing steps 306-310 of Figure 3, provided below.

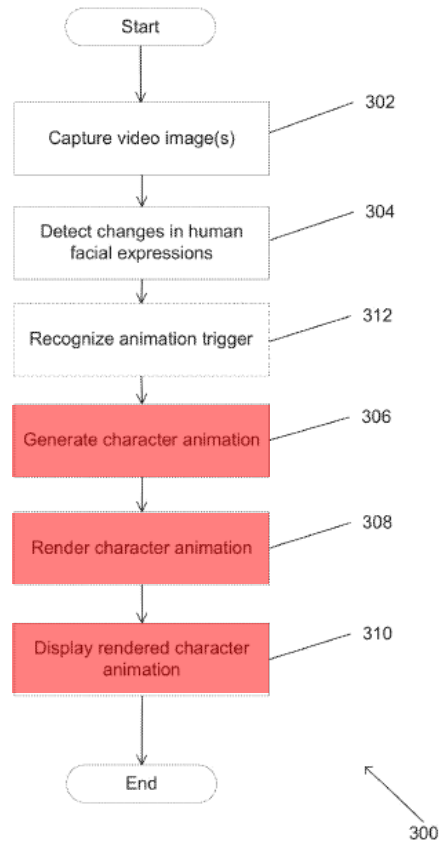


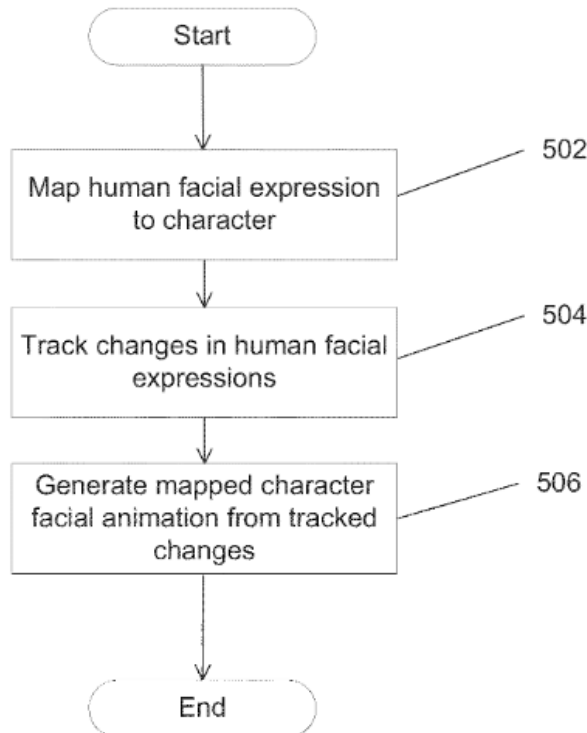
FIG. 3

Id. Fig. 3 (annotated to show processing steps 306, 308, and 310 highlighted in red, occurring after steps 302 and 304).

The character facial animation is “generated by mapping a character’s facial animation from detected changes in human facial expressions,” such that the “change of a human face’s facial expression over various video images can drive a

character facial animation.” *Id.*, ¶¶61, 69, 70. Figure 3 illustrates *Corazza*’s character “animation can be generated (306) from the tracked changes in human facial expressions” and “rendered (308) into a file as encoded 2D (or 3D) video and decoded for display (310).” *Id.* *Corazza* disclosed that both 2D/3D characters can be generated. “Depending upon whether the captured image includes 2D or 3D information, an appropriate 2D or 3D template can be utilized to determine facial geometry.” *Id.* ¶66.

Figure 5 shows the detailed “process for generating a character facial animation from tracked changes in human facial expressions” from processing step 306 in Figure 3. *Id.*, ¶¶69, 37.



Id., Fig. 5. The human facial expressions are mapped to the facial model of a character in step 502. *Id.*, ¶69. “After mapping, changes in human facial expressions can be tracked (504) and used to generate (506) character facial animation in accordance with the mappings.” *Id.*

Examples of character facial animation in which human facial expressions drive the facial animation of a selected 2D/3D character (e.g., emoticon) was disclosed in Figures 8A-8C. These are side-by-side screenshots “displaying an animated video message and the video images from which the animated video message is derived.” *Id.*, ¶82; Figures 8A-8C; ¶¶40-42.

Figure 8A

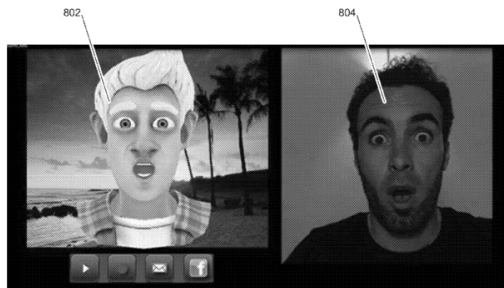


Figure 8B

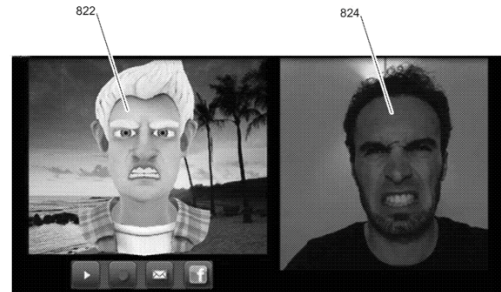
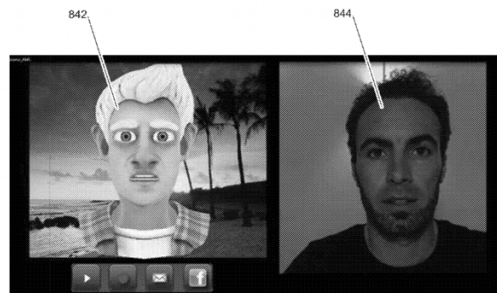


Figure 8C



The selected character (e.g., emoticon) in Figures 8A-8C are disclosed with short, light-colored hair and a plaid, collared shirt. This character was selected from *Corazza's* library of multiple characters and is shown simulating detected human facial expressions (e.g., surprise, anger, neutral) of the human facial expression captured in a video image. *Id.* *Corazza* disclosed Element 1(c). *Dec.*, ¶¶67-68.

1(d) route a message with the dynamic emoticon to a second computer device.

Corazza's processor is programmed to transmit a rendered animation of the 2D/3D character encoded as a video to a remote device via a network interface. *Supra* Elements 1(b) and 1(c), *Corazza*, ¶¶29; *see also* ¶¶6, 18, 21, 25.

Corazza disclosed “networked computing devices can send animated video messages to other networked computing devices over a network.” *Id.*, ¶¶54, 45, 58. The animated video messages can be “sent to another networked computing device directly,” and “can also be sent indirectly.” *Id.*, ¶¶54 (“animated video messages can be generated by a networked computing device and sent to another networked computing device directly” or “can also be sent indirectly utilizing any method, including (but not limited to) generating, rendered, and/or storing a character animation, including character facial animation, on a server accessible to a networked computing device”). *Corazza* depicts the computing devices capable of sending/receiving animated video messages connected via a network in Fig. 1:

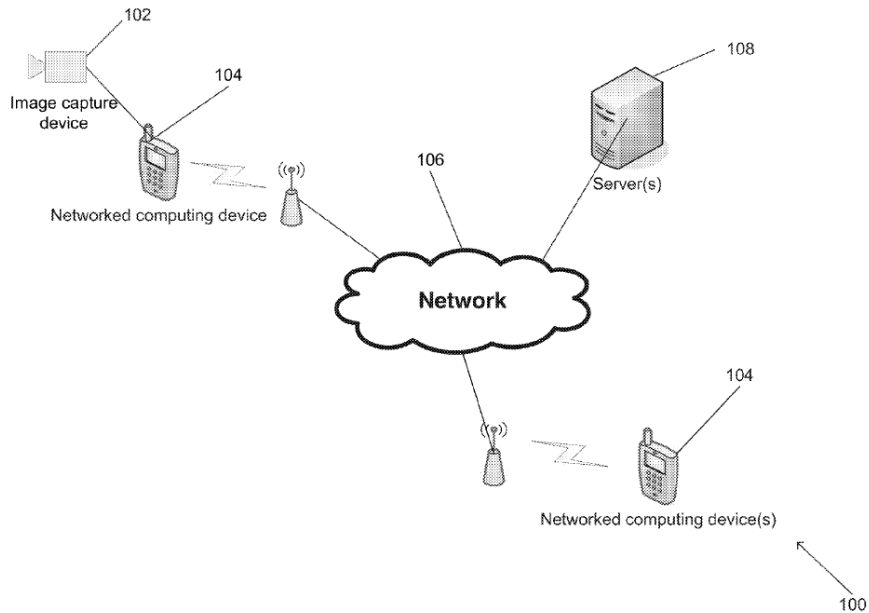


FIG. 1

Id., Fig. 1, ¶¶55-56 (“send the rendered character animations to another networked computing device 104 over the network 106.”).

Corazza disclosed Element 1(d). *Dec.*, ¶69.

2. Claim 4

4. The computer device of claim 1, wherein the detected plurality of human facial expression states includes a smile, a laugh, a grimace, a frown, a pout, or any combination thereof.

Corazza disclosed detecting a plurality of facial expression states, which “can be any facial expressions that can be detected such as a smile or a frown.” *Corazza*, ¶73. *Corazza* also disclosed detecting a plurality of facial expression states in processing steps 302 and 304, depicted in Fig. 3. *Supra* Elements 1(b) and 1(c); *Id.*, ¶61 (discussing the same). *Corazza* also disclosed that the “change of a human face’s facial expression over various video images can drive a character facial animation”

and that “character facial animation is generated by mapping changes in a feature vector in a PCA space of human faces and facial expressions derived from the images of human facial expressions to a feature vector in a PCA space for the facial expressions of a 3D character.” *Id.*, ¶¶69, 61, respectively, ¶47 (teaching the use of PCA to animate the 3D facial model of a 3D character). *Corazza* disclosed Claim 4. *Dec.*, ¶70.

3. *Claim 5*

5. The computer device of claim 1, wherein the detected plurality of human facial expression states includes an expression corresponding to a mood or an emotion, a micro expression, a stimulated expression, a neutralized expression, a masked expression, or any combination thereof.

Corazza disclosed detecting a plurality of facial expression states. *Supra* Claim 4. Figures 8A-8C disclosed detecting the human facial expression states of surprise (e.g., an expression corresponding to a stimulated expression), anger (e.g., an expression corresponding to an emotion), and neutral (e.g., an expression corresponding to a masked expression). *Corazza*, Figs. 8A-8C, ¶82; *see also Id.*, ¶¶40-42.

Figure 8A

Figure 8B

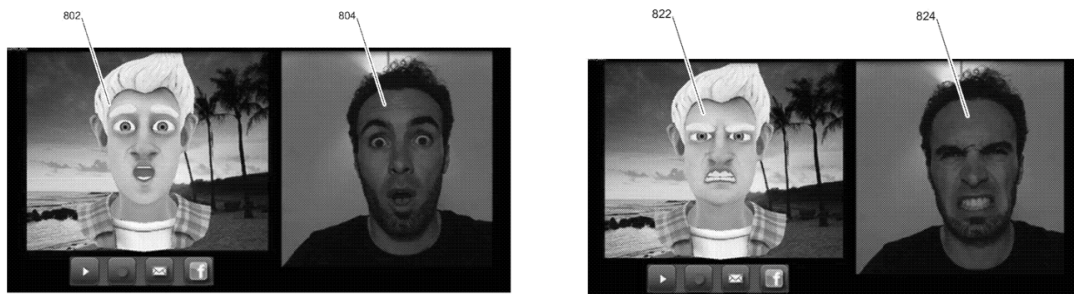
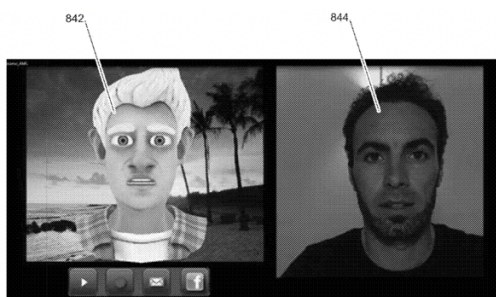


Figure 8C



Corazza disclosed Claim 5. *Dec.*, ¶71.

4. Claim 6

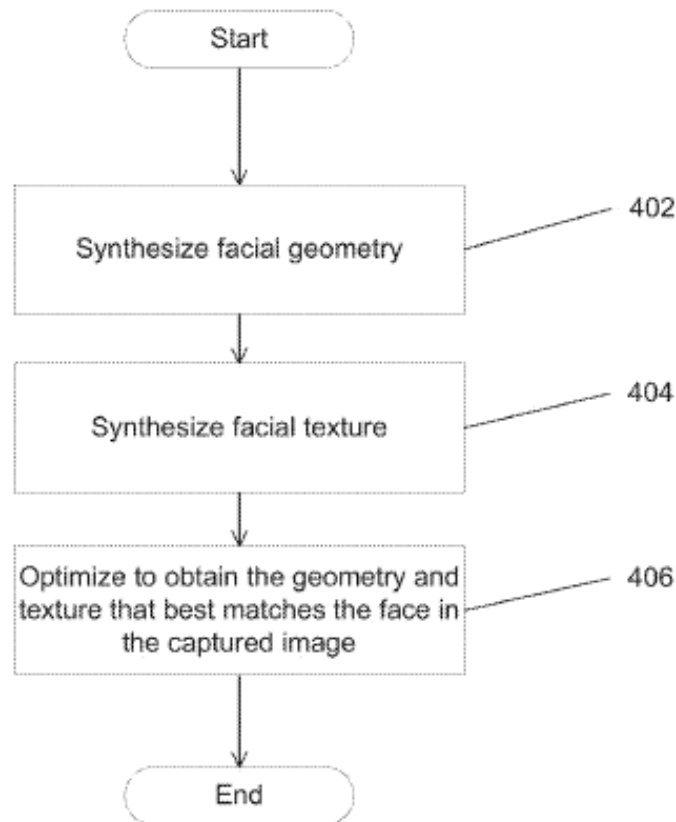
6. The computer device of claim 1, where the at least one processor is further programmed to analyze a human facial expression using an expression recognition process to detect the human facial expression state.

Corazza disclosed the processor programmed to detect the changes in human facial expressions captured in a video feed. *Supra* Elements 1(Pre) and 1(b). *Corazza* disclosed the processor that performs Principal Component Analysis (“PCA”) to analyze human facial expressions and detect the human facial expression states. *Corazza*, ¶10, *see also* ¶¶47, 62, 64-66, 70.

Corazza defines the PCA space of human facial expressions using a training data set. *Id.*, ¶47. Then, a “facial expression can be tracked by obtaining the feature

vector of the human face and its expression within the PCA space of human facial expressions. The feature vector within the PCA space of human faces and facial expressions that is the closest match to the human face and facial expression can then be mapped to a facial model of a character.” *Id.*, ¶47, *see also* ¶¶64-65. Figure 4 disclosed the process 400 performed by the processor for determining the feature vector that most closely matches a human face:

Figure 4



Id., Fig. 4, ¶66. Figure 4 disclosed synthesizing a facial geometry and facial texture from an estimate of face position/size, geometry, and texture within a captured video image in steps 402 and 404. The synthesized geometries and textures are then

optimized to obtain the geometry and texture that is the best match based upon any of a variety of matching, such as “a similarity function (to maximize criteria indicating similarity) or a distance function (to minimize criteria not indicating similarity).” *Id.* “The feature vector that is the best match can be found by scaling and positioning the face extracted from the captured image with respect to a template and then finding the geometric and texture components of the feature vector within a PCA space of human faces and facial expressions that most closely corresponds to the scaled face.” *Id.*, ¶65. Furthermore, depending “upon whether the captured image includes 2D or 3D information, an appropriate 2D or 3D template can be utilized to determine facial geometry.” *Id.*, ¶66.

Corazza disclosed Claim 6. *Dec.*, ¶72.

5. Claim 8

8. The computer device of claim 1, wherein a human facial expression is captured in real-time from the one or more sensors.

Corazza disclosed a processor programmed to translucently overlay an animated facial model on the video of the human face used to drive the animation in real time. *Corazza*, ¶46. *Corazza* captures a sequence of video frames using the video camera and renders an animation of the 3D character model into a file as encoded video. *Supra* Claim 1(b); *Corazza*, ¶6, *see also* ¶¶45-48, 51, 56, 60-61, 80-82. The “video rendered using an animated facial model of a character can be translucently overlaid in **real time** on the video of the human face used to drive the

animation so that the composite video images of the human face and the animated character generate an effect similar to that of an animated mask or makeup overlaid on the human face.” *Id.*, ¶46 (emphasis added). *Corazza* disclosed Claim 8. *Dec.*, ¶73.

6. Claim 11

11(Pre) A computer-implemented method of operating a messaging application, the method comprising:

If limiting, *Corazza* disclosed an animated messaging application that configures the processor to create and distribute modifiable animated video messages. *Supra* Elements 1(Pre)-1(d), *Corazza*, ¶¶6 and 45, respectively, *see also* Abstract, ¶¶53, 55-56.

Corazza disclosed Claim 11(Pre). *Dec.*, ¶74-75.

11(a) receiving a selection of an emoticon;

See Claim 1, Element 1(a). *Dec.*, ¶76.

11(b) monitoring a sensor feed provided by one or more sensors of a computer device to detect a plurality of human facial expression states;

See Claim 1, Element 1(b). *Dec.*, ¶77.

11(c) automatically generating a dynamic emoticon that simulates the detected plurality of human facial expression states on the selected emoticon based on the sensor feed of the plurality of human facial expression states; and

See Claim 1, Element 1(c). *Dec.*, ¶78.

11(d) route a message with the dynamic emoticon to a second computer device.

See Claim 1, Element 1(d). *Dec.*, ¶79.

Corazza disclosed Claim 11. Dec., ¶¶74-79.

7. Claim 14

14. The computer-implemented method of claim 11, wherein the detected plurality of human facial expression states includes a smile, a laugh, a grimace, a frown, a pout, or any combination thereof.

See Claim 4. Corazza disclosed Claim 14. Dec., ¶80.

8. Claim 15

15. The computer-implemented method of claim 11, wherein the detected plurality of human facial expression states includes an expression corresponding to a mood or an emotion, a micro expression, a stimulated expression, a neutralized expression, a masked expression, or any combination thereof.

See Claim 5. Corazza disclosed Claim 15. Dec., ¶81.

9. Claim 16

16. The computer-implemented method of claim 11, further comprising analyzing a human facial expression using an expression recognition process to detect the human facial expression state.

See Claim 6. Corazza disclosed Claim 16. Dec., ¶82.

10. Claim 17

17. The computer-implemented method of claim 11, wherein a human facial expression is captured in real-time from the one or more sensors.

See Claim 8. Corazza disclosed Claim 17. Dec., ¶83.

11. Claim 18

18. The computer-implemented method of claim 11, further comprising continuously detecting human facial expression states using one or more sensors of the computer device after detecting a first human facial expression state.

Corazza disclosed the messaging application configures the processor detect the changes in facial expressions of a human face detected within a sequence of video frames. *Supra* Elements 1(b) and 1(c). *Corazza* captures human facial expressions in real-time from the camera (e.g., one or more sensors of the computer device). *Supra* Claim 8.

Corazza's "animated video messages," generated by "tracking human facial expressions in captured video images... to drive animation of a facial model of a character," may include a "video rendered using an animated facial model of a character translucently overlaid in real time on the video of the human face used to drive the animation." The composite, real-time video is the result of continuously tracking human facial expressions in captured video images. *Id.*, ¶¶45-46.

Tracking human facial expressions begins by identifying and extracting "a human face from a video image. A facial expression can be tracked by obtaining the feature vector of the human face and its expression within the PCA space of human facial expressions." *Id.*, ¶47. After detecting the facial expression in the video image, "a sequence of images of a human face can be used to extract a sequence of feature vectors that are mapped to the PCA space of the 3D character's facial expression. This sequence of mappings animates the 2D or 3D facial model of the character and the animated facial model can be used to render video." *Id.*

Corazza disclosed Claim 18. *Dec.*, ¶84.

12. Claim 19

19(Pre) At least one non-transitory computer-readable storage media having computer-executable instructions embodied thereon, wherein when executed by a computer device having at least one processor in communication with at least one memory device, the computer-executable instructions cause the processor to:

Corazza disclosed a computing device containing a processor and storage containing an animated video messaging application (e.g., non-transitory computer-readable storage media having computer-executable instructions embodied thereon), and the animated video messaging application configures the processor to perform functions related to the generation and sending of animated video messages (e.g., computer-executable instructions executed by a computing device having a processor in communication with the memory device). *Supra* Element 1(Pre) and 11(pre).

Corazza disclosed Claim 19(Pre). *Dec.*, ¶86.

19(a) receive a selection of an emoticon;

See Claim 1, Element 1(a). *Dec.*, ¶87.

19(b) monitor a sensor feed provided by one or more sensors of the computer device to detect a plurality of human facial expression state;

See Claim 1, Element 1(b). *Dec.*, ¶88.

19(c) automatically generate a dynamic emoticon that displays the selected emoticon changing to the plurality of detected human facial expression states based on the sensor feed of the plurality of human facial expression states; and

See Claim 1, Element 1(c). *Dec.*, ¶89.

19(d) route a message with the dynamic emoticon to a second computer device,

See Claim 1, Element 1(d). *Dec.*, ¶90.

19(e) wherein the second computer device displays the selected emoticon changing to the detected plurality of human facial expression states.

Corazza disclosed the “animated video messages can be created using video captured by a camera integrated within or connected to a first networked computing device and displayed on a second networked computing device.” *Corazza*, ¶45.

The animated video messages are generated by “tracking human facial expressions in captured video images and using the tracked expressions to drive animation of a facial model of a character. The animated facial model can then be used to render video for display. In this way, animated video messages can be created using video captured by a camera integrated within or connected to a first networked computing device and displayed on a second networked computing device.” *Supra* Element 1(d) and Claim 2, *Corazza*, ¶45; *Dec.*, ¶91.

Corazza disclosed Claim 19, Element 19(e). *Dec.*, ¶¶85-91.

13. Claim 20

20. The at least one non-transitory computer-readable storage media of claim 19, wherein the detected plurality of human facial expression states includes a smile, a laugh, a grimace, a frown, a pout, or any combination thereof.

See Claim 4. *Corazza* disclosed Claim 20. *Dec.*, ¶92.

B. GROUND II: Claims 1, 2, 4-8, 11, 12, and 14-20 are obvious over Corazza in view of Brown

If Patent Owner contends *Corazza*'s 2D/3D character is not an "emoticon," U.S. Patent No. 8,620,850 to *Brown et al.* ("*Brown*", Ex. 1005) discloses such. *Brown* teaches emoticons which "are small, typically simplistic, images representing a user's facial expression or current mood. For example, a smiley face such as 😊 is an emoticon used to signal that the writer of the message is smiling or happy. The emoticon 😞 is conventionally used to signal that the writer of the message is unhappy or displeased." *Brown*, 1:18-23. *Brown* teaches modifying emoticons to "indicate a current user mood in response to the user input." *Id.*, 2:21-26. *Brown* teaches incorporating the emoticon into a text message, e-mail, etc., for transmission. *Id.*, Abstract; 3:34-38; 2:32-35.

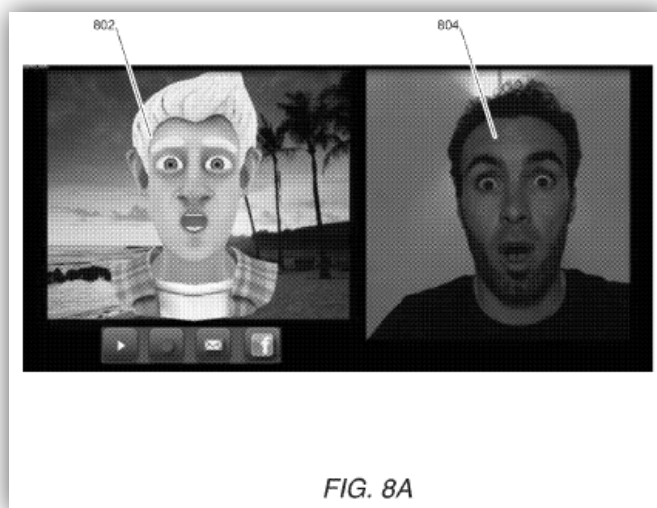
Corazza is like the '623 Patent because *Corazza* disclosed a networked computing device (device 104), which received a selection of a 2D/3D characters (emoticon), and additionally it animated the face of the 2D/3D characters using detected facial expressions from camera images. *Compare Corazza* at ¶56 ("a networked computing device 104 can receive a selection of a 3D character via a user interface, capture video images using an image capture device 102 such as (but not limited to) a video camera, detect the changes in human facial expressions in the captured video images," and "generate character animation from tracking the changes in the human facial expressions."), with the '623 Patent at Claim 1

(disclosing “receive a selection of an emoticon; monitor a sensor feed provided by one or more sensors of the computer device to detect a plurality of human facial expression states;” and “automatically generate a dynamic emoticon that simulates the detected plurality of human facial expression states”); *See also Dec.*, ¶57.

Further, *Corazza* and the ’623 Patent both relate to computing devices that send a message with an animated emoticon. *Corazza* at Figures 8A-8C, ¶¶9-10, 45, 56; ’623 Patent at Claim 1, 5:4-8, 8:4-13, 8:49-64; *See also Dec.*, ¶58. Given these likenesses, a PHOSITA would have considered *Corazza* in the same field of endeavor as the ’623 Patent. *Dec.*, ¶57-58.

Additionally, *Corazza* is analogous art to the ’623 Patent. For the ’623 Patent, a skilled person would have understood that the patent was attempting to solve or improve a computing devices capability to: (1) gain context information regarding the user’s emotional or mood state when messaging by applying an expression recognition process, and also (2) convey the context information with a message to another user/computing device. *Dec.*, ¶59. And a PHOSITA would have looked to known methods for tracking and determining a user’s facial expressions, as well as incorporating those expressions into a message. *Id.* Also, a PHOSITA would have used known methods, such as *Corazza*’s animated video messages that include an animated 2D/3D character with facial expressions driven by the detected facial expressions of a user (Figure 8A noted below showed detecting user’s surprise

expression and 2D/3D character also showed surprise):



Id.; *Corazza* at Figure 8A, see also Figures 8B and 8C (detected user’s facial expressions of “angry” and “neutral” driving the 2D/3D character facial expressions), ¶82. In sum, a PHOSITA would have understood *Corazza* was reasonably pertinent to the issues being solved by the ’623 Patent and would have looked to its teachings for solving those issues. *Dec.*, ¶58-59. As such, *Corazza* is analogous art to the ’623 Patent.

Brown was filed September 7, 2010, granted December 31, 2013, and is prior art to all Challenged Claims under at least 35 U.S.C. § 102(a)(1) and 102(a)(2) (post-AIA). *Brown* was not cited or considered during prosecution of the ’623 Patent.

Brown is in the same field of endeavor as the ’623 Patent. *Dec.*, ¶98. The ’623 Patent “relates generally to an electronic messaging system,” which includes “an electronic messaging system for delivery of text, images, audio clips, or video clips.”

'623 *Patent*, 1:29-31, 5:14-16. It teaches “human-understandable electronic communication can include emoticons, text, photos, audio clips, videos, links, images.” *Id.*, 6:20-22. And “the messaging application can use the expression recognition process to add context to conversations between users of the messaging system. In some cases, the recognized expression of a sender user can be added as an emoticon to a message.” *Id.*, 5:4-10. And “communicating with the message server system can include sending the contextual tag as an emoticon embedded as part of the message to configure the message server system to distribute the emoticon to another participant of the conversation.” *Id.*, 8:59-64.

Brown is in the same field of endeavor of “communication devices and, more particularly, to messaging applications that enable the use of emoticons.” *Brown*, 1:11-13; *Dec.*, ¶98. *Brown* provides an electronic messaging system implemented on a range of devices. *Brown*, 3:3-14 (in which a “‘mobile device’ is meant to encompass a broad range of portable, handheld or mobile electronic devices such as smart phones, cell phones ... computing tablets, laptops, etc. that have communication capabilities for exchanging textual messages,” while a “‘communication device’ is meant to encompass any computing device, mobile device, or electronic device that enables a user to compose, send, receive, and read textual messages such as e-mail, MMS, SMS, etc.”). *Brown* also explains that emoticons may be added to messages. *Id.*, Abstract; 3:34-38. For example, on the

display of the computing device, *Brown* teaches that an IM (instant message) conversation between Amy and Bob can be displayed where “each “user has chosen to incorporate emoticons after their respective messages.” *Id.*, 5:22-29. “Graphical user representations, such as emoticons or avatars [are] used to convey mood and emotion.” *Id.*, Abstract. Accordingly, *Brown* is in the same field of endeavor as the ’623 Patent. *Dec.*, ¶98.

Brown is also reasonably pertinent to certain problems addressed by the ’623 Patent. *Dec.*, ¶99-100. A PHOSITA would have reasonably consulted *Brown* in seeking a solution to a problem the ’623 Patent was attempting to solve – specifically, providing “contextual information associated with a user’s emotional/mood.” ’623 Patent, 4:34-36; *Dec.*, ¶99-100. A PHOSITA would have understood at the time of the invention another problem the ’623 Patent was trying to solve was transferring contextual information about the user’s mood with the message. ’623 Patent, 5:4-10; *Dec.*, ¶99-100. In addressing these various problems confronting the inventions of the ’623 Patent, a skilled artisan would have looked to known ways of obtaining and sending contextual information about the user’s mood as well as common communication methods and the use of symbols, images, videos, and the like, including *Brown*’s way of providing simple emoticons through message transmission to solve this problem. *Id.* *Brown* is analogous art to the ’623 Patent.

1. Claim 1

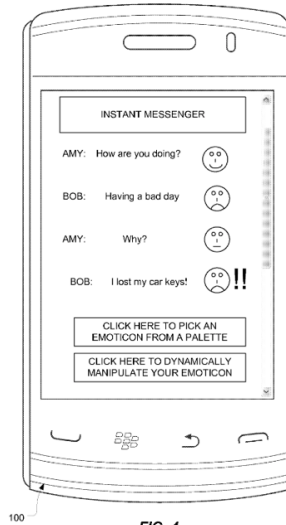
1(Pre) A computer device comprising at least one processor in communication with at least one memory device, wherein the at least one processor is programmed to:

See supra, Ground 1, Claim 1(Pre). *Dec.*, ¶101.

1(a) receive a selection of an emoticon;

As discussed above, *Corazza* teaches a processor programmed to receive a selection of 2D/3D characters, teaching the claimed selection of an emoticon. *Supra*, Ground 1, Claim 1(a) *citing Corazza*, ¶¶47-48, 70, 82, Figures 8A-8C.

To the extent it is argued *Corazza's* 2D/3D characters are not emoticons, *Brown* teaches emoticons. *Brown's* emoticons “are small, typically simplistic, images representing a user’s facial expression or current mood. For example, a smiley face such as 😊 is an emoticon used to signal that the writer of the message is smiling or happy. The emoticon ☹ is conventionally used to signal that the writer of the message is unhappy or displeased.” *Brown*, 1:18-23. *Brown* uses emoticons to “indicate a current user mood in response to the user input.” *Id.*, 2:21-26. An example of *Brown's* emoticons is provided in Figure 4 below.



Notably, *Brown*'s user may "select an emoticon from a palette by clicking a user interface element on the touch screen," teaching "receiving a selection" of an "emoticon," as claimed. *Id.*, 5:29-35; Figures 4-6; *Dec.*, ¶102.

Reasons to Combine Corazza and Brown

It would have been obvious to include *Brown*'s simpler emoticon style (e.g., smiling emoticon) as a style of character available within *Corazza*'s "library of multiple characters" capable of simulating detected human facial expressions. *Dec.*, ¶103-111. In the combined *Corazza/Brown* system, *Corazza*'s library of multiple characters, including 2D/3D models, would also include simple, emoticon-style character models like the "simple smiley faces" of *Brown*, making the emoticon-style characters available for user selection. *Brown*, 5:22-29; *Dec.*, ¶103-111. The simple emoticon-style models capable of simulating the detected plurality of human facial expressions would have been directly added to the MMS message of *Corazza*

to convey “nuances of mood and feeling” and “enable the recipient of e-mail, text messages, etc. to better understand the tenor of the writer’s message.” *Id.*, 2:15-20; 1:23-25; *Dec.*, ¶103-111. Such an implementation would not fundamentally change the overall operation of *Corazza*, as *Corazza* teaches sending SMS and MMS messages via a cellular network. *Corazza*, ¶58; *Dec.*, ¶103-111.

More broadly, a PHOSITA would have been motivated to include simple emoticons that assist in a user adapting to new technology like that of *Corazza*’s animated character models. *Dec.*, ¶103-111. A PHOSITA would have also appreciated that an emoticon style character would be a smaller file size, which would enable easier and faster transmission while reducing the storage required to store messages. *Dec.*, ¶103-111. Per Mr. Bederson, memory size was a significant limitation at the time of the ’623 Patent, leading a PHOSITA to streamline *Corazza*’s 2D/3D characters emoticons into the smaller “emoticons” taught by *Brown*. *Dec.*, ¶103-111; *see also Solonen*, ¶ 0009 (“Emoticons are popular because they are available to all, they can be easily modified, and they do not require special hardware or software, nor do they significantly consume capacity when Saved or transferred.”). A PHOSITA: (1) would have understood that a smaller file size would have allowed a user to send the emoticon directly, and (2) emoticon style characters would have been advantageous for users who prefer to use simpler technology or who prefer the look of a less complex expression representation. *Dec.*, ¶103-111. A

PHOSITA would have appreciated that both *Corazza* and *Brown* are directed to similar devices, and that using simple dynamic emoticons attached to the message improves similar devices in the same way. *Id.*; Compare *Corazza*, ¶¶6, 51, 53-54; with *Brown*, 1:12-14, 2:11-42. Thus, using *Brown*'s simple dynamic "emoticons" within text messages would have improved *Corazza*'s user messaging experience. *Dec.*, ¶103-111.

The *Corazza/Brown* combination would have been a combination of prior art elements according to known methods to yield predictable results. *Id.* As demonstrated by *Brown*, incorporating a dynamically-modified emoticon into a text conversation was well-known in the prior art. *Brown*, Abstract; *Dec.*, ¶103-111. A PHOSITA would have understood including emoticon-style characters per *Brown* as a selectable character model available for dynamic modification and transmission within *Corazza*'s messages would have been well within the capabilities of one of ordinary skill in the art, yielding a reasonable expectation of success. *Dec.*, ¶103-111. A PHOSITA would have found the combination to improve *Corazza*'s device without changing the principle of operation. *Id.* Given the fact emoticons were well-known in the prior art before the '623 Patent, a PHOSITA would have had a reasonable expectation of success utilizing well-known, conventional techniques. *Id.* Thus, *Corazza* in view of *Brown* teaches Claim 1(a). *Dec.*, ¶103-111.

1(b) monitor a sensor feed provided by one or more sensors of the computer device to detect a plurality of human facial expression states;

Corazza teaches this limitation. *Supra*, Ground I, Claim 1(b). *Corazza* in view of *Brown* teaches Claim 1(b). *Dec.*, ¶112.

1(c) automatically generate a dynamic emoticon that simulates the detected plurality of human facial expression states on the selected emoticon based on the sensor feed of the plurality of human facial expression states; and

Corazza teaches Claim 1(c). *Supra*, Ground I, Claim 1(c). *Corazza* in view of *Brown* further teaches the claimed emoticon. *Supra*, Ground II, Claim 1(a). *Corazza* in view of *Brown* teaches Claim 1(c). *Dec.*, ¶113.

1(d) route a message with the dynamic emoticon to a second computer device.

Corazza teaches Claim 1(d). *Supra*, Ground I, Claim 1(d). *Dec.*, ¶114.

To the extent it is argued *Corazza*'s dynamic emoticon is not *directly* routed to a second computer device with a message (and that such a functionality is required by Claim 1(d)), *Brown* teaches such. *Brown* expressly teaches that users may choose to "incorporate emoticons after their respective messages." *Brown*, 5:22-29; *Dec.*, ¶115. As shown in Fig. 4 below, *Brown*'s emoticons are directly sent alongside messages between two computer devices, those belonging to Amy and Bob.

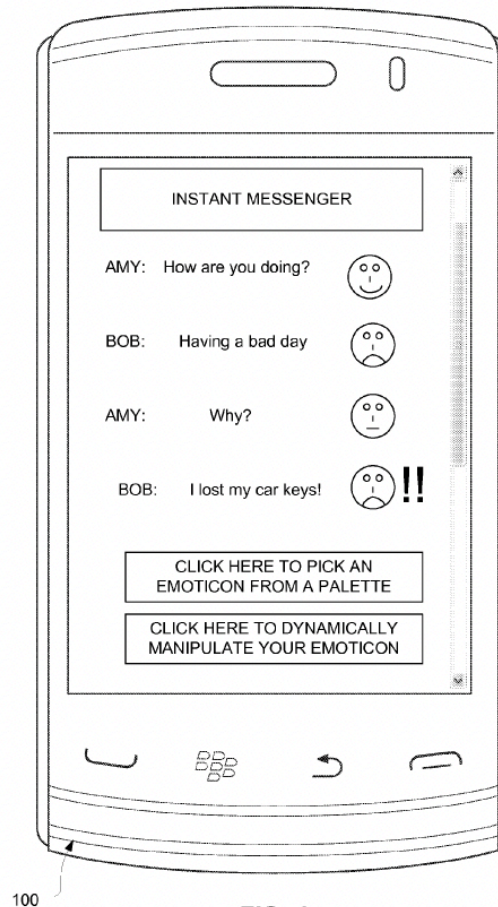


FIG. 4

Brown, Fig. 4. *Brown's* messages dynamic emoticons are “routed” to the same computer device as the accompanied message. *Dec.*, ¶115.

As explained by Mr. Bederson, a PHOSITA would have been motivated to configure the messaging system taught by *Corazza* to route emoticons with messages to a second computer device for convenience and simplicity, removing the need to follow a link to access the emoticon. *Dec.*, ¶115-117. Mr. Bederson explains that users reluctant to follow links due to effort, haste, or unfamiliarity with technology would miss out on the additional emotion and mood conveyed by the

emoticons, motivating a PHOSITA to require minimal effort for a user to access emoticons. *Id.* Reluctance to view emoticons would have led to a reluctance to include emoticons at all in communications, and further motivating a PHOSITA to configure the system of *Corazza* pursuant to *Brown*. *Id.* As further explained by Mr. Bederson, a PHOSITA would have recognized that routing the message with the emoticon would have improved the real-time interactivity of the conversation, further motivating the combination. *Id.*

A POSITA would have had a reasonable expectation of success for the combination because configuring *Corazza's* system to route a message directly rather than via a link would have constituted applying a known technique (transmitting an emoticon alongside a message, per *Brown*) to a known system (*Corazza's* communication system, transmitting emoticons indirectly via links), requiring only reprogramming within the skill of a PHOSITA without undue experimentation using hardware already present in *Corazza*. *Id.* A PHOSITA would have further recognized that this modification constituted a simple substitution of one method of transmitting information for another known method of transmitting information, solving the problem of conveying contextual emotion in a simple, operable manner. *Id.* Thus, *Corazza* in view of *Brown* teaches routing a message with the dynamic emoticon to a second computer device, rendering Claim 1(d) obvious. *Id.*

2. Claim 2

2. The computer device of claim 1, wherein a messaging interface is used to compose the message, and wherein the dynamic emoticon is embedded as part of message.

Corazza teaches Claim 2. *Supra*, Ground I, Claim 2. *Corazza* in view of *Brown* further teaches the claimed emoticon. *Supra*, Ground II, Claim 1(a). *Corazza* in view of *Brown* teaches Claim 2. *Dec.*, ¶118.

3. Claim 4

4. The computer device of claim 1, wherein the detected plurality of human facial expression states includes a smile, a laugh, a grimace, a frown, a pout, or any combination thereof.

Corazza teaches Claim 4. *Supra*, Ground I, Claim 4. *Corazza* in view of *Brown* teaches Claim 4. *Dec.*, ¶119.

4. Claim 5

5. The computer device of claim 1, wherein the detected plurality of human facial expression states includes an expression corresponding to a mood or an emotion, a micro expression, a stimulated expression, a neutralized expression, a masked expression, or any combination thereof.

Corazza teaches Claim 5. *Supra*, Ground I, Claim 5. Thus, *Corazza* in view of *Brown* teaches Claim 5. *Dec.*, ¶120.

5. Claim 6

6. The computer device of claim 1, where the at least one processor is further programmed to analyze a human facial expression using an expression recognition process to detect the human facial expression state.

Corazza teaches Claim 6. *Supra*, Ground I, Claim 6. Thus, *Corazza* in view of *Brown* teaches Claim 6. *Dec.*, ¶121.

6. Claim 7

7. The computer device of claim 1, wherein the dynamic emoticon is embedded at a displayable portion of the message.

Corazza teaches Claim 7. *Supra*, Ground I, Claim 7. *Corazza* in view of *Brown* further teaches the claimed emoticon. *Supra*, Ground II, Claim 1(a). *Corazza* in view of *Brown* teaches Claim 7. *Dec.*, ¶122.

7. Claim 8

8. The computer device of claim 1, wherein a human facial expression is captured in real-time from the one or more sensors.

Corazza teaches Claim 8. *Supra*, Ground I, Claim 8. *Corazza* in view of *Brown* teaches Claim 8. *Dec.*, ¶123.

8. Claim 11

11(Pre) A computer-implemented method of operating a messaging application, the method comprising:

Corazza teaches this limitation. *Supra*, Ground I, Claim 1(Pre). *Dec.*, ¶124.

11(a) receiving a selection of an emoticon;

Corazza teaches Claim 11(a). *Supra*, Ground I, Claim 11(a). *Corazza* in view of *Brown* further teaches the claimed emoticon. *Supra*, Ground II, Claim 1(a). *Corazza* in view of *Brown* teaches Claim 11(a). *Dec.*, ¶125.

11(b) monitoring a sensor feed provided by one or more sensors of a computer device to detect a plurality of human facial expression states;

Corazza teaches Claim 11(b). *Supra*, Ground I, Claim 11(b). *Corazza* in view of *Brown* teaches Claim 11(b). *Dec.*, ¶126.

11(c) automatically generating a dynamic emoticon that simulates the detected plurality of human facial expression states on the selected emoticon based on the sensor feed of the plurality of human facial expression states; and

Corazza teaches Claim 11(c). *Supra*, Ground I, Claim 11(c). *Corazza* in view of *Brown* further teaches the claimed emoticon. *Supra*, Ground II, Claim 1(a). *Corazza* in view of *Brown* teaches Claim 11(c). *Dec.*, ¶127.

11(d) route a message with the dynamic emoticon to a second computer device.

Corazza teaches Claim 11(d). *Supra*, Ground I, Claim 11(d). *Supra*, Ground II, Claim 1(a), 1(d). *Corazza* in view of *Brown* teaches Claim 11(d). *Dec.*, ¶128.

9. Claim 12

12. The computer-implemented method of claim 11, wherein a messaging interface is used to compose the message, and wherein the dynamic emoticon is embedded as part of the message.

Corazza teaches Claim 12. *Supra*, Ground I, Claim 12. *Corazza* in view of *Brown* further teaches the claimed emoticon. *Supra*, Ground II, Claim 1(a). *Corazza* in view of *Brown* teaches Claim 12. *Dec.*, ¶129.

10. Claim 14

14. The computer-implemented method of claim 11, wherein the detected plurality of human facial expression states includes a smile, a laugh, a grimace, a frown, a pout, or any combination thereof.

Corazza teaches Claim 14. *Supra*, Ground I, Claim 14. *Corazza* in view of *Brown* teaches Claim 14. *Dec.*, ¶130.

11. Claim 15

15. The computer-implemented method of claim 11, wherein the detected plurality of human facial expression states includes an expression corresponding to a mood

or an emotion, a micro expression, a stimulated expression, a neutralized expression, a masked expression, or any combination thereof.

Corazza teaches Claim 15. *Supra*, Ground I, Claim 15. *Corazza* in view of *Brown* teaches Claim 15. *Dec.*, ¶131.

12. Claim 16

16. The computer-implemented method of claim 11, further comprising analyzing a human facial expression using an expression recognition process to detect the human facial expression state.

Corazza teaches Claim 16. *Supra*, Ground I, Claim 16. *Corazza* in view of *Brown* teaches Claim 16. *Dec.*, ¶132.

13. Claim 17

17. The computer-implemented method of claim 11, wherein a human facial expression is captured in real-time from the one or more sensors.

Corazza teaches Claim 17. *Supra*, Ground I, Claim 17. *Corazza*, in view of *Brown* teaches Claim 17. *Dec.*, ¶133.

14. Claim 18

18. The computer-implemented method of claim 11, further comprising continuously detecting human facial expression states using one or more sensors of the computer device after detecting a first human facial expression state.

Corazza teaches Claim 18. *Supra*, Ground I, Claim 18. *Corazza* in view of *Brown* teaches Claim 18. *Dec.*, ¶134.

15. Claim 19

19(Pre) At least one non-transitory computer-readable storage media having computer-executable instructions embodied thereon, wherein when executed by a computer device having at least one processor in communication with at least one memory device, the computer-executable instructions cause the processor to:

Corazza teaches this limitation. *Supra*, Ground I, Claim 19(Pre). *Dec.*, ¶135.

19(a) receive a selection of an emoticon;

Corazza teaches this limitation. *Supra*, Ground I, Claim 19(a). *Corazza* in view of *Brown* teaches this limitation. *Supra*, Ground II, Claim 1(a). *Corazza* in view of *Brown* teaches Element 19(a). *Dec.*, ¶136.

19(b) monitor a sensor feed provided by one or more sensors of the computer device to detect a plurality of human facial expression state;

Corazza teaches this limitation. *Supra*, Ground I, Claim 19(b). *Corazza* in view of *Brown* teaches Element 19(b). *Dec.*, ¶137.

19(c) automatically generate a dynamic emoticon that displays the selected emoticon changing to the plurality of detected human facial expression states based on the sensor feed of the plurality of human facial expression states; and

Corazza teaches this limitation. *Supra*, Ground I, Claim 19(c). *Corazza* in view of *Brown* teaches this limitation. *Supra*, Ground II, Claim 1(c). *Corazza* in view of *Brown* teaches Element 19(c). *Dec.*, ¶138.

19(d) route a message with the dynamic emoticon to a second computer device,

Corazza teaches this limitation. *Supra*, Ground I, Claim 19(d). *Corazza* in view of *Brown* teaches routing a message with the claimed emoticon. *Supra*, Ground II, Claim 1(a), 1(d). *Corazza* in view of *Brown* teaches Claim 19(d). *Dec.*, ¶139.

19(e) wherein the second computer device displays the selected emoticon changing to the detected plurality of human facial expression states.

Corazza teaches this limitation. *Supra*, Ground I, Claim 19(e). *Corazza* in view of *Brown* teaches the second computer device displaying the emoticons. *Supra*,

Ground II, Claim 1(a), 1(d). *Corazza* in view of *Brown* teaches Claim 19(e). *Dec.*, ¶140.

16. Claim 20

20. The at least one non-transitory computer-readable storage media of claim 19, wherein the detected plurality of human facial expression states includes a smile, a laugh, a grimace, a frown, a pout, or any combination thereof.

Corazza teaches Claim 20. *Supra*, Ground I, Claim 20. *Corazza*, in view of *Brown* teaches Claim 20. *Dec.*, ¶141.

C. GROUND III - Claims 3, 9, 10, and 13 are rendered obvious over *Corazza* in view of *Brown* and in further view of *Gates*.

U.S. Patent No. 9,256,748 to *Gates et al.* (“*Gates*” Ex. 1006) was filed on March 14, 2013, granted on February 9, 2016, and is prior art to all Challenged Claims of the ’623 Patent under at least 35 U.S.C. § 102(a)(2) (post-AIA). *Gates* was not cited or considered during prosecution of the ’623 Patent. ’623 Patent.

Both *Gates* and the ’623 Patent are directed to “protecting messages through a messaging system via a biometric security mechanism” implemented on end-user devices. *Dec.*, ¶145-150. The ’623 Patent “pertains to protecting messages through a messaging system via a biometric security mechanism” on client devices such as “mobile phones, tablets, desktop computers, laptops” by implementing “a biometric recognition process to verify one or more identities as authorized by the message senders.” ’623 Patent, 1:30-31; 2:25-28; 2:40-41; 2:61-3:13; 3:26-30; 3:37-45; 6:14-15; *Dec.*, ¶145-150. *Gates* also provides for computing devices, including “a mobile

phone, laptop computer, desktop computer, or tablet computer” that are capable of automatically authenticating an end user “based on biometric characteristics of the end user,” such that “security protected data” is “accessible by the end user.” *Gates*, 6:5-7, 7:23-33; *Dec.*, ¶145-150. In this way, both *Gates* and the ’623 Patent are related to communication devices implementing biometric authentication security measures, and a PHOSITA would have understood both *Gates* and the ’623 Patent to be in the same field of endeavor. *Dec.*, ¶145-150.

Gates is also reasonably pertinent to certain problems addressed by the ’623 Patent. *Dec.*, ¶151-154. A PHOSITA would have reasonably consulted *Gates* in seeking a solution to the problem the invention of the ’623 Patent was attempting to solve. *Id.* A PHOSITA would have understood that one problem the ’623 Patent was trying to solve was determining “whether the people who have access to the end-user device (e.g., looking at the screen of the end-user device) are consistent with the privacy settings of the sender account,” aiming to “ensures that a third party (e.g., a brother or a classmate) cannot send messages on behalf of the user.” ’623 Patent, 3:18-32; *Id.* Another problem addressed by the ’623 Patent is determining “contextual information associated with a user’s emotional/mood state” when using the device. ’623 Patent, 4:34-36; *Dec.*, ¶151-154. In addressing these various problems confronting the inventions of the ’623 Patent, a skilled artisan would have looked to known ways of enhancing the security of a computing device by detecting

a user's identity with facial recognition while also determining a user's mood or emotional state. *Id.*

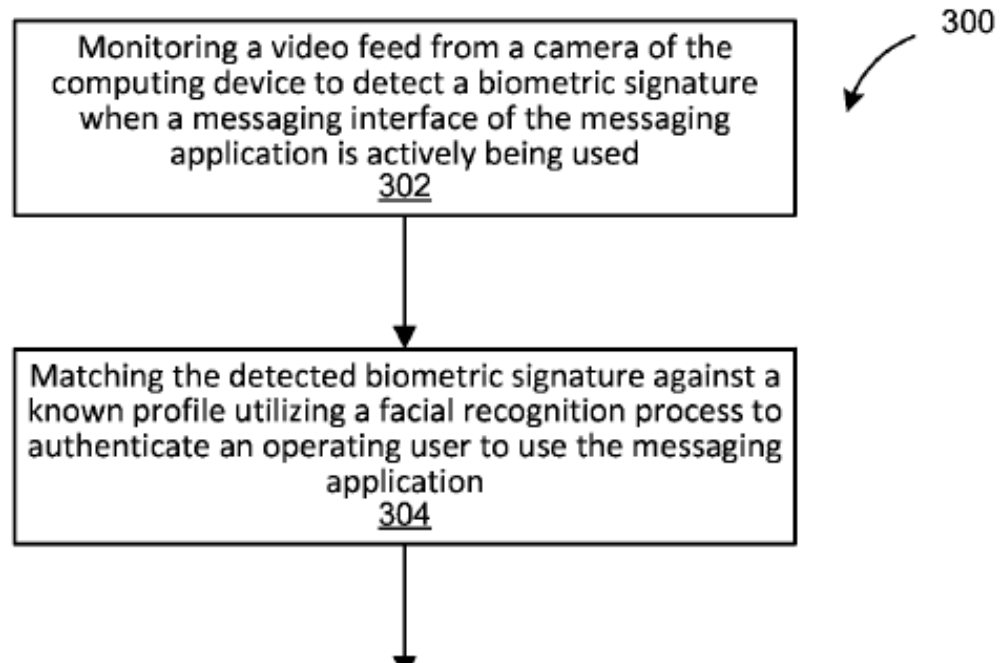
Gates establishes a secure connection between a mobile device and a server by requiring "biometric identification of the end user of the mobile device[,]” including “facial recognition based on images captured by the front-facing camera 253” such that “when a person different from the end user (e.g., a child or stranger) is operating the mobile device while the secure connection is established... the client application may close or terminate the secure connection.” *Gates*, 8:30-51; 11:5-12; *Dec.*, ¶151-154. *Gates* also detects facial expressions that “provide cues to emotions or moods experienced by a person during a real-time conversation (e.g., during a video conferencing session) or while the person is reading or composing an email message or other form of written communication.” *Id.*, 1:22-26; *Dec.*, ¶151-154. Therefore, *Gates* is analogous art to the '623 Patent.

1. Claim 3

3. The computer device of claim 1, wherein the at least one processor is further programmed to detect a facial profile and to match the facial profile against a known facial profile utilizing a facial recognition process to authenticate an operating user.

The '623 Patent discloses a biometric security mechanism to verify user “identities as authorized by the message senders.” '623 Patent, 2:61-63. “The biometric security engine 207, for example, can recognize whether or not an authorized user is present by analyzing a video feed from its respective client device

using a facial recognition algorithm.” *Id.*, 6:67-7:3. The facial recognition algorithm occurs, for example, in steps 302 and 304 illustrated in Fig. 3:



Id., Fig.3 (excerpt). At step 302, a computing device monitors a video feed from a camera of the computing device to detect a biometric signature when a messaging interface of the messaging application is actively being used. At step 304, the computing device matches the detected biometric signature against a known profile utilizing a facial recognition process to authenticate an operating user, and “the biometric signature is a facial profile and the biometric recognition process is a facial recognition process.” *Id.*, 8:37-48.

Regarding Claim Element 1 (*see supra*, Ground II, Claim 1(b)), *Corazza/Brown* renders obvious a computing device having a processor and memory containing a messaging application, wherein the messaging application configures

the processor to “capture a video sequence using the video camera; detect a human face within a sequence of video frames; and track changes in human facial expressions of a human face detected within a sequence of video frames for the purpose of animating a 3D character.” *Corazza*, Abstract; ¶6. While *Corazza* teaches the processor is configured by the messaging application (e.g., programmed) to detect a human face from images captured by a camera to track changes in facial expressions, neither *Corazza* nor *Brown* discloses a processor configured to “match the human face detected within the captured images against a known facial profile utilizing a facial recognition process to authenticate a user currently operating the device,” as claimed in claim 3. *Dec.*, ¶155.

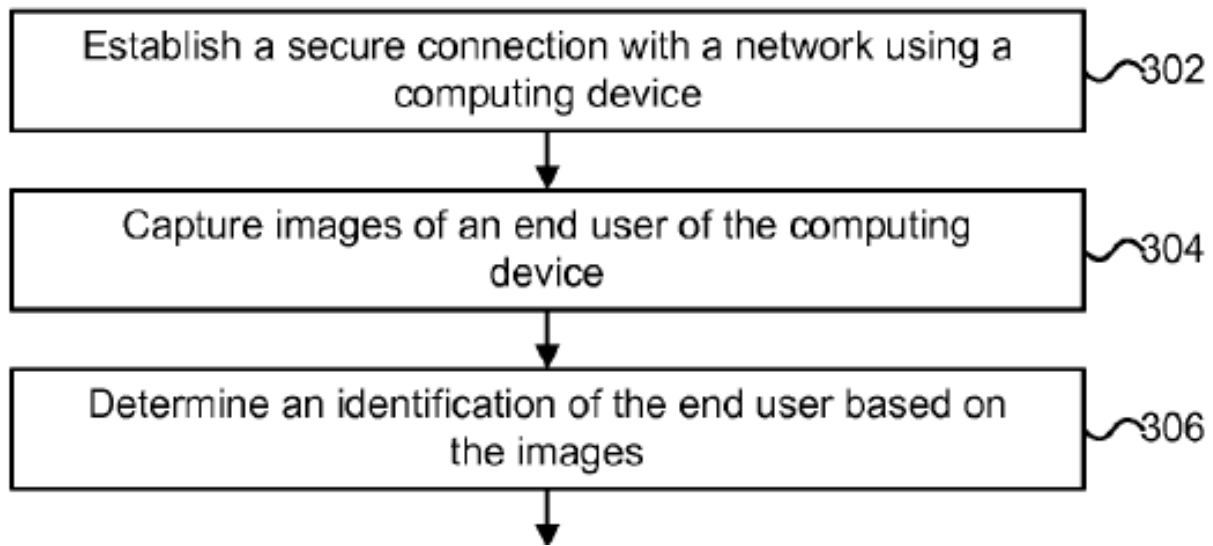
Corazza/Brown in further view of *Gates* renders claim 3 obvious. Namely, it would have been obvious to use *Corazza*’s facial detection process to detect biometric characteristics for authenticating an end user, as taught by *Gates*. *Dec.*, ¶156.

Gates teaches a computing device, such as “mobile device 140” that “includes a network interface 145, processor 146, memory 147, camera 148, sensors 149, and display 150, all in communication with each other.” *Gates*, 6:46-49. The processor “allows mobile device 140 to execute computer readable instructions stored in memory 147 in order to perform processes,” such as authenticating the end user based on detected biometric characteristics. *Gates*, 6:46-55, 7:23-38; *see also* 4:37-

5:3, 10:59-11:4, 13:42-50, 18:38-46. The mobile device 140 is configured to provide authentication information to the server, wherein the “authentication information may be automatically determined by the mobile device based on biometric characteristics of the end user.” *Id.*, 7:23-38. When the biometric characteristics, or “biometric identification of the end user of the mobile device,” is required by a client application to establish a VPN connection, the identification of the end user is obtained “via facial recognition based on images captured by the front-facing camera 253.” *Id.*, 8:37-42.

Generally, to authenticate an end user based on user identification, *Gates* teaches capturing “an image... from a front-facing camera of a computing device” that “includes a representation of an end user 238 of the computing device.” *Gates*, 9:46-53. The image may be analyzed in order to identify the end user “to detect particular facial expressions performed by the end user (e.g., smiling) using facial expression recognition techniques.” *Id.* *Gates*’s facial recognition technique is illustrated Figure 3A below.

FIG. 3A



Id., 10:45-11:12. As shown in Figure 3A, step 304 detects a facial profile by capturing “images of an end user of the computing device... using a camera, such as front-facing camera 253 in FIG. 2A.” *Id.*, 10:59-61. The front-facing camera captures “video and/or audio associated with the end user... while the end user operates the computing device.” *Id.*, 10:61-63. Next, in “step 306, an identification of the end user is determined based on the images” of the detected facial profile “by applying facial recognition techniques to the images to identify the end user based on a database of employee images.” *Id.*, 10:66-11:4; 13:42-50; 18:38-46, Figures 3B, 4A. Thus, the end user’s identity is determined when the end user’s face, within the captured image, matches an end user within the database of employee images. *Dec.*, ¶156-158.

Within the context of the facial expression recognition systems, *Gates* teaches recognizing “facial expressions performed by the person over time (e.g., by matching selected facial features or expressions with images stored in a facial expression database).” *Id.*, 1:28-31. The facial expression recognition system also “may be used to identify a person or characteristics of the person (e.g., the age and gender of the person).” *Id.*, 1:26-28. Since facial *expressions* are recognized by matching selected facial features or expressions with images stored in a facial expressions database), and the same facial expression recognition system also may be used to identify a person, a PHOSITA thus would have understood that *Gates*’s “applying facial recognition techniques to the images to identify the end user **based on** a database of employee images” (*Id.*, 10:66-11:4) includes “matching selected facial features... with images stored in a... database.” *Id.*, 1:30-31; *Dec.*, ¶156-158.

Gates goes on to state that “when a person different from the end user (e.g., a child or stranger) is operating the computing device while the secure connection is established... the computing device may close or terminate the secure connection.” *Id.*, 11:5-12; 8:43-51. From this teaching, a PHOSITA would have understood that a facial profile without a matching known facial profile, such as that of a child or stranger, would prevent operating user authentication. *Dec.*, ¶156-158.

Reasons to Combine Corazza in view of Brown with Gates

It would have been obvious to have applied *Gates*'s biometric user authentication to *Corazza/Brown*'s captured video images including a human face. *Dec.*, ¶159-160. In the combined *Corazza/Brown/Gates* system, the known "facial recognition techniques" of *Gates* (*Gates*, 10:59-11:4) would be applied to *Corazza/Brown*'s captured video in which a "region of a video image identified as representing a human face" (*Corazza*, ¶63), such that "a secure connection to a secure network" may be established (e.g., via VPN connection) for the user whose captured face is authenticated as an authorized end user of the device. *Gates*, 8:30-51; *Dec.*, ¶159-160. A VPN connection allows the authenticated user "to securely access or transmit data from a private network (e.g., from a company file server or a mail server) using an unsecure public network or the Internet," thus improving the network security of the *Corazza/Brown* messaging system. *Id.*, 7:47-50; *Dec.*, ¶159-160. Such an implementation would not fundamentally change the principle of operation of *Corazza/Brown* as *Corazza* already captures video images including a human face, and *Corazza* in view of *Brown* sends messages "to other networked computing devices over a network." *Corazza*, ¶¶63, 54; *Brown*, 5:22-29, Fig. 4; *Dec.*, ¶159-160.

A PHOSITA would have been motivated to configure the messaging system of *Corazza* in view of *Brown* to recognize if an end user is an authorized user based on biometric characteristics of the human face captured by the device sensors as

taught by *Gates* because this combination would have been a combination of prior art elements according to known methods to yield predictable results. *Dec.*, ¶159-160. As demonstrated by *Gates*, facial recognition was known in the prior art. *Gates*, 1:26-43; *Dec.*, ¶156. A PHOSITA would have understood such a modification would have been well within the capabilities of one of ordinary skill in the art such that there would have been a reasonable expectation of success. *Dec.*, ¶159-160.

Corazza in view of *Brown* and in further view of *Gates* teaches Claim 3. *Id.*

2. *Claim 9*

9. The computer device of claim 1, wherein the at least one processor is further programmed to detect a plurality of human facial expression states on a periodic basis based on a predetermined period of time.

As explained in Ground II, *Corazza* in view of *Brown* renders obvious “wherein the at least one processor is further programmed to detect a plurality of human facial expression states.” *See supra*, Ground II, Claim 1(b). Specifically, *Corazza* teaches a computing device having a memory containing a messaging application that configures a processor to “capture a video sequence using the video camera” and “detect a human face within a sequence of video frames.” *Corazza*, Abstract, ¶6. *Corazza* teaches “using an animated facial model of a character can be translucently overlaid **in real time** on the video of the human face used to drive the animation so that the composite video images of the human face and the animated

character generate an effect similar to that of an animated mask or makeup overlaid on the human face.” *Id.*, ¶46; *Dec.*, ¶161.

A PHOSITA would have understood that the “video sequence” that is captured by *Corazza* is a sequence of single, static images captured in order to produce the appearance of motion, typical of cameras. *Dec.*, ¶162-163. Cameras thus capture images on a “periodic basis,” typically expressed in units of frames per second (fps) for the particular camera, such that for every second a video sequence, a number of frames would be captured equal to the camera’s frame rate. For instance, a typical frame rate of well-known mobile device cameras prior to the ’623 Patent was 30 fps, equal to 30 frames (static images) captured per second (a periodic basis). *Id.* Every 1/30 of a second, for example, a facial expression may be captured by *Corazza*’s camera to produce a video sequence, that is then analyzed for facial expression states. *Corazza*, ¶6; *Dec.*, ¶162-163.

Further, as explained above, *Corazza* in view of *Brown* teaches a processor configured to detect a plurality of human facial expression states on a periodic basis as claimed. *Dec.*, ¶163. However, neither *Corazza* nor *Brown* expressly states the human facial expression state detection occurring on a periodic basis **on a predetermined period of time**. *Dec.*, ¶164. *Gates* teaches such.

Gates teaches a similar facial detection system to those of *Corazza* and *Brown*. Specifically, *Gates* teaches capturing “video and/or audio associated with the end

user” to perform “continuous identification of the end user while the secure connection is established.” *Gates*, 10:61-11:12, 8:43-46. The continuous identification of the end user is performed on the images “captured from a front-facing camera of a computing device” that include “a representation of an end user 238 of the computing device.” *Id.*, 9:46-53, *see also* 8:26-29, 14:42-50. An example of an image of an end user captured by the front-facing camera is depicted in Figure 2C below.

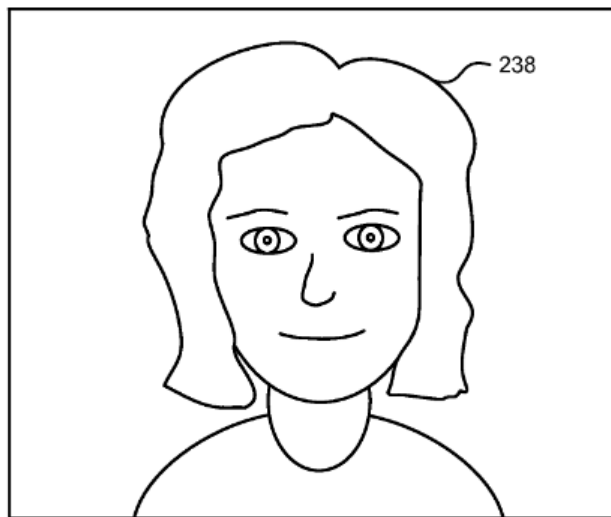


FIG. 2C

Gates analyzes this image “in order to identify the end user 238 using facial recognition techniques and to detect particular facial expressions performed by the end user (e.g., smiling) using facial expression recognition techniques.” *Id.*, 9:50-53. An illustration of this analysis is depicted in Figure 2D below.

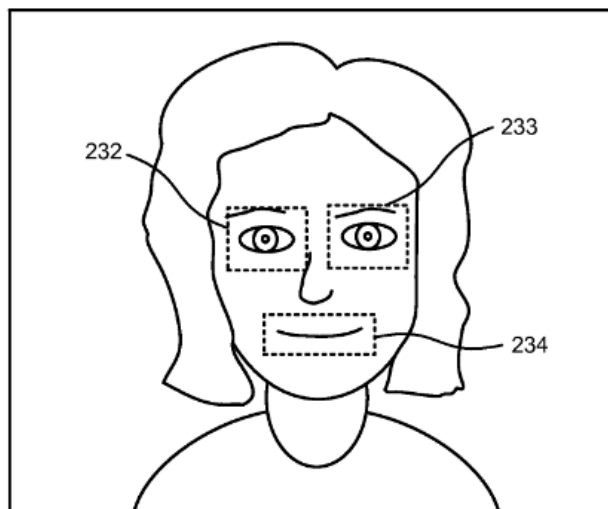


FIG. 2D

The image may then be further analyzed “in order to identify facial features 232-234” of the end user, corresponding with the end user’s eyes, eyebrows, and mouth. *Id.*, 9:56-61. “Changes in facial expressions (e.g., eyes narrowing, changes in blinking patterns, and changes in the shape of the end user’s eyebrows)” may be used to identify an emotional state of the user, such as stress. *Id.*, 9:61-66, 11:53-62, 1:22-38.

Gates notes that “facial expressions may provide cues to emotions or moods experienced by a person during a real-time conversation (e.g., during a video conferencing session) or while the person is reading or composing an email message or other form of written communication.” *Gates*, 1:22-26. “Emotions may refer to feelings experienced by a person over a short period of time in response to a particular event (e.g., anger due to reading a particular email). A person’s emotions may include anger, fear, sadness, happiness, neutral, and surprise. Moods may refer

to a general emotional state that is experienced by a person over a relatively longer period of time than an event triggered emotion.” *Id.*, 1:13-21. By recognizing “facial expressions performed by the person over time (e.g., by matching selected facial features or expressions with images stored in a facial expressions database),” the system may “determine (or infer) an emotional state of the person based on the facial expressions performed by the person over time.” *Id.*, 1:22-39.

Since the duration of a facial expression distinguishes an end user’s emotions from an end user’s moods, *Gates* uses various threshold periods of time to detect the end user’s emotion and the end user’s mood. *Dec.*, ¶168-170. When “the end user performs facial expressions such as holding an open mouth with raised eye brows for **more than a threshold period of time (e.g., five seconds)** or performs gestures such as covering their mouth with their hands for more than the threshold period of time, then the end user may be **deemed to be in a surprised or panicked emotional state.**” *Gates*, 29:3-9, 30:56-62 (emphasis added).

Thus, a PHOSITA would have understood *Gates* teaches a periodic basis for capturing images of the end user is based on the predetermined period of time to determine the user’s emotional state, such as surprised or panicked. Detecting an end user’s emotional state over “a threshold period of time (e.g., five seconds)” (*Gates*, 29:3-9, 30:56-62) would utilize a sufficiently fast frame capture rate (e.g. at least “every second” as taught by *Gates* at 17:8-25). Thus, for the frame rate of a particular

camera used in the system of *Corazza/Brown/Gates*, particular frames would be considered at a rate of, for example, “every second” (the mapped “periodic basis) in order to determine the user’s emotional state over a threshold period of time such as five seconds (the mapped “predetermined period of time”). *Gates*, 17:8-25, 29:3-9, 30:56-62; *Dec.*, ¶171-172. Thus, *Corazza* in view of *Brown* and *Gates* teaches detecting a plurality of human facial expression states on a periodic basis based on a predetermined period of time, as claimed.

Reasons to Combine Corazza in view of Brown with Gates

It would have been obvious to have detected *Corazza*’s plurality of human facial expression states on a periodic basis based on a predetermined period of time to determine the end user’s emotions or mood, as taught by *Gates*. *Dec.*, ¶171-172. In the combined *Corazza/Brown/Gates* system, the “human facial expression... identified from a region of a video image identified as representing a human face” detected by *Corazza* (*Corazza*, ¶63) on a periodic basis are analyzed for predetermined periods of time “to detect the person’s emotions or mood” using the known facial expression recognition methods of *Gates* (*Gates*, 1:13-14) and applied to the message emoticons of *Brown* representing “a user’s facial expression or current mood” to convey “the tenor of the writer’s message” (*Brown*, 1:18-23). *Dec.*, ¶171-172. Such an implementation would not fundamentally change the principle of operation of *Corazza/Brown* as *Corazza* already captures video images including a

human face (*Corazza*, ¶¶63, 54), and *Corazza* in view of *Brown* sends messages, such as “e-mail, text messages, etc.” intended to convey “the tenor of the writer’s message.” *Brown*, 1:18-25; *Dec.*, ¶171-172.

More broadly, a PHOSITA would have been motivated to configure the messaging system of *Corazza* in view of *Brown* to recognize the emotions or mood of the end user as taught by *Gates* because this combination would have been a combination of prior art elements according to known methods to yield predictable results. *Dec.*, ¶171-172. As demonstrated by *Gates*, facial expression recognition capable of identifying a person’s emotions or mood was known in the prior art. *Dec.*, ¶172. A PHOSITA would have understood such a modification would have been well within the capabilities of one of ordinary skill in the art such that there would have been a reasonable expectation of success. *Dec.*, ¶171-172.

Corazza in view of *Brown* and in further view of *Gates* teaches Claim 9. *Id.*; *Dec.*, ¶161-172.

3. Claim 10

10. The computer device of claim 1, wherein the sensor feed is analyzed for an expression recognition process and a biometric recognition process.

As described in Claims 3 and 9, *Corazza* in view of *Brown* and further in view of *Gates* renders Claim 10 obvious. *See supra*, Ground III, Claims 3 and 9; *Dec.*, ¶¶173-176. Namely, it would have been obvious to have analyzed *Corazza*’s video sequence that includes a “human facial expression... identified from a region of a

video image identified as representing a human face” to recognize the facial expressions and the identity of the end user, as taught by *Gates. Dec.*, ¶¶173-176.

Gates teaches analyzing images of an end user captured by “a front-facing camera of a computing device” (sensor feed) to “identify the end user 238 using **facial recognition techniques** and to detect particular facial expressions performed by the end user (e.g., smiling) using **facial expression recognition techniques.**” *Gates*, 9:46-53; *see also* 8:26-29 (emphasis added). *Gates* teaches facial “expression recognition systems may be used to identify a person or characteristics of the person (e.g., the age and gender of the person), recognize facial expressions performed by the person over time (e.g., by matching selected facial features or expressions with images stored in a facial expressions database), and determine (or infer) an emotional state of the person based on the facial expressions performed by the person over time.” *Id.*, 1:26-33. *Gates* teaches analyzing a sensor feed for an expression recognition process and a biometric recognition process. *Id.*, 9:46-53; 8:26-29.

It would have been obvious to have applied both the facial recognition techniques and the facial expression recognition techniques of *Gates* to *Corazza’s* captured video images, including a human face. *Dec.*, ¶¶173-176. In the combined *Corazza/Brown/Gates* system, the end user’s “identity” and “emotions” are determined using the known facial expression recognition methods and the known facial recognition methods of *Gates* (*Gates*, 1:13-33) from *Corazza’s* “region of a

video image identified as representing a human face” (*Corazza*, ¶63) that is applied to the message emoticons of *Brown* representing “a user’s facial expression or current mood” to convey “the tenor of the writer’s message” (*Brown*, 1:18-25). *Dec.*, ¶¶173-176. Such an implementation would not fundamentally change the principle of operation of *Corazza/Brown* as *Corazza* already captures video images including a human face, and *Corazza* in view of *Brown* sends messages “to other networked computing devices over a network” (*Corazza*, ¶¶63, 54), such as “e-mail, text messages, etc.” intended to convey “the tenor of the writer’s message.” *Brown*, 1:18-25; *Dec.*, ¶¶173-176.

More broadly, a PHOSITA would have been motivated to configure the messaging system of *Corazza* in view of *Brown* to recognize whether an end user is an authorized user and determine the end user’s current emotions based on the facial features or expressions of the human face captured by the device sensors, as taught by *Gates*, because this combination would have been a combination of prior art elements according to known methods to yield predictable results. *Dec.*, ¶¶173-176. As demonstrated by *Gates*, facial recognition and facial expression recognition were known in the prior art. *Dec.*, ¶176. A PHOSITA would have understood such a modification would have been well within the capabilities of one of ordinary skill in the art such that there would have been a reasonable expectation of success. *Dec.*, ¶¶173-176.

Thus, *Corazza* in view of *Brown* and in further view of *Gates* teaches Claim 10. *Id.*; *Dec.*, ¶¶173-176.

4. Claim 13

13. The computer-implemented method of claim 11, further comprising detecting a facial profile and matching the facial profile against a known facial profile utilizing a facial recognition process to authenticate an operating user.

See Ground III, Claim 3. *Dec.*, ¶177.

V. THE BOARD’S DISCRETION UNDER 35 U.S.C. § 314(a)

The ’623 Patent was found invalid under §101, and the Patent Owner appealed that decision. Ex.1014, 101 Order; Ex. 1018, Notice of Appeal. The *Fintiv* test is “an uneasy fit for the situation where, before the Board’s institution decision, the district court has entered judgment at the pleading stage based on patent-ineligibility.” *Snap Inc. v. Sanderling Management Ltd*, IPR2021-00781, Paper 20 (November 9, 2020). It is helpful “to look to how the Board has handled that circumstance in previous decisions on institution.” *Id.* In other similar cases, the Board decided not to discretionarily deny institution after a District Court granted a §101 motion and that motion was pending appeal. *Stripe, Inc. v. Boom! Payments, Inc.*, CBM2020-00002, Paper 22 (PTAB May 19, 2020); *Wyze Labs, Inc. v. Sensormatic Elecs., LLC*, IPR2020-01486, Paper 14 (PTAB Apr. 6, 2021); *Snap Inc.*, IPR2021-00781, Paper 20 (November 9, 2020).

Factor 1 - Given the District Court’s decision on §101, the District Court proceeding is effectively stayed. And because the Eastern District of Missouri

(“EDMO”) court decided an issue that does not overlap with those presented in this proceeding, and the EDMO court is not likely to address the obviousness issues before the FWD. *Stripe, Inc.*, CBM2020-00002, Paper 22 (PTAB May 19, 2020); *Wyze Labs*, IPR2020-01486, Paper 14 (PTAB Apr. 6, 2021).

Additionally, should the Federal Circuit reverse the decision and remand the case, a stay is likely in EDMO where that Court grants stay both prior and post institution. *ZeaVision, LLC v. Bausch & Lomb Inc.*, No. 4:21 CV 739 RWS, 2022 WL 715013, at *6 (E.D. Mo. Mar. 10, 2022) (granting a stay prior to institution that will be effective if instituted). Given this District Court’s strong likelihood of stay of the litigation pending resolution of the PTAB trial and the scope of the EDMO Court’s order, this would allay any concerns about inefficiency and duplication of efforts. Factor 1 does not favor denial.

Factor 2 - The District Court never set a trial date or conducted any other major litigation events other than to decide the §101 motion. And any future theoretical remand trial date is unlikely to occur before the FWD. *Wyze*, Paper 14 at 12; *Stripe*, Paper 22 at 9 (noting that the district court had “resolved only the § 101 issues and should the Federal Circuit vacate or reverse the district court’s judgment, . . . it is unlikely that any district court trial on any § 103 issues would occur prior to our issuing a final written decision”). If the Federal Circuit remands this case, the average time to trial for civil cases in EDMO is 39.3 months. Ex.1015, EDMO

Statistics. It is likely it will take this amount of time to trial given no schedule has been entered, the parties have not engaged in discovery, and no claim construction has happened. Here, the Patent Owner appealed the District Court's ruling. And this is different from *Aviagames v. Skillz Platform*, IPR2022-00530, Paper 12, (August 9, 2022), where the Patent Owner elected not to appeal the District Court's §101 order and there was no possibility of trial. In contrast, Petitioner faces a future distant trial date if the Federal Circuit reverses the §101 order. Factor 2 does not favor denial.

Factor 3 - This factor favors institution because the District Court terminated the case based on a §101 ruling with no other substantive work in the case completed. Thus, there is no claim construction or obviousness-related issues currently being litigated in the District Court that would overlap with or be duplicative of issues to be decided in this proceeding. This case differs from *Aviagames*, because in that case because the Petitioner raised the same prior art invalidity grounds in the District Court, and the parties had already engaged in claim construction.

Additionally, institution would be efficient and would not unfairly burden Patent Owner because the Patent Owner is appealing the District Court's judgment. If Patent Owner's appeal is successful, a discretionary denial here would bar Petitioner from pursuing IPR due to the statutory time bar for filing a petition. 35 U.S.C. § 315(b). *Snap Inc.*, IPR2021-00781, Paper 20 (November 9, 2020) (rejecting

Patent Owner’s argument for denial of institution). Here, given the lack of claim construction or other substantive work, Factor 3 does not favor denial.

Factor 4- There is no overlap because no §101 challenges are presented before the Board and the current obviousness challenges cannot be raised in the District Court case unless and until the Federal Circuit reverses the §101 order. Notably, invalidity contentions have not even been served by the Petitioner, so there is presently no overlap between the invalidity theories. Patent Owner’s appeal of the District Court’s ruling would be on wholly separate invalidity grounds, which are not eligible to be raised in this Petition. *Snap Inc.*, IPR2021-00781, Paper 20 (November 9, 2020). Notably, this case is distinguishable from *Aviagames* because in that case because that Petitioner raised the same prior art invalidity grounds in the District Court, and that Patent Owner elected not to appeal the District Court’s §101 order. Factor 4 does not favor denial.

Factor 5 - Petitioner and the defendant in the District Court proceeding are the same party. Here Board will be the first to decide the obviousness issues for the same parties as in the District Court case, this factor does not favor denial. *Snap Inc.*, IPR2021-00781, Paper 20 (November 9, 2020)

Factor 6 - The “balanced assessment of all the relevant circumstances in the case, including the merits” warrant institution. Given the compelling evidence of the Petition, this factor weighs heavily in favor of institution. *Code200 v. Bright Data*,

IPR2022-00862, Paper 19 (October 19, 2022) (instituting an IPR, despite a jury verdict finding the patents invalid, because the Petition presented compelling evidence of invalidity). In the Interim Procedure for Discretionary Denials in AIA Post Grant Proceedings with Parallel District Court Litigation (June 21, 2022), the guidance states t the compelling merits standard is a higher standard than the standard for institution set by statute. Pg. 4-5. A Petition is compelling if it plainly leads to a conclusion that one or more claims are unpatentable if it is highly likely the Petitioner would prevail with respect to at least one challenged claim. *Id.*

As discussed in Ground I above, *Corazza* teaches a device that includes all limitations recited in claim 1. *Corazza* summarizes the invention as follows:

“a video camera, a processor... and a storage containing an animated message application [that] configures the processor to: capture a sequence of video frames using the video camera; detect a human face within a sequence of video frames; track changes in human facial expression of a human face detected within a sequence of video frames; map tracked changes in human facial expression to motion data, where the motion data is generated to animate the 3D character model; apply motion data to animate the 3D character model; render an animation of the 3D character model into a file as encoded video; and transmit the encoded video to a remote device via the network interface.” *Corazza*, ¶6.

This paragraph of *Corazza* alone addresses the preamble and limitations 1(b)-1(d) recited in claim 1. The preamble of claim 1 is taught by *Corazza*’s animated message application in storage that configures the processor to execute the disclosed functions. Limitation 1(b) is taught by *Corazza*’s sequence of video frames captured

by the video camera in which changes in a human facial expression are tracked. *Corazza's* processor maps tracked changes in human facial expression to motion data, which is applied to animate the 3D character model, and thus reads on limitation 1(c). The processor renders the animated 3D model into a file as an encoded video and is transmitted to a remote device via the network interface. *Corazza* specifies that “networked computing devices can send animated video messages to other networked computing devices over a network” (*Id.*, ¶54), thereby teaching the encoded video is transmitted as a message, as required by limitation 1(d).

The only limitation recited in claim 1 not mentioned in ¶6 is 1(a), requiring the processor to be programmed to receive a selection of an emoticon. *Corazza* teaches “a networked computing device 104 can receive a selection of a 3D character via a user interface” (*Id.*, ¶56), which includes “selecting a character from a library of multiple characters.” *Id.*, ¶48. *Corazza* also teaches “the character includes a 2D or a 3D facial model and a PCA space of the 2D or 3D character’s facial expression,” and is thus not limited to 3D characters. *Id.*, ¶47.

Corazza's selected 2D/3D character received via the user interface reads on the received selection of an emoticon as claimed. Limitation 1(c) requires “the detected plurality of human facial expression states” are simulated “on the selected emoticon.” *Corazza's* changes in human facial expressions detected in the sequence

of video frames are applied to a 2D/3D character, and therefore the received selection of a 3D character reads on limitation 1(a).

Alternatively, *Corazza* in view of *Brown* renders claim 1 obvious, as established above in Ground II. If *Corazza*'s 2D/3D character is not considered an "emoticon," *Brown* teaches "messaging applications that enable the use of emoticons or avatars," which are "used to convey mood and emotion[.]" *Brown*, 1:11-13, Abstract. *Brown*'s emoticons "are small, typically simplistic, images representing a user's facial expression or current mood." *Brown*, 1:18-23. Similarly, *Corazza*'s "character includes a 2D or a 3D facial model and a PCA space of the 2D or 3D character's facial expression." *Corazza*, ¶47. A PHOSITA would have been motivated to include a 2D/3D character available in *Corazza*'s library of multiple characters having the simplistic emoticon style of *Brown*. It is highly likely that the Petitioner would prevail with respect to at least one challenged claim.

VI. CONCLUSION

Petitioner respectfully requests *inter partes* review of the Challenged Claims of the '623 Patent.

Respectfully submitted,

ERISE IP, P.A.

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VI. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(A)(1)

A. Real Party-In-Interest

Petitioner is the real party-in-interest. 37 C.F.R. § 42.8(b)(1).

B. Related Matters

Pursuant to 37 C.F.R. § 42.8(b)(2), Petitioner is aware of the following matters involving the '623 Patent:

- *FaceToFace Biometrics, Inc. v. Apple Inc.*, 4:22-cv-00429 (E.D. Mo)

C. Lead and Back-Up Counsel

Petitioner provides the following designation and service information for lead and back-up counsel. 37 C.F.R. § 42.8(b)(3) and (b)(4).

Lead Counsel	Back-Up Counsel
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CLAIMS LISTING APPENDIX

U.S. Patent No. 11,042,623, Claims 1-2, 4-8, 11-12, and 14-20

Claim Designation	Claim Language
Claim 1(Pre)	A computer device comprising at least one processor in communication with at least one memory device, wherein the at least one processor is programmed to:
Claim 1(a)	receive a selection of an emoticon;
Claim 1(b)	monitor a sensor feed provided by one or more sensors of the computer device to detect a plurality of human facial expression states;
Claim 1(c)	automatically generate a dynamic emoticon that simulates the detected plurality of human facial expression states on the selected emoticon based on the sensor feed of the plurality of human facial expression states; and
Claim 1(d)	route a message with the dynamic emoticon to a second computer device.
Claim 2	The computer device of claim 1, wherein a messaging interface is used to compose the message, and wherein the dynamic emoticon is embedded as part of the message.
Claim 4	The computer device of claim 1, wherein the detected plurality of human facial expression states includes a smile, a laugh, a grimace, a frown, a pout, or any combination thereof.
Claim 5	The computer device of claim 1, wherein the detected plurality of human facial expression states includes an expression corresponding to a mood or an emotion, a micro expression, a stimulated expression, a neutralized expression, a masked expression, or any combination thereof
Claim 6	The computer device of claim 1, where the at least one processor is further programmed to analyze a human facial expression using an expression recognition process to detect the human facial expression state.
Claim 7	The computer device of claim 1, wherein the dynamic emoticon is embedded at a displayable portion of the message.
Claim 8	The computer device of claim 1, wherein a human facial expression is captured in real-time from the one or more sensors.

Claim Designation	Claim Language
Claim 11(Pre)	A computer-implemented method of operating a messaging application, the method comprising:
Claim 11(a)	receiving a selection of an emoticon;
Claim 11(b)	monitoring a sensor feed provided by one or more sensors of a computer device to detect a plurality of human facial expression states;
Claim 11(c)	automatically generating a dynamic emoticon that simulates the detected plurality of human facial expression states on the selected emoticon based on the sensor feed of the plurality of human facial expression states; and
Claim 11(d)	route a message with the dynamic emoticon to a second computer device.
Claim 12	The computer-implemented method of claim 11, wherein a messaging interface is used to compose the message, and wherein the dynamic emoticon is embedded as part of the message.
Claim 14	The computer-implemented method of claim 11, wherein the detected plurality of human facial expression states includes a smile, a laugh, a grimace, a frown, a pout, or any combination thereof.
Claim 15	The computer-implemented method of claim 11, wherein the detected plurality of human facial expression states includes an expression corresponding to a mood or an emotion, a micro expression, a stimulated expression, a neutralized expression, a masked expression, or any combination thereof.
Claim 16	The computer-implemented method of claim 11, further comprising analyzing a human facial expression using an expression recognition process to detect the human facial expression state
Claim 17	The computer-implemented method of claim 11, wherein a human facial expression is captured in real-time from the one or more sensors.
Claim 18	The computer-implemented method of claim 11, further comprising continuously detecting human facial expression states using one or more sensors of the computer device after detecting a first human facial expression state.
Claim 19(Pre)	At least one non-transitory computer-readable storage media having computer-executable instructions embodied thereon,

Claim Designation	Claim Language
	wherein when executed by a computer device having at least one processor in communication with at least one memory device, the computer-executable instructions cause the processor to:
Claim 19(a)	receive a selection of an emoticon;
Claim 19(b)	monitor a sensor feed provided by one or more sensors of the computer device to detect a plurality of human facial expression state;
Claim 19(c)	automatically generate a dynamic emoticon that displays the selected emoticon changing to the plurality of detected human facial expression states based on the sensor feed of the plurality of human facial expression states; and
Claim 19(d)	route a message with the dynamic emoticon to a second computer device, wherein the second computer device displays the selected emoticon changing to the detected plurality of human facial expression states.
Claim 20	The at least one non-transitory computer-readable storage media of claim 19, wherein the detected plurality of human facial expression states includes a smile, a laugh, a grimace, a frown, a pout, or any combination thereof.

APPENDIX OF EXHIBITS

Exhibit 1001	U.S. Patent No. 11,042,623 (“’623 Patent”)
Exhibit 1002	File History of U.S. Patent No. 11,042,623 (“’623 File History”)
Exhibit 1003	Declaration of Benjamin B. Bederson, PhD (“Dec.”)
Exhibit 1004	U.S. Patent Publication No. 2013/0235045 to <i>Corazza et al.</i> (“Corazza”)
Exhibit 1005	U.S. Patent 8,620,850 to <i>Brown et al.</i> (“Brown”)
Exhibit 1006	U.S. Patent No. 9,256,748 to <i>Gates et al.</i> (“Gates”)
Exhibit 1007	FaceToFace Complaint
Exhibit 1008	Carnegie Mellon’s website memorializing Scott Fahlman’s original post, http://www.cs.cmu.edu/~sef/Orig-Smiley.htm .
Exhibit 1009	U.S. Patent Publication No. 2006/0015812 to Cunningham et al. (“Cunningham”)
Exhibit 1010	U.S. Patent Publication 2004/0018858 to Nelson (“Nelson”)
Exhibit 1011	U.S. Patent Application No. 2010/0177116 to Dahllof et al. (“Dahllof”)
Exhibit 1012	U.S. Patent Publication No. 2005/0195927 to Solonen (“Solonen”)
Exhibit 1013	Eudora Manual
Exhibit 1014	FacetoFace Biometrics, Inc. v. Apple Inc, 4:22 CV 429 CDP, 101 Order
Exhibit 1015	U.S. District Court Judicial Caseload Profile, Missouri Eastern
Exhibit 1016	U.S. Patent No. 9,425,974 to Tucker, et al. (“Tucker”)
Exhibit 1017	Yu Zhong, Pierre J. Garrigues, and Jeffrey P. Bigham. 2013. <u>Real Time Object Scanning Using a Mobile Phone and Cloud-based Visual Search Engine</u> , Proceedings of the 15th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '13), Association for Computing Machinery, New York, NY, USA, Article 20, 1–8 (“Zhong”)
Exhibit 1018	FacetoFace Biometrics, Inc. v. Apple Inc, 4:22 CV 429 CDP, Notice of Appeal

CERTIFICATION OF WORD COUNT

The undersigned certifies pursuant to 37 C.F.R. §42.24 that the foregoing Petition for *Inter Partes* Review, excluding any table of contents, mandatory notices under 37 C.F.R. § 42.8, certificates of service or word count, or appendix of exhibits, contains 13,694 words according to the word-processing program used to prepare this document (Microsoft Word).

Dated: April 17, 2023

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CERTIFICATE OF SERVICE ON PATENT OWNER
UNDER 37 C.F.R. § 42.105

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105, the undersigned certifies that on April 17, 2023, a complete and entire copy of this Petition for *Inter Partes* Review including exhibits was provided via Federal Express to the Patent Owner by serving the correspondence address of record for the '623 Patent as listed on PAIR:

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Further, a courtesy copy of this Petition for *Inter Partes* Review was sent via Federal Express to Patent Owner's litigation counsel:

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