

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZEPP LABS, INC.,
Petitioner,

v.

BLAST MOTION, INC.,
Patent Owner.

Case IPR2016-00676
Patent 8,905,855 B2

Before MICHAEL W. KIM, RAMA G. ELLURU, and
MIRIAM L. QUINN, *Administrative Patent Judges*.

ELLURU, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. *Background*

Zepp Labs, Inc. (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1, 3–9, 12–15, and 19 of U.S. Patent No. 8,905,855 B2 (Ex. 1001, the “’855 patent”). Paper 1, 1 (“Pet.”). Blast Motion, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Prelim. Resp.”).

On August 29, 2016, we instituted an *inter partes* review of claims 1, 5–9, and 12–15 on certain grounds of unpatentability set forth in the Petition. Paper 9, 28 (“Dec.”). Subsequent to institution of trial, Patent Owner filed a Patent Owner’s Response (Paper 24, “PO Resp.”) and Petitioner filed a Reply (Paper 29, “Pet. Reply”). Petitioner relies on the Declaration of Dr. Steven M. Nesbit (Ex. 1003). Patent Owner relies on the Declaration of Dr. Roozbeh Jafari (Ex. 2001). An oral hearing was held on May 8, 2017, and a transcript of the hearing is included in the record. Paper 38 (“Tr.”).

The Board has jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 7–9, and 12–15 of the ’855 patent are unpatentable, but not that claims 5 and 6 of the ’855 patent are unpatentable.

B. *Related Proceedings*

Petitioner and Patent Owner identify the following district court proceeding concerning the ’855 patent: *Blast Motion, Inc. v. Zepp Labs, Inc.*, No 3:15-cv-00700 (S.D. Cal.). Pet. 2; Paper 5, 2.

Petitioner and Patent Owner identify further the following related patents, for each of which Petitioner has filed a respective petition for *inter partes* review: U.S. Patent No. 8,941,723 (IPR2016-00675, trial instituted); U.S. Patent No. 8,944,928 (IPR2016-00677, trial instituted); U.S. Patent No. 8,903,521 (IPR2016-00672, institution denied); U.S. Patent No. 9,039,527 (IPR2016-00674, institution denied). *Id.*

C. The '855 Patent (Ex. 1001)

According to the '855 patent, an exemplary field of the invention is directed to the field of motion capture data and displaying information based on motion analysis data associated with a user or piece of equipment based on previous motion analysis data from the user or other user(s) and/or piece of equipment. Ex. 1001, 1:20–25. For example, the invention “enable[s] a system and method for utilizing motion capture data that enables use of actual motion capture data obtained from portable wireless motion capture elements such as visual markers and sensors, radio frequency identification tags and mobile device computer systems for healthcare compliance, sporting, gaming, military, virtual reality, industrial, retail loss tracking, security, baby and elderly monitoring and other applications.” *Id.* at 1:25–34.

D. Illustrative Claim

We instituted trial for claims 1, 5–9, and 12–15. Claim 1, the only independent claim at issue, is reproduced below:

1. A method for utilizing motion capture data comprising:
providing at least one motion capture element that couples with
a user or piece of equipment wherein said at least one motion
capture element comprises
a memory;

a sensor that captures any combination of values associated with an orientation, position, velocity, acceleration of said at least one motion capture element;

a radio;

a microcontroller coupled with said memory, said sensor and said radio wherein said microcontroller

collects data that comprises sensor values from said sensor;

stores said data in said memory;

transmits said data via said radio;

providing an application that executes on a mobile device, wherein said mobile device comprises

a computer;

a wireless communication interface that communicates with said radio to obtain said data,

wherein said computer is coupled with said wireless communication interface, and wherein said computer executes said application to

receive data associated with said at least one motion capture element via said wireless communication interface;

analyze said data to form motion analysis data;

store said data, or said motion analysis data, or both said data and said motion analysis data associated with said user or piece of equipment;

access previously stored motion capture data or motion analysis data associated with said user or piece of equipment or previously stored motion capture data or motion analysis data associated with at least one other user or other piece of equipment;

display information based on

said motion analysis data associated with
said user or piece of equipment,
and
said previously stored motion capture data
or motion analysis data associated with said
user or piece of equipment,
or
said previously stored motion capture data
or motion analysis data associated with at
least one other user or other piece of
equipment.

*E. Prior Art References Applied by Petitioner
and Instituted Grounds of Unpatentability*

We instituted review of claims 1, 5–9, and 12–15 based on the
following grounds and prior art references:

References	Basis	Claims Challenged
Mahajan ¹	§ 103(a)	1, 5, 8, 9, 12, 13, and 15
Mahajan, Oleson ² , and Gobush ³	§ 103(a)	6
Mahajan and Dugan ⁴	§ 103(a)	7 and 14

Dec. 28.

¹ U.S. Patent Application Publication No. 2006/0025229 A1, pub. Feb. 2, 2006 (Ex. 1005, “Mahajan”).

² U.S. Patent Application Publication No. 2009/0048044 A1, pub. Feb. 19, 2009 (Ex. 1011, “Oleson”).

³ U.S. Patent Application Publication No. 2005/0272516 A1, pub. Dec. 8, 2005 (Ex. 1014, “Gobush”).

⁴ U.S. Patent Application Publication No. 2008/0085778 A1, pub. Apr. 10, 2008 (Ex. 1008, “Dugan”).

II. ANALYSIS

A. *Claim Interpretation*

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2146 (2016). Under the broadest reasonable construction standard, claim terms are presumed to have their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). We must be careful not to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993). For the purposes of this Decision, we determine that no claim term needs express interpretation. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

B. *Level of Ordinary Skill in the Art*

Section 103(a) forbids issuance of a patent when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”

KSR Int’l Co. v. Teleflex Inc., 550 U.S. 398, 405 (2007).

Petitioner asserts that a person of ordinary skill in the art with respect

to the '855 patent is “a person with a Bachelor’s degree in mechanical or electrical engineering or a related field with two to three years of experience working with data acquisition systems.” Pet. 9 (citing Ex. 1003 ¶ 19). According to Petitioner, “[w]ith more education, such as additional graduate degrees and/or study, less experience is needed to attain the ordinary level of skill.” *Id.*

Patent Owner does not expressly advocate for a particular level of ordinary skill. However, in opining on the weight to be afforded to Dr. Nesbit’s testimony, Patent Owner notes that Dr. Nesbit “acknowledged during his cross-examination that he has no experience designing wireless motion capture sensors in his own research.” PO Resp. 3. Patent Owner appears to assert implicitly that one of ordinary skill would have had experience in designing wireless motion capture sensors. *See id.* at 3–4. We agree to an extent.

The '855 patent is entitled “SYSTEM AND METHOD FOR UTILIZING MOTION CAPTURE DATA.” The “Field of the Invention” section of the '855 patent is replete with terminology concerning capture of motion data. Ex. 1001, 1:19–34. Nearly every paragraph in the “Description of the Related Art” section of the '855 patent refers to one or more of “motion capture,” “motion capture data,” and “motion data.” *Id.* at 1:35–3:44. The same is true for the “BRIEF SUMMARY OF THE INVENTION” section of the '855 patent. *Id.* at 3:46–11:50. The '855 patent discloses that “[k]nown systems generally utilize several passive or active markers or several sensors.” *Id.* at 2:26–27. The “BRIEF SUMMARY OF THE INVENTION” section of the '855 patent refers repeatedly to motion data capture via markers and sensors. *Id.* at 5:4–9,

5:14–19, 6:50–55, 7:5–8, 7:14–20, 7:54–59, 9:57–11:41. Independent claim 1 recites “a sensor that captures any combination of values associated with an orientation, position, velocity, acceleration of said at least one motion capture element.”

Based on the above, we modify Petitioner’s proffered level of ordinary skill as follows: “a person with a Bachelor’s degree in mechanical or electrical engineering or a related field with two to three years of experience working with data acquisition systems, including motion data capture using markers and sensors.” We decline, however, to limit the level of ordinary skill to “designing wireless motion capture sensors,” as we are unpersuaded that the ’855 patent is so limited to “design” and “wireless” sensors.

We note, however, that, in this case, the prior art itself reflects an appropriate skill level. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). For example, the prior art of record, such as Mahajan, has been shown to relate to the field of data acquisition systems, and, in particular, motion capture sensors.

C. The Parties’ Post-Institution Arguments

In our Decision on Institution, we concluded that the arguments and evidence advanced by Petitioner demonstrated a reasonable likelihood that claims 1, 5, 8, 9, 12, 13, and 15 were unpatentable as obvious based on Mahajan, that claim 6 was unpatentable as obvious based on Mahajan, Oleson, and Gobush, and that claims 7 and 14 were unpatentable as obvious based on Mahajan and Dugan. Dec. 27–28. We must now determine whether Petitioner has established by a preponderance of the evidence that the specified claims are unpatentable over the cited prior art. 35 U.S.C.

§ 316(e). We previously instructed Patent Owner that “any arguments for patentability not raised in the [Patent Owner’s Response] will be deemed waived.” Paper 10, 6; *see also* 37 C.F.R. § 42.23(a) (“Any material fact not specifically denied may be considered admitted.”). Additionally, the Board’s Trial Practice Guide states that the Patent Owner’s Response “should identify all the involved claims that are believed to be patentable and state the basis for that belief.” Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012).

In light of the arguments and evidence advanced by Petitioner that Patent Owner chose not to address in its Patent Owner’s Response, the record now contains persuasive, un rebutted arguments and evidence presented by Petitioner regarding the manner in which the asserted prior art teaches corresponding elements of the claims against which that prior art is asserted. Based on the preponderance of the evidence before us, we conclude that the prior art identified by Petitioner describes all limitations of the reviewed claims that were not contested by the Patent Owner in the Patent Owner Response. *In re NuVasive*, 841 F.3d 966, 974 (2016). We address only the contested limitations below.

*D. Claims 1, 5, 8, 9, 12, 13, and 15
as Unpatentable Over Mahajan*

Petitioner asserts that Mahajan alone renders obvious claims 1, 5, 8, 9, 12, 13, and 15. Pet. 19–39. Patent Owner disagrees. PO Resp. 9–49. Petitioner replies. Pet. Reply 6–17. Claim 1 is the only independent claim at issue.

1. Mahajan (Ex. 1005)

Majahan is directed to motion tracking and analysis. Ex. 1005 ¶ 2.

More specifically, Mahajan discloses:

The present invention provides for an orientation and position tracking system in three-dimensional space installed on or in a moveable object that utilizes inertial and other sensors for determining real-time motion parameters and real-time wireless transmission of that motion information to an external computer system (including PDA, cellular phone, or over a network).

Id. ¶ 30. According to Mahajan, the information can then be displayed and presented to the user through a variety of means, including audio, visual, and tactile. *Id.* ¶ 8. For example, “[i]n one embodiment, the present invention provides for an intelligent golf club . . . that provides golfers with real-time, precise and dynamically presented data, including swing analysis.” *Id.* ¶ 30.

2. *Petitioner’s Overall Positions*

Petitioner contends that claims 1, 5, 8, 9, 12, 13, and 15 are unpatentable over Mahajan. Pet. 19–39. For example, independent claim 1 recites “at least one motion capture element . . . [comprising] a sensor that captures any combination of values associated with an orientation, position, velocity, acceleration of said at least one motion capture element.” Petitioner cites Mahajan for disclosing device 110 including gyroscopes 12, accelerometers 14, 16, and angular rate sensors 42, 44, 46. *Id.* at 19–21. Independent claim 1 recites further “at least one motion capture element . . . [comprising] a radio; [and] a microcontroller” that collects, stores, and transmits sensor data. Petitioner cites Mahajan for disclosing wireless data transmission 20, which includes transmitter circuit 52 and antenna 54, and a microcontroller 50, which receives data from angular rate sensors 42, 44, 46, and delivers data to transmission system 20 for wireless transmission to data reception system 22. *Id.* at 21–24. For the “storing” aspect of the limitation, Petitioner cites Mahajan’s disclosure that the motion capture element may

include “an on-board memory for storing the orientation and position information.” *Id.* at 23 (citations omitted). Independent claim 1 recites further

providing an application that executes on a mobile device . . . [comprising] a computer; [and] a wireless communication interface . . . wherein said computer executes said application to receive data associated with said at least one motion capture element . . . ; analyze said data to form motion analysis data; [and] store said data, or said motion analysis data, or both said data and said motion analysis data associated with said user or piece of equipment.

Petitioner cites Mahajan for disclosing interface device 24, such as a personal computer (“PC”), a personal digital assistant (“PDA”), cellular phone, or network that includes software to process (i.e., receive and analyze) the sensor data. *Id.* at 24–26. Mahajan’s mobile device comprises a data reception system 22, which Petitioner equates with the recited “wireless communications interface.” *Id.* at 26. With respect to the “analyze said data to form motion analysis data” and “store said data, or said motion analysis data, or both said data and said motion analysis data” aspects of the limitation, Petitioner refers to the following disclosure from Mahajan:

[T]he system enters an iterative loop in which sensor data is used to update an internal 3D model of a golf club. The software system processes both the sensor data and the 3D club model to match for a possible golf swing pattern. If a match occurs, the system creates an internal Swing Object representing that golf swing, storing both the sensor data and 3D model history inside this object.

Id. at 27; Ex. 1005 ¶ 57.

Independent claim 1 recites further “access previously stored motion

capture data or motion analysis data associated with said user or piece of equipment or previously stored motion capture data or motion analysis data associated with at least one other user or other piece of equipment.”

Petitioner cites disclosure from Mahajan stating that “[a]fter you have swung the iClub, data is wirelessly transmitted to your hand held laptop, cell phone or other electronic device. . . . [There, you can view real-time swing properties and gain feedback on your swing.] If you would rather wait until later to view your results, go ahead, your feedback will be waiting for you whenever you want it.” Pet. 29 (citing Ex. 1005 ¶ 63).

Independent claim 1 recites additionally a “displaying” step for which Petitioner cites portions of Mahajan. *Id.* at 29–32 (citing Exs. 1003, 1005). Independent claim 1 recites also “at least one motion capture element . . . [comprising] a memory.” Petitioner provides the following analysis concerning this “memory” limitation:

By the time the ’855 patent was filed in 2010, motion capture elements with memory were known components readily available off-the-shelf. Ex. 1003, ¶ 115. In fact, any system with data processing capabilities would be expected to include some form of memory. *Id.* Mahajan discloses “said at least one motion capture element comprising a memory” as recited in elements [1C] and [19C]. Mahajan explains that the motion capture element may include “an on-board memory for storing the orientation and position information.” Ex. 1005, ¶ 42; Ex. 1003, ¶ 115; Appendix A limitation [1C], [19C]. Mahajan teaches that “[t]he apparatus can be used alone or in conjunction with other hardware . . . or software . . . and may be adapted for wired transmission of data, wireless transmission of data, or **for storage of data on the apparatus.**” Ex. 1005, ¶ 127; Ex. 1003, ¶ 115; Appendix A limitation [1C], [19C]. Thus, Mahajan teaches that the on-board memory component for storage of data on the apparatus is an obvious design choice. Ex. 1003, ¶ 115. Further, being a microprocessor-based system, Mahajan

inherently discloses the use of some form of memory for buffering digital data as the analog sensor signals are digitized and packaged for wireless transmission. *See id.*, ¶¶ 38 and 43; *see also, id.*, ¶ 6 (incorporating Lee by reference which discloses the claimed memory on the motion capture element as a “internal ring buffer memory for capturing data.” *See, e.g.*, Ex. 1006, Abstract and 2:51–53.

Id. at 20–21.⁵

Petitioner provides similar analyses for dependent claims 5, 8, 9, 12, 13, and 15. *Id.* at 32–38. Petitioner sets forth additional related analysis and evidence, which are responsive to Patent Owner’s assertions, in its Reply. Pet. Reply 6–17.

For reasons set forth below, we are persuaded that Petitioner’s assertion that claims 1, 8, 9, 12, 13, and 15 are obvious over Mahajan is correct, and that the above referenced analysis and evidence support that assertion by a preponderance of the evidence. However, for reasons set forth below, we are unpersuaded that Petitioner has established by a preponderance of the evidence that claims 5 is obvious over Mahajan.

3. *Patent Owner’s Assertions Concerning Independent Claim 1, and Dependent Claims 8, 9, and 15, Which Are Not Argued Separately*

Independent claim 1 recites a “motion capture element . . . [comprising] a microcontroller coupled with said memory.” In the aggregate, Patent Owner asserts that Petitioner has not shown sufficiently that it would have been obvious to couple memory to microcontroller 50 of device 110 of Mahajan. PO Resp. 9–37 (citing Exs. 1001, 1003, 1005, 1006, 2001, 2005–2011). Petitioner disagrees. Pet. Reply 6–12 (citing Exs. 1001, 1005, 1050, 2001). Within Patent Owner’s aggregate assertions are several

⁵ “Lee” refers to U.S. Patent No. 6,224,493 B1, iss. May 1, 2001. Ex. 1006.

sub-assertions, each of which we will address below in turn. Overall, we agree with Petitioner.

At its core, Patent Owner asserts that “it is undisputed that the proposed added memory is unnecessary for the system described in Mahajan. The petition presents no reason to add this unneeded component other than the fact that it could be done, as opposed to would be done. This is insufficient to prove obviousness.” PO Resp. 18. Restated, Patent Owner appears to assert that only necessary modifications are obvious, i.e., that because adding memory to device 110 of Mahajan is unnecessary, given the goals of Mahajan, a determination of obviousness is improper. *See* Tr. 49:10–50:2. This is an incorrect statement of law.

The Supreme Court has made clear that “[t]hroughout this Court’s engagement with the question of obviousness, our cases have set forth an expansive and flexible approach inconsistent with the way the Court of Appeals applied its TSM test here.” *KSR*, 550 U.S. at 415. In direct contrast, Patent Owner’s assertions of law, by use of the terms “unnecessary” and “unneeded,” harkens back to the rigid TSM test, which the Supreme Court held explicitly as being incorrect.

The Supreme Court further opined as follows:

Neither the enactment of § 103 nor the analysis in [*Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966)] disturbed this Court’s earlier instructions concerning the need for caution in granting a patent based on the combination of elements found in the prior art. For over a half century, the Court has held that a “patent for a combination which only unites old elements with no change in their respective functions . . . obviously withdraws what is already known into the field of its monopoly and diminishes the resources available to skillful men.” *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*, 340

U.S. 147, 152, 71 S.Ct. 127, 95 L.Ed. 162 (1950). This is a principal reason for declining to allow patents for what is obvious. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.

Id. at 415–416. Contrary to Patent Owner’s assertions of law, there is no use of terms similar to “unnecessary,” “unneeded,” or even “goals” in the obviousness analysis. Instead, the Supreme Court’s inquiry is straightforward: (1) if the elements are found in the prior art, and (2) if the combination results in “no change in respective function” and “does no more than yield predictable results,” i.e., a predictable reason to combine for a predictable advantage, then the resulting combination is “likely to be obvious.” *Id.*

When the above inquiry framework is applied to the aforementioned claim limitation of “[a] motion capture element . . . [comprising] a microcontroller coupled with said memory,” the obviousness of the claim is evident. We find that Mahajan discloses microcontroller 50. Ex. 1005 ¶¶ 8, 37, 38, 41, 43, 45. Indeed, paragraph 45 of Mahajan is exclusively dedicated to explaining the function of microcontroller 50. Patent Owner does not dispute that Mahajan discloses a microcontroller. *See generally* PO Resp. 9–37. Patent Owner’s expert, Dr. Jafari, admits that Mahajan discloses a microcontroller. Ex. 2001 ¶¶ 30, 33 (“Figure 2 [of Mahajan] shows the following components: . . . microcontroller 50”); *see also* Tr. 45:4–5 (MR. ARGENTI: “Mahajan discloses a microcontroller coupled with the sensor and the radio.”).

Patent Owner also does not dispute that coupling memory for the purpose of data storage was known to one of ordinary skill at the time of the invention. *See generally* PO Resp. 9–37; *see also* Tr. 59:17–19 (MR.

ARGENTI: “And as far as saying, you know -- applying common sense, everybody knows memory has existed since before the priority date. I’m willing to concede that.”). Indeed, we find that Mahajan alone is replete with disclosures that coupling memory for the purpose of data storage was known to one of ordinary skill at the time of the invention. *See, e.g.*, Ex. 1005 ¶ 6 (“A distinctive feature of this instrumented golf club is the use of a data storage memory device . . .”), ¶ 42 (“The hardware device need not have an on-board memory for storing the orientation and position information.”), ¶ 52 (“[A] number of variables are named and allocated in memory for the program to store and access information.”), ¶ 127 (“The apparatus can be used alone or in conjunction with other hardware . . . or software . . . and may be adapted for wired transmission of data, wireless transmission of data, or for storage of data on the apparatus.”), ¶ 134 (“[A] hard drive, a flash memory stick . . . may be incorporated with the interface device having input and display functionality . . . [T]he Host may include a storage device, an analysis device and an output device, all of which may include independently or combined . . . a hard drive, and a flash memory stick.”). The other evidence of record similarly supports our finding that coupling memory for the purpose of data storage was known to one of ordinary skill at the time of the invention. *See, e.g.*, Ex. 1006, 1:10–12 (“Data descriptive of the measured properties is stored within a memory device provided in the instrumented golf club.”), 2:39–43 (“It further may be desirable to provide an efficient means of memory storage within the instrumented golf club to enable internal data capture and storage until the user is ready to download the data for further processing.”), 2:60–62 (“In a preferred embodiment, a loop memory device, or ring buffer memory

device, is used to continuously store measured data.”), 3:7–10 (“Furthermore, since the ring buffer memory captures only the desired swing data of interest, data for multiple swings can be stored in the memory device of the instrumented golf club”); Ex. 2001 ¶ 32 (“Buffer memory is used to temporarily store the output of the functions or operators”); Ex. 2004, 141 (defining “data buffer” as “[a]n area of memory where data is temporarily stored”).

Accordingly, given our above findings that (1) Mahajan discloses a microcontroller and (2) coupling memory for the purpose of data storage was known to one of ordinary skill at the time of the invention, we have little trouble in concluding that it would have been obvious to modify microcontroller 50 of Mahajan by coupling memory thereto for the purpose, i.e., the predictable reason to combine, of data storage. With no persuasive evidence of unpredictability or change in function of the microcontroller with memory combination, nothing more is required under *KSR*, nor under other Federal Circuit precedent. See *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1335 (Fed. Cir. 2013) (quoting *Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1351 (Fed. Cir. 2010)) (“a finding of obviousness at the time of invention requires a ‘plausible rational [sic] as to why the prior art references would have worked together’” (citation omitted)).

Patent Owner asserts that the Petition neither provides any sufficient basis for the proposed modification, nor identifies any benefit. PO Resp. 18–25. We disagree. The relevant portion of the Petition cites expressly to paragraphs 42 and 127 of Mahajan, and in quoting paragraph 127, Petitioner bolds the following: “[t]he apparatus can be used alone or in conjunction

with other hardware . . . or software . . . and may be adapted for wired transmission of data, wireless transmission of data, or **for storage of data on the apparatus.**” Pet. 20. The next sentence of the Petition then reads, “[t]hus, Mahajan teaches that the on-board memory component for storage of data on the apparatus is an obvious design choice.” *Id.* This statement is supported by Dr. Nesbitt’s testimony, with which we agree, explaining that Mahajan provides the option to include on-board memory and leaves it to the designer to include it, considering that it was common to include memory in data capture systems to store the captured data. Ex. 1003 ¶ 115. We are unclear as to how this portion of the Petition can be read as asserting anything other than coupling memory for the purpose of data storage would have been, as Petitioner phrases it, an “obvious design choice” to one of ordinary skill at the time of the invention.

Patent Owner then asserts that the functionality of Mahajan’s sensor device would not be improved by the addition of memory, *in view of the stated purpose of Mahajan*. PO Resp. 18–19. It is, of course, this latter assertion that is paramount, at least in the view of Patent Owner. Under Patent Owner’s theories, one of ordinary skill at the time of the invention, after recognizing the purpose of Mahajan, would need to have effectively forgotten that coupling memory for the purpose of data storage was known. As set forth above, we find that one of ordinary skill at the time of the invention would have been a person with a Bachelor’s degree in mechanical or electrical engineering, or a related field, with two to three years of experience working with data acquisition systems, including motion data captured using markers and sensors. In view of that relatively high level of skill, we are unpersuaded that Patent Owner’s assertions are credible.

Patent Owner further, and repeatedly, asserts that Petitioner's proffered modification is unnecessary. *Id.* at 18–21. As set forth above, the necessity of a proffered modification is not the proper standard for evaluating obviousness. That one of ordinary skill may realize that something is or is not “necessary” is not dispositive due to our findings, as articulated above, that coupling memory would have been known, and that the attendant advantage of data storage also would have been known.

Patent Owner asserts additionally the following:

A person of ordinary skill in the art would not be motivated to modify the sensor device 110 to include memory because, for example, doing so would result in a less efficient, more cumbersome motion capture sensor, that would negatively impact the form factor and wearability considerations in sensor devices.

Id. at 22; *see id.* at 21–25. Patent Owner's assertions are misplaced because Patent Owner conflates known modifications having known advantages with subjective preferences, i.e., subjective disadvantages. It is beyond dispute that something can be known, but not preferred, because preferences are innately subjective, and something subjective is infinitely variable. To say, however, that these infinitely variable subjective preferences can override known modifications, having known advantages, would effectively eviscerate obviousness law, as any known modification has both advantages and disadvantages, and someone, somewhere, would say that under their subjective preferences, the disadvantages outweigh the advantages. We opine that such a view cannot be correct, and instead discern that an obviousness analysis should focus on whether a modification is known to be implemented and has known advantages. Furthermore, while we recognize that one of ordinary skill certainly has the ability to weigh the various

advantages and disadvantages based on subjective preferences, such an analysis is secondary to an overall determination of obviousness. *KSR*, 550 U.S. at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”); *Winner v. Wang*, 202 F.3d 1340, 1349 (Fed. Cir. 2000) (“the district court did not clearly err in finding that one of ordinary skill in the art would not have reasonably elected trading the benefit of security for that of convenience”). We discern this is especially true for the predictable arts, such as the mechanical and electrical arts involved here. *In re Fisher*, 427 F.2d 833, 839 (CCPA 1970) (indicating patents in the mechanical or electrical arts involve more predictable factors generally than the generally more unpredictable chemical and biological arts).

We determine that our approach is correct, because *KSR* deals almost exclusively with the objective knowledge of one of ordinary skill in the art, i.e., “if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person’s skill.” *KSR*, 550 U.S. at 417; *see also id.* at 427 (“We build and create by bringing to the tangible and palpable reality around us new works based on instinct, simple logic, ordinary inferences, extraordinary ideas, and sometimes even genius. These advances, once part of our shared knowledge, define a new threshold from which innovation starts once more. . . . *KSR* provided convincing evidence that mounting a modular sensor on a fixed pivot point of the Asano pedal was a design step well within the grasp of a person of ordinary skill in the relevant art. Its arguments, and the record, demonstrate that claim 4 of the Engelgau patent is obvious.”). In contrast, *KSR* is silent regarding the relevance of subjective

preference with respect to obviousness, which, again, we discern is logical.

To that end, we find that, as explained above, Petitioner’s proffered modification of coupling memory for the purpose of data storage was well-known to one of ordinary skill at the time of the invention. Thus, the objective inquiry concerning “known modifications for known advantages” is satisfied.

We find further that the disadvantages identified by Patent Owner for the proffered modification, namely, weight, volume, and power consumption (PO Resp. 24), were also well-known. Indeed, we find that anyone with even a basic understanding of physics would have recognized that these disadvantages would have been present for the addition of *any* electronic component to device 110 of Mahajan. Accordingly, what Patent Owner asks us to do, essentially, is to determine that these unremarkable disadvantages, of coupling memory to device 110 of Mahajan, are of such an overwhelming nature and character, that “its actual application is beyond that person’s skill.” *KSR*, 550 U.S. at 417. We decline to do so, as such a determination is not credible, given our explicit findings set forth above. Furthermore, as noted by Patent Owner’s own expert, Dr. Jafari, the weight and volume considerations at issue are on the scale of a coin, such as a quarter.

Ex. 1050, 34:4–36:2; *see also* Ex. 1001, Figs. 11–13; Ex. 1006, Figs. 5–6.

We find that adding an electronic component of the type advanced by Petitioner, i.e., small-scale memory, would have had a minimal effect on the overall functioning of proportionately much larger device 110.

Patent Owner additionally identifies cost as a disadvantage. PO Resp. 23. This argument is equally unpersuasive. The Federal Circuit wrote the following concerning cost:

[T]he fact that the two [prior art disclosures] would not be combined by businessmen for economic reasons is not the same as saying that it could not be done because skilled persons in the art felt that there was some technological incompatibility that prevented their combination. Only the latter fact is telling on the issue of nonobviousness.

Orthopedic Equip. Co., Inc. v. United States, 702 F.2d 1005, 1013 (Fed. Cir. 1983). Patent Owner's assertions regarding cost do not address why the proffered combination would not have been within the abilities of one of ordinary skill or would have been technologically incompatible. Indeed, Patent Owner has not even made either contention. Therefore, Patent Owner's assertions do not undermine the Petitioner's rationale to combine.

Patent Owner asserts further that "Mahajan teaches such a person of skill in the art not to include a memory, as its real-time data transmission system is described as preferable to a memory-based system such as Lee's." PO Resp. 28 (emphasis omitted). We disagree. While Mahajan does disclose such a general preference in one embodiment, we find that it, at the same time, expressly acknowledges the possibility of the alternative. Ex. 1005 ¶ 42 ("The hardware device need not have an on-board memory for storing the orientation and position information."). *See, e.g., Merck & Co. v. Biocraft Labs*, 874 F.2d 804, 807 (Fed. Cir. 1989) (non-preferred embodiments can be the basis for an obviousness analysis). Specifically, we find that the words "need not" actually conveys the following meaning in the context of the Mahajan: "may, but need not." This understanding is further underscored by the fact that Mahajan expressly incorporates-by-reference Lee, and, in describing Lee, asserts the following: "A distinctive feature of this instrumented golf club is the use of a data storage memory device located within the golf club that eliminates the need for radio transmission

hardware.” Ex. 1005 ¶ 6. Indeed, not only does Mahajan acknowledge that an alternative of adding memory was known, it even identifies an advantage for that alternative. The argument that such an advantage may be allegedly contrary to the goals of Mahajan is unpersuasive, for the reasons set forth above. Finally, insofar as Patent Owner is asserting that Mahajan teaches away from the proffered modification, we disagree for the same reasons. *See Galderma Labs., L.P. v. Tolmar, Inc.*, 737 F.3d 731, 738 (Fed. Cir. 2013) (a reference that “merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into” the claimed invention does not teach away).

Patent Owner asserts further that neither Mahajan nor Lee provides support for Petitioner’s proffered modification. PO Resp. 25–28. We disagree. As set forth above, we find expressly that Mahajan and Lee, individually and collectively, expressly provide support for Petitioner’s proffered modification.

Patent Owner asserts further that Mahajan’s disclosure of coupled memory, in its later embodiment of “Body Motion Capture and Analysis System,” does not provide support for Petitioner’s proffered modification to Mahajan’s earlier embodiment including device 110. *Id.* at 28–33. Patent Owner’s assertions are misplaced, as “[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). As an initial matter, here, we note that the features in question are in the same reference. Moreover, we find that, for the same reasons as set forth above,

when the entirety of Mahajan (and Lee) is considered in the aggregate, one of ordinary skill would have known that coupling memory for the purpose of data storage was well-known at the time of the invention.

Patent Owner asserts that Mahajan, individually or considered in conjunction with Lee, does not inherently disclose “[a] motion capture element . . . [comprising] a microcontroller coupled with said memory.” PO Resp. 9–17. In view of our above analysis that the aforementioned claim limitations are obvious in view of Mahajan, this assertion is moot.

Independent claim 1 further recites “a mobile device, wherein said mobile device comprises . . . a wireless communications interface . . . wherein said computer executes said application to . . . display information based on said motion analysis data . . . and said previously stored motion capture data or motion analysis data associated with said user or piece of equipment.” Patent Owner asserts that Petitioner has not shown adequately that Mahajan discloses the aforementioned claim limitations, because the embodiment of Mahajan relied on by Petitioner for the “display” limitations only discloses a mobile device separate from a wireless communication interface, and not a mobile device comprising a wireless communication interface as claimed. *Id.* at 37–42 (citing Ex. 1005 ¶¶ 57, 66, 75, 89, Fig. 8; Ex. 2001 ¶¶ 54–57; Ex. 2011, 162:8–163:23, 167:8–12). Petitioner disagrees. Pet. Reply 12–14 (citing Ex. 1005 ¶¶ 33, 57, 63, 66, 79–84, 89, 125; Ex. 1050, 57:14–16). Patent Owner’s assertions are misplaced.

The Petition discloses the following concerning the aforementioned claim limitation:

r. Computer Displaying Step of Claim 1

. . .

As explained above, Mahajan discloses the software program running on the mobile device performing the steps of storing and displaying swing data of a user's prior swings or the swings of multiple users. Ex. 1005, ¶ 66; *id.*, ¶ 63; *id.*, ¶ 30; *id.*, ¶ 125; Ex. 1003, ¶ 158. For example, Mahajan's system enables an instructor to examine the swing data (e.g., Swing Signature) of multiple students "at a single glance." Ex. 1005, ¶¶ 77 and 125 ("The ability to examine all the active students' Swing Signatures and determine which students are exhibiting similar faults would further reduce the organizational load placed on the instructor"); *see also*, *id.*, p. 11 (claim 12 reciting "displaying said motion data from said plurality of moveable objects."); Ex. 1003, ¶ 175; Appendix A limitation [1R]. One of ordinary skill in the art would recognize, therefore, that Mahajan's system is displaying previously stored information for multiple users (e.g., students) to the instructor who, then, analyzes the data. Ex. 1005 at ¶ 125; Ex. 1003 at ¶ 175.

Pet. 29–31. In particular, we note that the Petition cites paragraphs 30, 63, 66, 77, and 125 of Mahajan. Of those, paragraphs 77 and 125 are under the sub-heading "Embodiment: Multiple User Capability," and are directed to a "Pitcher-Catcher-Host" embodiment. Patent Owner asserts that this embodiment cannot correspond properly to the recited "mobile device, wherein said mobile device comprises . . . a wireless communication interface," because Host 230 ("mobile device") receives data from Catcher 220 ("wireless communication interface") through a serial port, indicating that Host 230 does not "comprise" Catcher 220.

The Petition also cites, however, paragraphs 63 and 66 of Mahajan, which are under the sub-heading "Embodiment: General Motion Tracking and Analysis System," the same embodiment where the Petition asserts earlier that interface device 24 (e.g., a personal computer ("PC"), a personal digital assistant ("PDA"), cellular phone, or network), including data reception 22, corresponds to the recited "mobile device, wherein said mobile

device comprises . . . a wireless communication interface . . .” Pet. 26.⁶

Of paragraphs 63 and 66 of Mahajan, paragraph 63 discloses the following:

After you have swung the iClub, data is wirelessly transmitted to your hand held laptop, cell phone or other electronic device. There you can view real-time swing properties and gain feedback on your swing. If you would rather wait until later to view your results, go ahead, your feedback will be waiting for you whenever you want it.

Ex. 1005 ¶ 63. We find that the sentence “[t]here you can view real-time swing properties and gain feedback on your swing” corresponds properly to the recited “computer is configured to . . . display information . . . based on said motion analysis data,” and further find that the sentence “[i]f you would rather wait until later to view your results, go ahead, your feedback will be waiting for you whenever you want it” corresponds properly to the recited “computer executes said application to . . . display information based on . . . said previously stored motion capture data or motion analysis data associated with said user or piece of equipment.”

Additionally, while paragraph 77 of Mahajan discloses Catcher 220 and Host 230, paragraph 75 also discloses that data reception system 22 is a “Catcher” and interface device 24 is a “Host.” Paragraph 33 of Mahajan discloses the following:

The data is delivered to a wireless data transmission system **20** which transmits the data to a data reception system **22** on a computer (PDA, cellular phone, or network). The data is further

⁶ We acknowledge that while the Petition does appear to go more in-depth concerning paragraphs 77 and 125, as compared to paragraphs 63 and 66, those paragraphs are still cited, and the sentence delving deeper into paragraphs 77 and 125 is prefaced with the phrase “[f]or example.”

processed and displayed to a user by means of an interface device 24, such as a PC, a PDA, cellular phone, or network.

Id. ¶ 33. Accordingly, we acknowledge that paragraphs 77 and 125 disclose Catcher 220 and Host 230 as being connected through a serial port, and we further acknowledge Patent Owner’s concerns that Mahajan is less than a model of clarity. Nevertheless, given the concurrent disclosure of data reception system 22 as a “Catcher” and interface device 24 as a “Host,” and that both may be contained within a single PDA or cellular phone, we are unpersuaded that Mahajan should be read as rigidly as asserted by Patent Owner, to require a serial port. In such a case, paragraphs 77 and 125 also correspond properly to the aforementioned claim limitation.

4. *Patent Owner’s Assertions Concerning Dependent Claim 5*

Claim 5 recites storing “said data, or said motion analysis data, or both” “in a database associated with said mobile device or in a database associated with a remote server.”

The Petition recognizes that the claim language covers “multiple alternatives,” and states that “storing either motion analysis data or sensor data for a sensor associated with a user or piece of equipment is enough.” Pet. 32. The Petition refers to Mahajan’s disclosure of sensor values and the “Swing Object” as sensor data. *Id.* at 32–33. Petitioner argues that Mahajan discloses storing motion analysis data (e.g., swing object) in “‘an available storage medium, such as a . . . remote[] server’” and further discloses “the use of a ‘database’ in its system.” Pet. Reply 14 (citing Ex. 1005 ¶¶ 57, 116, 127); Pet. Reply 14–15. Petitioner concludes that a skilled artisan would recognize that Mahajan discloses “storage of the motion analysis data in an available storage medium, such as a remote server and/or database.” Pet. Reply 15.

Mahajan states, “[i]f a match occurs, the system creates an internal Swing Object representing that golf swing, storing both the sensor data and 3D model history inside this object. This Swing Object can then be saved directly to an available storage medium, such as a local hard drive *or a remotely [sic] server accessible through available networks.*” Ex 1005 ¶ 57 (emphasis added). Mahajan further teaches that the disclosed “apparatus can be used alone or in conjunction with other hardware ... or software (data analysis systems, database systems, etc.) and may be adapted for . . . storage of data on the apparatus.” *Id.* ¶ 127; *id.* ¶ 116 (“Within the iClub System a database of information is kept on all users including user’s name and an identification number of the user’s Pitcher.”). The Petition also notes that “the position and orientation detection system of Mahajan can be on a piece of equipment (like a golf club) or on the user (shoulders, hips, etc.).” Pet. 33 (citing Ex. 1005 ¶¶ 32, 39, 41; Ex. 1003 ¶ 113).

Patent Owner asserts that the Petition’s references to Mahajan’s three embodiments (¶ 57 (first embodiment), ¶ 116 (second embodiment), ¶ 127 (third embodiment; Ex 2011, 66:23–69:4, 70:6–11 (Dr. Nesbit acknowledging that Mahajan discloses three distinct embodiments))) are insufficient, because “there is no express disclosure of the claimed limitation,” and “the petition never explains *why* this limitation would be obvious in light of Mahajan’s teachings.” PO Resp. 42–43. Patent Owner argues that the Petition’s references to paragraphs 116 and 127 of Mahajan are insufficient, because they describe only “vague compatibility [of Mahajan’s system] with other hardware and software systems” and describe only a “specific use of a database in the multi-user embodiment to store information necessary to keep track of transmission channel assignments.”

Id. at 43. With respect to Mahajan’s disclosure that a Swing Object can be saved to a “remotely [sic] server” in describing the first embodiment, Patent Owner states that “[w]hile it is true that a database, like many types of software, might be found on a server, it does not follow that disclosure of a server necessarily teaches or suggests the claimed database.” *Id.*

Patent Owner argues that a server and database serve different functions, wherein a server “stores files,” but a database “allows for storage and queries of database files, which typically are organized as record and fields.” *Id.* at 44; *see also id.* at 43–46. According to Patent Owner, a database allows a user to “search for, access, and recombine information stored in the database files,” whereas a remote server used for data storage “could simply be a location where files are archived, allowing for retrieval when requested by a client but not providing the capability to search for and manipulate the data as in a database.” *Id.* at 44 (citations omitted); *see Ex. 2001 ¶¶ 59–62.* Patent Owner further contends that Dr. Nesbit, Petitioner’s expert, “acknowledged that a database is not needed for server storage as discussed in Mahajan” and that “his declaration provides no analysis as to whether a remote database would have been obvious in view of Mahajan’s disclosure of a remote server.” *Id.* at 46 (citing Ex. 123:8–15; 124:15–19). Patent Owner also refers to disclosure from the ’855 patent differentiating a remote server and a remote database. *Id.* at 45 (citing Ex. 1001, 8:33–36, 19:21–24, 26:48–51). Patent Owner concludes that “[p]ut simply, a person of ordinary skill in the art would understand that while a remote database may be located on a remote server, a remote server is not the same thing as a remote database.” *Id.* at 45 (citing Ex. 2001 ¶ 63). In addition, Patent Owner argues, based on Dr. Nesbit’s testimony, that Mahajan’s remote

server analyzes sensor data, and, thus, “Mahajan at best either disclose a mobile device that analyses sensor data to form motion analysis data **or** a remote database, but not both.” PO Resp. 46–47. Petitioner disagrees that Mahajan fails to disclose the claimed “remote database.” Pet. Reply 14–15.

We determine that Petitioner’s evidence and argument is insufficient to demonstrate that Mahajan teaches the limitation of claim 5. As an initial matter, Petitioner does not explain sufficiently how Mahajan’s teaching of *storing* information informs a skilled artisan that that storage is a “database,” as required by claim 5. *See* Pet. 32–33; Pet. Reply 14–15. Petitioner does not adequately explain why a storage medium, such a hard drive or a server, sufficiently equates with a “database.” Indeed, in response to the question— “[s]o Mahajan's disclosure of a remote server is not the same thing as disclosing a remote database, correct?”—Dr. Nesbitt testified, “[n]ot exclusively.” Ex. 2011, 123:8–12; *see id.* at 120:19–21. Dr. Nesbitt further testified that,

[a] server would be more of a hardware device, where a database would be more of a software. It would be a place where the data is actually stored within a remote computer or remote server. So it’s the hardware versus what’s in the hardware is the distinction between the two.

Id. at 122:17–23; *see* Ex. 2001 ¶ 63 (Patent Owner’s expert opining that “[d]isclosure of sending data to remote server for storage, without more, is insufficient to convey to a person of ordinary skill in the art that the server contains a database.”). The ’855 patent also distinguishes between a “remote database” and a “remote server.” *See* Ex. 1001, 8:33–34 57 (“[t]he data uploaded to the Internet, i.e., a remote database or remote server or memory remote to the system”); *id.* at 26:48–51. At oral argument,

Petitioner's counsel stated the following:

JUDGE ELLURU: But you can also have a server without a database.

MR. KOHM: Yes. I agree with that.

Tr. 33:16–18.

Although we acknowledge that Mahajan discloses that its system can be *can be* used in conjunction with database systems generally, Petitioner does not explain sufficiently why a skilled artisan would have modified Mahajan to include storing “data” or “motion analysis data,” or both, in “a database” “associated with” a “mobile device” or a “remote server,” as claimed. *See* Pet. 32–33; Pet. Reply 14–15; Ex. 1003 ¶ 165 (emphasis added). Similarly, Petitioner also does not explain sufficiently why a skilled artisan would have modified the disclosed remote “server” of Mahajan to include a “database.” *See id.*

5. *Patent Owner's Assertions Concerning
Dependent Claims 12 and 13*

Claim 1 recites a “mobile device compris[ing] a computer” which “executes said application.” Dependent claim 12 further recites that the computer “executes said application to display said information by transmission of said information to display on a visual display coupled with said computer or a remote computer.” Similarly, dependent claim 13 recites that the computer “executes said application to display said information by transmission of said information to display on a virtual reality display.” Patent Owner asserts that the Petition's identification of such transmissions is deficient, because Petitioner only identifies transmissions to the mobile device, and not from the computer of the mobile device to a display, as required by dependent claims 12 and 13. PO Resp. 47–49 (citing Ex. 1005

¶ 75). Petitioner disagrees. Pet. Reply 15–17 (citing Ex. 1001, 15:46–54, 16:17–24; Ex. 1005 ¶¶ 38, 77).

Patent Owner’s assertions are misplaced, as dependent claims 12 and 13 only recite transmission to a display coupled with a computer (claim 12) or to a display on a virtual reality display (claim 13); they do not require transmission from the computer of the mobile device to an external display or from a mobile device to a display. To that end, the Petition asserts that Mahajan discloses transmission to the mobile device (Pet. 35–37), which would also include transmission to the display of the mobile device, which is coupled to the computer (claim 12). The Petition (*id.* at 36–37) further asserts that Mahajan discloses that its invention can be utilized in virtual reality and that a person of ordinary skill would recognize that the use of a “virtual reality” requires a virtual reality display (*id.* at 37 (citing Ex. 1003 ¶ 173)) (claim 13).

6. Conclusion

For the reasons set forth above, we are persuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that claims 1, 8, 9, 12, 13, and 15 are unpatentable over Mahajan, but not claim 5.

E. Dependent Claim 6 as Unpatentable Over Mahajan, Oleson, and Gobush

Claim 6 depends from dependent claim 5, and recites “wherein said database comprises demographic information related to two or more users and information related to a plurality of manufacturers and models of said piece of equipment and information related to at least one pattern found in said database and information related to a user that data mines said database.” With respect to claim 6, the Petition refers to Mahajan’s

disclosure of “databases to store data from its iGolf system.” Pet. 52 (citing Ex. 1005 ¶¶ 57, 116, 127); *id.* at 52–55. The Petition does not alter its analysis with respect to the above-identified deficiencies of claim 5. For the same reasons that we determined that Petitioner did not carry its burden of showing, by a preponderance of the evidence, that claim 5 is unpatentable over Mahajan, we likewise determine that Petitioner did not carry its burden of showing that claim 6 is unpatentable over Mahajan, Oleson, and Gobush.

*F. Dependent claims 7 and 14 as Unpatentable
Over Mahajan and Dugan*

1. Dugan (Ex. 1008)

Dugan is directed to a system for measuring and/or analyzing golf swing information. Ex. 1008 ¶ 3. Dugan discloses that a user’s “swing information may be recorded and/or displayed graphically over reference swing information and/or previous swings.” *Id.* ¶ 31. Dugan further discloses that a wireless device may send a text message to report an approximate or anticipated drive distance based on measured swing information, or to “alert others that the user [] hit a good drive.” *Id.* ¶ 33.

2. Analysis

Petitioner asserts that dependent claim 7 is unpatentable over Mahajan and Dugan. Pet. 55–57 (citing Exs. 1003, 1005, 1008). Dependent claim 7 recites “said computer further executes said application to display information based on a comparison of said motion analysis data associated with said user or piece of equipment and said previously stored motion capture data or motion analysis data associated with said user or piece of equipment or previously stored motion capture data or said motion analysis data associated with at least one other user.” Petitioner proposes modifying

Mahajan in view of Dugan’s “displaying images of graphs or charts comparing a user’s swing against his or her historical swing data or against other users,” so as to meet the aforementioned limitations of dependent claim 7. Pet. 56–57 (citing Ex. 1003 ¶ 177; Ex. 1008 ¶ 16). Patent Owner does not set forth any specific assertions for this ground of unpatentability, other than relying on its analysis of claim 1. PO Resp. 52; *see generally* PO Resp. 1–55 (no mention of Dugan reference). We have considered and agree with Petitioner’s proposal and supporting evidence, and adopt them as our own.

Dependent claim 14, which depends from claim 1, recites “wherein computer further executes said application to display said information by transmission of said information in a text or email message.” “[S]aid information” refers to the claim 1’s recitation of “information based on said motion analysis data associated with said user or piece of equipment, and said previously stored motion capture data or motion analysis data associated with said user or piece of equipment, or said previously stored motion capture data or motion analysis data associated with at least one other user or other piece of equipment.” The Petition refers to disclosure from the combination of Mahajan and Dugan for the above limitation of claim 14. Pet. 57–58 (citing Exs. 1003, 1005, 1008). Petitioner specifically contends that “Mahajan contemplates transmission of information via the Internet” and “Dugan specifically discloses transmission of swing data from a mobile device via text message.” Pet. 57 (citing Ex. 1005 ¶ 64; Ex. 1008 ¶ 33).

Patent Owner asserts that Mahajan does not teach transmission via emails or text messages, “let alone transmission of an email or text message

containing a display of the specific information required by the claim,” and Dugan’s text message functionality is not for the purpose of transmitting particular swing motion data or previously stored motion data. PO Resp. 52–53 (citing Ex. 2001 ¶¶ 71, 73; Ex. 2011 189:5–8 (“Q. In fact, Dugan does not describe the ability to send text messages involving previously stored data at all, right? A. Not in the form of text message.”)). Patent Owner concludes that “[i]n view of the deficiencies of Mahajan and Dugan *individually*, the petition cannot show that claim 14 would have been obvious in view of the combination of those references.” PO Resp. 53 (emphasis added).

Patent Owner’s argument is not persuasive for the following reasons. Initially, as Petitioner argues (Pet. Reply 20–21), “Mahajan and Dugan need not disclose the limitation individually, nor need they expressly disclose the limitation.” Moreover, Mahajan at paragraph 63 discloses the following:

After you have swung the iClub, data is wirelessly transmitted to your hand held laptop, cell phone or other electronic device. There you can view real-time swing properties and gain feedback on your swing. If you would rather wait until later to view your results, go ahead, your feedback will be waiting for you whenever you want it.

Ex. 1005 ¶ 63. As discussed above with respect to claim 1, we find Mahajan’s disclosure at paragraph 63, “[t]here you can view real-time swing properties and gain feedback on your swing,” corresponds properly to the recited “said computer . . . executes said application to . . . display information based on said motion analysis data,” and that the disclosure stating “[i]f you would rather wait until later to view your results, go ahead, your feedback will be waiting for you whenever you want it,” corresponds properly to the recited “said computer . . . executes said application to . . .

display information . . . based on . . . said previously stored motion capture data or motion analysis data associated with said user or piece of equipment.” Immediately after explaining that “swing properties” can be transmitted and displayed at a cell phone, for example, or stored for later use, Mahajan teaches that if the user “happen[s] to be connected to the Internet while at the golf course . . . [the system will] share information with your teaching professional.” *Id.* ¶ 64. Thus, we are sufficiently persuaded that Mahajan teaches sending swing properties via the Internet. And Dr. Nesbit opines that a skilled artisan “at the time of the invention would have known that sending email was a common way to share information via the Internet.” Ex. 1003 ¶ 182. In addition, Dugan teaches that swing information may be sent via “text message to a predetermined list of persons or otherwise alert others that the user [] hit a good drive.” Ex. 1008 ¶ 33. Further, states Dugan, “[t]he wireless device [] may also calculate an approximate or anticipated drive distance based on the measured swing information and report this to the user [] and/or include this information in the sent message.” *Id.*

In addition, Petitioner provides sufficient reason to combine the teachings of Mahajan and Dugan. In particular, Petitioner contends that it would have been obvious to a skilled artisan to combine the well-known transmission options disclosed in Dugan (a text message) as an alternative to share information with a teaching professional over the Internet, as taught in Mahajan. Pet. 58 (citing Ex. 1003 ¶ 183). Petitioner’s rationale for combining the references is supported by Dr. Nesbit’s opinion. Specifically, Dr. Nesbit opines that

[t]he overriding objective [of Mahajan and Dugan] is to present the information to the user. Combining the teachings and methods of Dugan with Mahajan creates features where the computer controls the processing, transmission, communication, and display of information by several means including text or email message as described by the disputed claim.

Ex. 1003 ¶ 183. Thus, we find that the combined teachings of Mahajan and Dugan would have taught a skilled artisan to display the recited “motion analysis data” and “previously stored motion capture data or motion analysis data associated with said user or piece of equipment,” by transmitting the information in an email or text, as required by claim 14.

3. *Conclusion*

For the reasons set forth above, we are persuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that dependent claims 7 and 14 are unpatentable over Mahajan and Dugan.

III. CONCLUSION

Petitioner has demonstrated by a preponderance of the evidence that claims 1, 7–9, and 12–15 of the ’855 patent are unpatentable, but not claims 5 and 6.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 7–9, and 12–15 of the ’855 patent have been shown by a preponderance of the evidence to be unpatentable;

ORDERED that claims 5 and 6 of the ’855 patent have not been shown by a preponderance of the evidence to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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Patent 8,905,855 B2

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