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Paper 10
Entered: August 29, 2016

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZEPP LABS, INC.,
Petitioner,

v.

BLAST MOTION, INC.,
Patent Owner.

Case IPR2016-00677
Patent 8,944,928

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

KIM, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. Background

Zepp Labs, Inc. ("Petitioner") filed a Petition to institute an *inter partes* review of claims 1, 2, 4, 7, 8, and 11 of U.S. Patent No. 8,944,928 (Ex. 1001, "the '928 patent"). Paper 1 ("Pet."). Blast Motion, Inc. ("Patent Owner") filed a Preliminary Response (Paper 9; "Prelim. Resp.").

We have jurisdiction under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted unless the information presented in the Petition shows "there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Upon consideration of the Petition and Preliminary Response, we determine that the information presented in the Petition demonstrates a reasonable likelihood that Petitioner would prevail in showing that claims 1, 2, 4, 7, and 8 are unpatentable. We determine also that the information presented in the Petition does not demonstrate a reasonable likelihood that Petitioner would prevail in showing that claim 11 is unpatentable.

B. Related Proceedings

Petitioner and Patent Owner identify the following district court proceedings concerning the '928 patent: *Blast Motion, Inc. v. Zepp Labs, Inc.*, No 3:15-cv-00700 (S.D. Cal.). Pet. 2; Paper 4, 2.

Petitioner and Patent Owner identify further the following related patents, for each of which Petitioner has filed a respective *inter partes* review: U.S. Patent No. 8,941,723 (IPR2016-00675); U.S. Patent No. 8,905,855 (IPR2016-00676); U.S. Patent No. 8,903,521 (IPR2016-00672); U.S. Patent No. 9,039,527 (IPR2016-00674).

C. The ’928 Patent

According to the ’928 patent, an exemplary field of the invention is directed to motion capture data and displaying information based on motion analysis data associated with a user or piece of equipment and/or based on previous motion analysis data from the user or other user(s) and/or piece of equipment. Ex. 1001, 1:24–29. Such previous motion data may include previously stored data from the same user, a different user, and/or a historical user. Ex. 1001, 1:29–31. The previous motion analysis data may be calculated based on analysis of motion obtained from a motion picture or video. Ex. 1001, 1:31–33. For example, the calculation may use 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. Ex. 1001, 1:33–40.

As an example, the invention may purportedly be used to obtain or create motion capture data associated with a group users, for example, professional golfers, tennis players, baseball players, or players of any other sport. Ex. 1001, 2:15–23. For those players, motion capture elements, such as wireless sensors, may be seamlessly integrated or otherwise coupled with a user or shoes, gloves, shirts, pants, belts, or other equipment, such as a baseball bat, tennis racquet or golf club. Ex. 1001, 2:37–41.

D. Illustrative Claim

Independent claim 1 is reproduced below:

> 1. A method for utilizing a virtual reality system for viewing current and previously stored or calculated motion data comprising:
>
> providing at least one motion capture element configured to couple with a user or piece of equipment wherein said at least one motion capture element comprises

a memory;

a sensor configured to capture 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 is configured to

collect data that comprises sensor values from said sensor;

store said data in said memory;

transmit said data via said radio;

providing a mobile device, wherein said mobile device comprises

a computer;

a wireless communication interface configured to communicate with said radio to obtain said data,

wherein said computer is coupled with said wireless communication interface, and

wherein said computer is configured 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 comprising at least one avatar associated with said at least one user on a virtual reality display 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. Asserted Grounds of Unpatentability

Petitioner challenges claims 1, 2, 4, 7, 8, and 11 on the following grounds.

Reference(s)	Basis	Challenged Claims
Mahajan[1]	§ 103(a)	1, 4, 7, 8, and 11
Mahajan and Dugan[2]	§ 103(a)	2

II. ANALYSIS

A. *Claim Construction*

In an *inter partes* review, a claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears. 37 C.F.R. § 42.100(b); *see Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (holding that 37 C.F.R. § 42.100(b) "represents a reasonable exercise of the rulemaking authority that Congress delegated to the . . . Office"). Under the broadest reasonable construction standard, claim terms are given their ordinary and customary meaning, as

[1] U.S. Patent Application Publication No. 2006/0025229, pub. Feb. 2, 2006 (Ex. 1005).

[2] U.S. Patent Application Publication No. 2008/0085778, pub. Apr. 10, 2008 (Ex. 1008).

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).

1. "said data"

Independent claim 1 recites repeatedly "said data." Petitioner asserts that "said data" is indefinite because "it is unclear whether 'said data' refers to the data collected by the microcontroller, the data received at the computer, or even the motion analysis data." Ex. 1003, ¶ 46. In the alternative, Petitioner asserts "if the Board deems that this term can be construed under the broadest reasonable interpretation standard, the proper construction includes 'data that comprises sensor values.'" Pet. 8 (citing Ex. 1003). Patent Owner disagrees that "said data" is indefinite, and instead asserts that "said data" should be construed as "data that comprises sensor values." Prelim. Rep. 5. Aside from the indefiniteness issue, Petitioner and Patent Owner appear to agree as to the proper construction of "said data." That would appear to weigh in favor of Patent Owner's position that "said data" is not indefinite. Notwithstanding the apparent disagreement concerning this term, we do not opine further on this issue at this time, as construction of the term is not necessary to our determination to institute trial.

2. other claim terms

We determine that no express construction of any other claim terms is necessary at this time.

B. Claims 1, 4, 7, 8, and 11 as Unpatentable over Mahajan

Petitioner contends that claims 1, 4, 7, 8, and 11 are unpatentable over Mahajan. Pet. 15–33 (citing Exs. 1003, 1005, 1006). Patent Owner disagrees. Prelim. Resp. 13–30 (citing Exs. 1001, 1003, 1005, 1006). Independent 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).

Ex. 1005 ¶ 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. Ex. 1005 ¶ 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." Ex. 1005 ¶ 30.

2. Petitioner's Position

Petitioner contends that claims 1, 4, 7, 8, and 11 are unpatentable over Mahajan. Pet. 15–33. For example, independent claim 1 recites "at least one motion capture element [comprising] . . . a sensor configured to capture

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. Pet. 16–18. Independent claim 1 recites further "at least one motion capture element [comprising] . . . a radio; [and] a microcontroller" configured to collect, store, and transmit sensor data. Petitioner cites Mahajan for disclosing wireless data transmission 20, which includes transmitter circuit 52 and antenna 54, and microcontroller 50, which receives data from angular rate sensors 42, 44, 46. Pet. 18–21. Independent claim 1 recites further "a mobile device . . . [comprising] a computer . . . configured 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." 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 the sensor data. Pet. 21–25. Specifically,

> the 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.

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 Mahajan for disclosing "[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. 25–26 (citing Ex. 1005 ¶ 63). Independent claim 1 recites additionally a "displaying" step for which Petitioner cites portions of Mahajan. Pet. 26–28 (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 '928 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]. 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]. 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 (emphasis added); Ex. 1003, ¶ 115; Appendix A limitation [1C]. 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* Ex. 1005, ¶¶ 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 2:60-62.

Pet. 16–17. Petitioner provides similar analyses for dependent claims 4, 7, 8, and 11. Pet. 28–33.

3. Analysis of Claims 1, 4, 7, and 8

Patent Owner asserts that Mahajan does not disclose or suggest "at least one motion capture element [comprising] . . . a memory; [and] a radio," because Mahajan teaches away from "a sensor-side memory in favor of continuously streaming data to a host computer" via a radio only. Prelim. Resp. 13–21. On this record, and at this juncture in the proceeding, we are unpersuaded that Patent Owner's assertion is correct.

More specifically, Patent Owner asserts that paragraph 42 of Mahajan teaches away from utilizing memory as claimed in the '928 patent because it is unnecessary for Mahajan's real-time transmission system. We disagree. The paragraph in question reads as follows: "The hardware device *need not* have an on-board memory for storing the orientation and position information. Instead, the information is transmitted in real-time to a data reception system, for example, a PC, a PDA, cellular phone or network." Ex. 1005 ¶ 42; emphasis added. We do not read this as a teaching away. Instead, we discern the opposite; that it indicates an unremarkable acknowledgement that one of ordinary skill knew that such a hardware device, and, indeed, any computer hardware device, may, but need not, have memory. Furthermore, we note that Petitioner does not rely solely on paragraph 42 of Mahajan, and that other cited portions of Mahajan clearly

disclose that memory may be used, regardless of whether there is or is not already a radio. For example, paragraph 127 discloses the following:

> The present invention further provides for a body motion capture and analysis system utilizing an apparatus worn or attached to the body. . . The apparatus can be used alone or in conjunction with other hardware (e.g. video, magnetic systems, heart rate and bio measurement systems, etc.) or software (data analysis systems, database systems, etc.) and may be adapted for wired transmission of data, wireless transmission of data, or for storage of data on the apparatus.

Ex. 1005 ¶ 127.

Patent Owner asserts an analogous, but opposite, position for U.S. Patent No. 6,224,493 to Lee, incorporated by reference in Mahajan, i.e., that in expressing a preference for memory over radio transmitters, Lee also teaches away from having both a radio and memory. Our analysis is similarly analogous to that set forth in the previous paragraph, and need not be repeated here.

Patent Owner asserts additionally that the Petitioner is impermissibly using hindsight to pick and choose from multiple disparate embodiments of Mahajan and Lee to arrive at the claimed "at least one motion capture element [comprising] . . . a memory; [and] a radio." On this record and at this juncture in the proceeding, we are unpersuaded by Patent Owner's assertion. Specifically, while the citations may be to disparate embodiments, we determine that Petitioner has provided sufficient analysis, for the purposes of institution, to show that either (1) one of ordinary skill would have modified device 110 of Mahajan to include the memory from other embodiments, even if device 110 already has a radio, or that (2) such a memory is inherently disclosed in Mahajan. Upon institution, Patent Owner will have an opportunity to present counter-evidence, cross-examine

Petitioner's expert, and provide further analysis as to why Petitioner's analysis and supporting evidence does not meet the requisite burden.

Patent Owner also asserts that Mahajan does not disclose the required "computer is configured to . . . analyze said data to form motion analysis data," as recited in independent claim 1, because "[t]he petition fails to explain how a mere classification of raw sensor values as corresponding to a golf swing constitutes the motion analysis data recited in claim 1." Prelim. Resp. 21–23. We disagree. The "raw sensor values," "classification," and "corresponding golf swing" of Mahajan appear to correspond properly to the recited "said data," "analyze," and "motion analysis data." Indeed, paragraph 57 of Mahajan discloses that "the system creates an internal Swing Object representing that golf swing, storing both the sensor data and 3D model history inside this object." From this, we discern that the "Swing Object" is derived from the "sensor data."

Patent Owner asserts additionally that Petitioner is being inconsistent and improper in relying on both the "Swing Object" and generated statistics in Figure 7 of Mahajan as corresponding to the recited "motion analysis data." Prelim. Resp. 23–24. As we discern that both are generated from raw sensor values, however, we are unpersuaded that Petitioner's reliance on both is inconsistent or improper.

Patent Owner asserts further that Mahajan does not disclose or suggest the recited "displaying" limitation, because

> Mahajan's single-user embodiment does not provide for display of both current swing data and past swing data, while the multi-user embodiment does not include a mobile device. The petition does not acknowledge these deficiencies in the particular embodiments, let alone explain why it would have been obvious

> for a person of ordinary skill in the art to combine them as asserted.

Prelim Resp. 24–27. Largely, we are unpersuaded because we determine, on this record, and at this juncture in the proceeding, that Petitioner has provided sufficient analysis at pages 26–28 of the Petition. In particular, paragraph 66 of Mahajan discloses "[t]he transmitted information can be stored by the computer analysis and *display system for multiple swings of an individual golfer* or other sport participant." Emphasis added. Thus, contrary to Patent Owner's assertion, Mahajan does disclose a single-user embodiment displaying both current swing data and past swing data, as required by the recited "displaying" limitation.

Patent Owner asserts the same for dependent claims 4, 7, and 8. Those assertions are unpersuasive for the reasons set forth *supra*.

4. Analysis of Dependent Claim 11

Patent Owner asserts that Mahajan does not disclose or suggest "said computer is further configured to allow said user and said other user to exchange motion analysis data associated with said user or piece of equipment and said motion analysis data associated with at least one other user or other piece of equipment," as recited by dependent claim 11. Prelim. Resp. 27–29. We agree.

Both parties agree that the cited portions of Mahajan disclose multiple students providing captured swing data to a centralized system for evaluation by an instructor. The parties disagree, however, as to whether this constitutes an "exchange." Petitioner asserts that it does. Pet. 32–33. Patent Owner asserts that it does not because "[t]he plain language of claim 11 requires that two users exchange motion analysis data that is

associated with those same two users." Prelim. Resp. 28. We agree with Patent Owner.

Neither party provides a construction for "exchange." Aside from dependent claim 11, the '928 patent does not recite the word "exchange." The American Heritage Dictionary of the English Language defines "exchange" as "[t]o give in return for something received; trade." "Exchange." 2011. *The American Heritage Dictionary of the English Language*, edited by The Editors of the American Heritage Dictionaries. Boston: Houghton Mifflin. http://search.credoreference.com/content/entry/hmdictenglang/exchange/0. Ex. 3001. This definition appears to comport with Patent Owner's assertion. In view of this construction, Petitioner's position is flawed, because in order to meet the aforementioned claim limitation, either (1) the instructor must provide their swing data to the students, or (2) the students must have access to other students' swing data. Petitioner does not advance either position.

5. Conclusion

We are persuaded that there is a reasonable likelihood that Petitioner will prevail in showing that claims 1, 4, 7, and 8 would have been obvious over Mahajan. We are unpersuaded that there is a reasonable likelihood that Petitioner will prevail in showing that dependent claim 11 would have been obvious over Mahajan.

C. Dependent Claim 2 as Unpatentable over Mahajan and Dugan

Petitioner contends that dependent claim 2 is unpatentable over Mahajan and Dugan. Pet. 33–35 (citing Exs. 1003, 1005, 1008). Dependent claim 2 recites "said computer is further configured to display said

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 2. Pet. 34–35 (citing Ex. 1003 ¶ 177; Ex. 1008 ¶ 16). We have considered Petitioner's proposal and supporting evidence, and determine that it is sufficient and credible at this juncture in the proceeding.

We are persuaded that there is a reasonable likelihood that Petitioner will prevail in showing that dependent claim 2 is unpatentable over Mahajan and Dugan.

D. Patent Owner's General Assertions

Patent Owner asserts that the testimony of Petitioner's expert, Dr. Nesbit, is so conclusory, so lacking in underlying factual bases, and shows such a lack of adequate consideration of both the claimed invention as a whole, as well as specific claim limitations, that it should not be given any weight. Prelim. Resp. 7–11, 29–30. We have considered the portions of Dr. Nesbit's Declaration cited in the Petition, and are unpersuaded that they are so conclusory and lacking in underlying factual bases that it should be outright dismissed, at least for the purposes of institution. Upon institution, Patent Owner will have an opportunity to present counter-evidence, cross-examine Petitioner's expert, and provide further analysis as to why

Petitioner's analysis and supporting evidence does not meet the requisite burden.

Patent Owner asserts further that the Petition should be dismissed outright, because the Petition is confusing as to exactly what portions of the references are relied on for which claim limitations. As an example, Patent Owner provides the following table concerning the "memory" limitation of independent claim 1.

Support cited in petition (Theory 1)	Support cited in Nesbit declaration (Theory 2)	Support cited in Nesbit claim chart (Theory 3)
[*see* Pet. pp.16-17] **Ex. 1005** ¶¶ 6, 38, 42, 43, 127 **Ex. 1006** at Abstract, 2:60-62	[*see* Ex. 1003 ¶ 115] **Ex. 1005** ¶¶ 6, 42, 127, 134 **Ex. 1006** at Abstract, 1:10-12, 2:47-51, 9:35-42 **Ex. 1011** ¶ 128 **Ex. 1007** ¶ 9 **Ex. 1039** pp.430-31	[*see* Ex. 1003 App. A, 1C] **Ex. 1005** ¶¶ 6, 42, 127 **Ex. 1006** at 7:24-40

We have considered the Petition and supporting Exhibits, and are unpersuaded that they are so confusing as to warrant outright dismissal of the Petition. We do agree with Patent Owner's general point, however, that 35 U.S.C. § 312(a)(3) requires that "the ***petition*** identifies, in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim." Accordingly, insofar as there may be any inconsistency in citations between the Petition and other supporting documents, we clarify that, for us to consider them, any substantive citations

meant to correspond to a particular claim limitation must be set forth in the Petition itself.

Having said that, we acknowledge that Dr. Nesbit's Declaration, in supporting the Petition, may sometimes need to refer to portions of Exhibits, not otherwise cited in the Petition, in order to provide a foundation for an opinion set forth in the Petition. We clarify, however, that such citations will be scrutinized closely to ensure that they do not stray into areas that should have been cited in the Petition itself, for that could be considered an impermissible attempt to circumvent page limits. To that end, we determine that citations that appear solely in the claim charts attached to Dr. Nesbit's Declaration cannot be relied on by Petitioner for any substantive purpose.

E. Conclusion

For the foregoing reasons, we are persuaded that Petitioner has met its burden of showing a reasonable likelihood that claims 1, 2, 4, 7, and 8 are unpatentable. We are unpersuaded that Petitioner has met its burden of showing a reasonable likelihood that dependent claim 11 is unpatentable.

III. ORDER

After due consideration of the record before us, and for the foregoing reasons, it is:

ORDERED that pursuant to 35 U.S.C. § 314, an *inter partes* review is hereby instituted as to claims 1, 2, 4, 7, and 8 of the '928 patent on the following grounds:

- claims 1, 4, 7, and 8 as unpatentable under 35 U.S.C. § 103(a) over Mahajan; and
- claim 2 as unpatentable under 35 U.S.C. § 103(a) over a combination of Mahajan and Dugan;

FURTHER ORDERED that no other grounds are instituted; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the '928 patent is hereby instituted commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

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