

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZEPP LABS, INC.,
Petitioner,

v.

BLAST MOTION, INC.,
Patent Owner.

Case IPR2016-00675
Patent 8,941,723 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 1–4, 6, 7, 13, 14, 19–22, 25, and 32 of U.S. Patent No. 8,941,723 B2 (Ex. 1001, the “’723 patent”). Paper 1, 1 (“Pet.”). Blast Motion, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”).

On August 29, 2016, we instituted an *inter partes* review of claims 1, 7, 13, 14, 19–22, and 32 on certain grounds of unpatentability set forth in the Petition. Paper 10, 26 (“Dec.”). Subsequent to institution of trial, Patent Owner filed a Patent Owner’s Response (Paper 23, “PO Resp.”) and Petitioner filed a Reply (Paper 27, “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 37 (“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 failed to show by a preponderance of the evidence that claims 1, 7, 13, 14, 19–22, and 32 of the ’723 patent are unpatentable.

B. *Related Proceedings*

Petitioner and Patent Owner identify the following district court proceeding concerning the ’723 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. 8,905,855 (IPR2016-00676, 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 '723 Patent (Ex. 1001)

According to the '723 patent, an exemplary field of the invention is directed to portable wireless mobile device computer systems, radio frequency identification, and optionally motion capture elements, such as visual markers and sensors utilized in the capture of motion data. Ex. 1001, 1:18–23.

A user may perform motion capture and/or display with a software application that, for example, executes on a mobile device having a visual display and an optional camera, and is capable of obtaining data from at least one motion capture element, such as a visual marker and/or a wireless sensor. *Id.* at 2:41–46. The system enables a user to analyze and display the motion capture data in a variety of ways that provide immediate, easy-to-understand graphical information associated with the motion capture data. *Id.* at 2:48–51.

D. Illustrative Claim

We instituted trial for claims 1, 7, 13, 14, 19–22, and 32. Claim 1, the only independent claim at issue, is reproduced below:

1. A portable wireless mobile device motion capture and analysis system comprising:

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, a position, a velocity, and an 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;

an application configured to execute on a mobile device, wherein said mobile device comprises

- a computer;

- a display; and,

- a wireless communication interface configured to

 - communicate with said radio to obtain said data, and

 - communicate with a remote database that is remote to said mobile device;

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

wherein said computer is configured to execute said application to configure said computer to

 - recognize said at least one motion capture element associated with said user or said piece of equipment and associate said at least one motion capture element with assigned locations on said user or said piece of equipment based on movement of each of said at least one motion capture element respectively;

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

analyze said data to form motion analysis data;

display said motion analysis data on said display; and,

store said data, or said motion analysis data, or both said data and said motion analysis data in said remote database.

E. Grounds of Unpatentability Instituted for Trial

We instituted review of claims 1, 7, 13, 14, 19–22, and 32 based on the following grounds and items of prior art:

References	Basis	Claims Challenged
Mahajan, ¹ Otto, ² and Lee ³	§ 103(a)	1, 7, 21, 22, and 32
Mahajan, Otto, and Edis ⁴	§ 103(a)	13, 14, 19, and 20

Dec. 26.

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

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

² Chris Otto et al., *System Architecture of a Wireless Body Area Sensor Network for Ubiquitous Health Monitoring*, JOURNAL OF MOBILE MULTIMEDIA, VOL. 1, NO. 4 (2006) (Ex. 1012).

³ U.S. Patent No. 6,224,493 B1, issued May 1, 2001 (Ex. 1006, “Lee”), is incorporated by reference in Mahajan. Pet. 3.

⁴ U.S. Patent Application Publication No. 2010/0144414 A1, pub. June 10, 2010 (Ex. 1007, “Edis”).

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 Paulson*, 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, 406 (2007).

Petitioner asserts that a person of ordinary skill in the art with respect to the ’723 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 ’723 patent is entitled “PORTABLE WIRELESS MOBILE DEVICE MOTION CAPTURE AND ANALYSIS SYSTEM AND METHOD.” The “Field of the Invention” section of the ’723 patent contains various terminology concerning capture of motion data. Ex. 1001, 1:17–26. Nearly every paragraph in the “Description of the Related Art” section of the ’723 patent refers to one or more of “motion capture,” “motion capture data,” and “motion data.” *Id.* at 1:27–2:35. The same is true for the “BRIEF SUMMARY OF THE INVENTION” section of the ’723 patent. *Id.* at 2:37–6:62. The ’723 patent discloses that “[k]nown systems generally utilize several passive or active markers or several sensors.” *Id.* at 1:47–48. The “BRIEF SUMMARY OF THE INVENTION” section of the ’723 patent refers repeatedly to motion data capture via markers and sensors. *Id.* at 2:41–46, 3:24–29, 3:55–61, 4:29–34, 5:39–6:56. Independent claim 1 recites “a sensor configured to capture any combination of values associated with an orientation, a position, a velocity, and an 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 ’723 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. Claims 1, 7, 21, 22, and 32 as Unpatentable
Over Mahajan, Otto, and Lee*

Petitioner asserts that Mahajan, Otto, and Lee render obvious claims 1, 7, 21, 22, and 32. Pet. 20–38. Patent Owner disagrees. PO Resp. 9–48. Petitioner replies. Pet. Reply 6–15. Claim 1 is the only independent claim at issue.

1. Mahajan (Ex. 1005)

Mahajan 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. at ¶ 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.* at ¶ 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.* at ¶ 30.

2. *Petitioner’s Overall Positions*

Independent claim 1 recites “at least one motion capture element . . . [comprising] a sensor configured to capture any combination of values associated with an orientation, a position, a velocity, and an acceleration of said at least one motion capture element.” Petitioner cites Mahajan for disclosing sensors that determine orientation, position, acceleration, and angular velocity of a moveable object. Pet. 22. 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 and delivers data to the transmission system. *Id.* at 23–24.

Independent claim 1 recites further

a mobile device . . . [comprising] a computer . . . configured to . . . receive said data associated with said at least one motion capture element via said wireless communication interface; analyze said data to form motion analysis data; display said motion analysis data on said display; and, store said data, or said motion analysis data, or both said data and said motion analysis

data in said remote database.

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. *Id.* at 26. Specifically, Mahajan discloses that

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. This Swing Object can then be saved directly . . . or [on] a remotely [sic] server accessible through available networks.

Ex. 1005 ¶ 57; *see* Pet. 31.

With respect to the “display” limitation, Petitioner asserts that interface device 24 of Mahajan includes a display. Pet. 26. Independent claim 1 recites also “at least one motion capture element compris[ing] a memory.” Petitioner provides the following analysis concerning this “memory” limitation:

By the time the ’723 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; 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 id.*, ¶¶ 38 and 43; *see also, id.*, ¶ 6 (incorporating Lee by reference which discloses the claimed memory on the motion capture element as a [sic] “internal ring buffer memory for capturing data.” *See, e.g.*, Ex. 1006, Abstract and 2:51–53.

Id. at 21–22 (emphasis in original). Petitioner provides similar analyses for dependent claims 7, 21, 22, and 32. *Id.* at 34–38.

3. *Analysis of Claims 1, 7, 21, 22, and 32 as Unpatentable Over Mahajan, Otto, and Lee*

Claim 1, the only independent claim challenged, recites “an application configured to execute on a mobile device, wherein said mobile device comprises . . . a wireless communication interface configured to . . . communicate with a remote database that is remote to said mobile device.” The Petition refers to Mahajan’s disclosure of “the application ‘creat[ing] an internal Swing Object representing that golf swing’ (i.e., motion analysis data). . . . 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.” Pet. 27 (citing Ex. 1005 ¶ 57; Ex. 1003 ¶ 165; Appendix A limitation [1N]); Pet. Reply 14. The Reply further refers to Mahajan’s disclosure of “the use of a ‘database’ in its system.” Pet. Reply 14 (citing Ex. 1005 ¶¶ 116, 127). Mahajan 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.” Ex. 1005 ¶ 127; *id.* at ¶ 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.”). 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 14–15.

Patent Owner asserts that Mahajan does not disclose or suggest “a remote database.” PO Resp. 44–48. With respect to Mahajan’s disclosure that a Swing Object can be saved to a “remotely [sic] server,” 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.” PO Resp. 44–45. Patent Owner argues that a server and database serve different functions, wherein a server “store[s] files,” but a database “allows for storage *and queries of database files*, which typically are organized as record and fields.” *Id.* at 45 (emphasis added); *see also id.* at 45–47. 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 45 (citations omitted); *see* Ex. 2001 ¶¶ 56–59. 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.” PO Resp. 47 (citing Ex.

2011, 123:8–15, 124:15–19). Patent Owner also refers to disclosure from the '723 patent differentiating a remote server and a remote database. *Id.* at 46–47 (citing Ex. 1001, 4:55–59, 13:12–15, 15:31–34; Ex. 2001 ¶ 60). 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 46 (citing Ex. 2001 ¶ 59). 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 discloses a mobile device that analyses sensor data to form motion analysis data **or** a remote database, but not both.” PO Resp. 48 (emphasis in original). Petitioner disagrees that Mahajan fails to disclose the claimed “remote database.” Pet. Reply 14–15.

We determine that Petitioner’s evidence and argument are insufficient to demonstrate that Mahajan teaches a “remote database.” 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 1. *See* Pet. 27; Pet. Reply 14–15. Petitioner also does not adequately explain why a storage medium, such as a hard drive or a server, sufficiently equates with a “database.” *Id.* 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 ¶ 59 (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 ’723 patent also distinguishes between a “remote database” and a “remote server.” *See* Ex. 1001, 4:55–57 (“[t]he data uploaded to the Internet, i.e., a remote database or remote server or memory remote to the system”); *id.* at 15:31–34 (“the motion capture archived data may be stored on the mobile device or remotely on computer 105, or in database 172 accessed via network 170 and/or via Internet 171.”). 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 used in conjunction with database systems generally, Petitioner does not explain sufficiently why a skilled artisan would have modified Mahajan to include a “remote database.” *See* Pet. 27; 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.*

4. Conclusion

For the reasons set forth above, we are not persuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that claim 1 is unpatentable over Mahajan, Otto, and Lee. Petitioner’s analysis

for dependent claims 7, 21, 22, and 32 does not alter its analysis of the “remote database” limitation. *See* Pet. 34–38. Thus, for the same reasons as with respect to claim 1, we are not persuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that dependent claims 7, 21, 22, and 32 are unpatentable over Mahajan, Otto, and Lee.

*D. Dependent Claims 13, 14, 19, and 20 as Unpatentable
Over Mahajan, Otto, and Edis*

Dependent claims 13, 14, 19, and 20 depend from claim 1. Petitioner’s analysis for dependent claims 13, 14, 19, and 20 does not alter its analysis of the “remote database” limitation. *See* Pet. 53–58. Thus, for the same reasons as with respect to claim 1, we are not persuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that dependent claims 13, 14, 19, and 20 are unpatentable over Mahajan, Otto, and Edis.

III. CONCLUSION

Petitioner has failed to demonstrate by a preponderance of the evidence that claims 1, 7, 13, 14, 19–22, and 32 of the ’723 patent are unpatentable.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 7, 13, 14, 19–22, and 32 of the ’723 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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