

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

EMERSON ELECTRIC CO.

Petitioner,

v.

OLLNOVA TECHNOLOGIES LTD.

Patent Owner.

Case IPR2023-00624

U.S. Patent No. 8,224,282

PETITION FOR *INTER PARTES* REVIEW

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TABLE OF ABBREVIATIONS

Abbreviation	Description
'282	U.S. Patent No. 8,224,282
'282FH	File History of U.S. Patent No. 8,224,282
Ahmed-629	U.S. Patent Application Publication No. 2005/0268629
Ahmed-773	U.S. Patent Application Publication No. 2006/0071773
Carrier Litigation	<i>Ollnova Technologies Ltd. v. Carrier Global Corp.</i> , No. 9-22-cv-80388 (S.D. Fla., filed March 11, 2022)
Claims	Claims 1-5, 7-11, 13-17, 20-21 of U.S. Patent No. 8,224,282
Cummins	WIPO International Application Publication WO 2007/036922
ecobee Litigation	<i>Ollnova Technologies Ltd. v. ecobee, Inc.</i> , No. 2-22-cv-00072 (E.D. Tex., filed March 8, 2022)
Emerson Litigation	<i>Ollnova Technologies Ltd. v. Emerson Electric Co. et al.</i> , No. 4-22-cv-01387 (E.D. Mo.) (transferred to E.D. Mo. December 29, 2022 after originally being filed April 5, 2022 in W.D. Tex.)
Hitt	U.S. Patent Application Publication No. 2004/0100394
IPR	<i>Inter Partes</i> Review
Kates-089	U.S. Patent Application Publication No. 2006/0071089
Kates-236	U.S. Patent No. 7,455,236
Kriz	WIPO International Application Publication WO 1999/017477
McFarland	U.S. Patent Application Publication No. 2007/0242688
Neikirk	Declaration of Dr. Dean P. Neikirk
Petitioner	Emerson Electric Co.

Abbreviation	Description
PO	Patent Owner; Ollnova Technologies Ltd.
POSITA	Person of Ordinary Skill in the Art
PTAB	Patent Trial and Appeal Board
Simon	U.S. Patent Application Publication No. 2006/0186214
Stoner	U.S. Patent No. 8,276,829
Tice	U.S. Patent No. 6,392,536
USPTO	United States Patent and Trademark Office
Wang	U.S. Patent Application Publication No. 2007/0026107

LIST OF EXHIBITS

Exhibit ("Ex.")	Description
1001	U.S. Patent No. 8,224,282
1002	Declaration of Dr. Dean P. Neikirk
1003	File History of U.S. Patent No. 8,224,282
1004	<i>Reserved</i>
1005	U.S. Patent Application Publication No. 2004/0100394 to Hitt
1006- 1008	<i>Reserved</i>
1009	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Defendants' Opening Claim Construction Brief (October 27, 2022)
1010	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Plaintiff Ollnova Technologies Ltd.'s Responsive Claim Construction Brief (November 17, 2022)
1011	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Defendants' Reply Claim Construction Brief (December 1, 2022)
1012	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Plaintiff Ollnova Technologies Ltd.'s Sur-Reply Claim Construction Brief (December 15, 2022)
1013	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Joint Claim Construction Statement (December 20, 2022)
1014	<i>Ollnova Technologies Ltd. v. Carrier Global Corp.</i> , 9:22-cv-80388 (S.D. Fla.) Plaintiff Ollnova Technologies Ltd.'s Opening Claim Construction Brief (November 4, 2022)

Exhibit ("Ex.")	Description
1015	<i>Ollnova Technologies Ltd. v. Carrier Global Corp.</i> , 9:22-cv-80388 (S.D. Fla.) Carrier Global Corp.'s Responsive Claim Construction and Indefiniteness Brief (November 18, 2022)
1016	<i>Ollnova Technologies Ltd. v. Carrier Global Corp.</i> , 9:22-cv-80388 (S.D. Fla.) Plaintiff Ollnova Technologies Ltd.'s Reply Claim Construction Brief (November 30, 2022)
1017	<i>Ollnova Technologies Ltd. v. Carrier Global Corp.</i> , 9:22-cv-80388 (S.D. Fla.) Joint Claim Construction Chart (December 5, 2022)
1018- 1022	<i>Reserved</i>
1023	<i>Ollnova Technologies Ltd. v. ecobee Technologies, ULC</i> , 2:22-cv-00072 (E.D. Tex.) P.R. 4-3 Joint Claim Construction and Prehearing Statement (January 10, 2023)
1024	<i>Reserved</i>
1025	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Plaintiff's Preliminary Disclosure of Asserted Claims and Infringement Contentions (July 7, 2022)
1026	<i>Reserved</i>
1027	U.S. Patent Application Publication No. 2007/0242688 to McFarland
1028	U.S. Patent Application Publication No. 2006/0186214 to Simon
1029	U.S. Patent Application Publication No. 2006/0071089 to Kates
1030	U.S. Patent No. 8,276,829 to Stoner
1031	<i>Reserved</i>
1032	U.S. Patent No. 7,455,236 to Kates

Exhibit ("Ex.")	Description
1033	WIPO International Application Publication WO 1999/017477 to Kriz
1034	<i>Reserved</i>
1035	Lex Machina: Overview for E.D. Mo. (Jan. 29, 2023) (retrieved from https://law.lexmachina.com/court/moed)
1036	U.S. Patent Application Publication No. 2005/0268629 to Ahmed
1037	U.S. Patent Application Publication No. 2006/0071773 to Ahmed
1038	WIPO International Application Publication WO 2007/036922 to Cummins
1039	U.S. Patent Application Publication No. 2007/0026107 to Wang
1040	U.S. Patent No. 6,392,536 to Tice
1041- 1042	<i>Reserved</i>
1043	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 6:22-cv-00358-ADA (W.D. Tex.) Declaration of Erik De La Iglesia in Support of Plaintiff Ollnova Technologies Ltd.'s Responsive Claim Construction Brief
1044	<i>Ollnova Technologies Ltd. v. ecobee Technologies, ULC</i> , 2:22-cv-00072 (E.D. Tex.) Ollnova Technologies Ltd.'s Opening Claim Construction Brief (January 31, 2023)
1045	U.S. Provisional Patent Application No. 61/037,739
1046	<i>Reserved</i>
1047	Declaration of Jonathan Bradford

CHALLENGED CLAIMS

Claim	Text
[1.pre]	An automation component configured for wireless communication within a building automation system, the automation component comprising:
[1.a]	a multi-sensor package configured to detect a plurality of variables and generate sensor data for each detected variable;
[1.b]	a wireless communications component;
[1.c]	a processor in communication with the wireless communications component and the sensor package;
[1.d]	a memory in communication with the processor, the memory configured to store sensor data provided by the sensor package and computer readable instructions which are executable by the processor;
[1.e]	wherein the computer readable instructions are programmed to: receive sensor control information related to sensor data in control at a second automation component in communication with the building automation system; and
[1.f]	communicate a portion of the stored sensor data corresponding to the received sensor control information to the second automation component.
[2]	The automation component of claim 1, wherein the sensor package includes one or more sensors selected from the group consisting of a temperature sensor, a humidity sensor; a carbon monoxide sensor; a carbon dioxide sensor and a volatile organic compound sensor.
[3]	The automation component of claim 1, wherein the computer readable instructions are further programmed to: identify sensor values within the sensor data that exceed a corresponding change-of-value threshold.
[4]	The automation component of claim 1, wherein the computer readable instructions are further programmed to: set an

Claim	Text
	identification flag for each identified sensor value.
[5]	The automation component of claim 1, wherein the computer readable instructions are further programmed to: communicate all of the stored sensor data corresponding to the received sensor control information to the second automation component.
[7.pre]	An automation component configured for wireless communication within a building automation system, the automation component comprising:
[7.a]	a multi-sensor package configured to generate a plurality of sensor data for each sensor within the multi-sensor package;
[7.b]	a wireless communications component;
[7.c]	a processor in communication with the wireless communications component and the sensor package;
[7.d]	a memory in communication with the processor, the memory configured to store sensor data provided by the sensor package and computer readable instructions which are executable by the processor;
[7.e]	wherein the computer readable instructions are programmed to: receive status data related to sensor data in control at a second automation component in communication with the building automation system;
[7.f]	determine the sensor data in control at the second automation component based on the received status data; and
[7.g]	communicate the stored sensor data corresponding the sensor data in control to the second automation component.
[8]	The automation component of claim 7, wherein the sensor package includes one or more sensors selected from the group consisting of a temperature sensor, a humidity sensor; a carbon monoxide sensor; a carbon dioxide sensor and a volatile organic compound sensor.

Claim	Text
[9]	The automation component of claim 7, wherein the computer readable instructions are further programmed to: identify sensor values within the sensor data that exceed a corresponding change-of-value threshold.
[10]	The automation component of claim 7, wherein the computer readable instructions are further programmed to: set an identification flag for each identified sensor value.
[11]	The automation component of claim 7, wherein the computer readable instructions are further programmed to: communicate all of the stored sensor data corresponding to the received status information to the second automation component.
[13.pre]	An automation component configured for wireless communication within a building automation system, the automation component comprising:
[13.a]	a multi-sensor package configured to detect a plurality of variables and generate sensor data for each detected variable;
[13.b]	a wireless communications component;
[13.c]	a processor in communication with the wireless communications component and the sensor package;
[13.d]	a memory in communication with the processor, the memory configured to store sensor data provided by the sensor package and computer readable instructions which are executable by the processor;
[13.e]	wherein the computer readable instructions are programmed to: receive a wake-up command from a second automation component;
[13.f]	communicate stored sensor data related to the sensor data in control at a second automation component; and
[13.g]	receive a power-down command from the second automation component.

Claim	Text
[14]	The automation component of claim 13, wherein the sensor package includes one or more sensors selected from the group consisting of a temperature sensor, a humidity sensor; a carbon monoxide sensor; a carbon dioxide sensor and a volatile organic compound sensor.
[15]	The automation component of claim 13, wherein the computer readable instructions are further programmed to: identify sensor values within the sensor data that exceed a corresponding change-of-value threshold.
[16]	The automation component of claim 13, wherein the computer readable instructions are further programmed to: set an identification flag for each identified sensor value.
[20.pre]	A method for providing power saving wireless communication within a building automation system, the method comprising:
[20.a]	scanning sensor data associated with each of a plurality of sensors contained within a multi-sensor package of a first automation component;
[20.b]	identifying changed sensor values within the sensor data;
[20.c]	receiving a first communication from a second automation component in communication with the first automation component and the building automation system; and
[20.d]	communicating a portion of the identified changed sensor values associated with the first communication received from the second automation component.
[21]	The method of claim 20, wherein identifying changed sensor values includes identifying changed sensor values as a function of a change-of-value threshold.

Pursuant to §§311-319 and §42.1, Emerson Electric Co. (“Petitioner”) petitions for *inter partes* review (“IPR”) of claims 1-5, 7-11, 13-16, and 20-21 (“Claims”) of U.S. Patent 8,224,282 (“’282”) (Ex. 1001), assigned to Ollnova Technologies Ltd. (“PO”).¹ There is a reasonable likelihood—and it is highly likely—that at least one Claim is unpatentable as explained herein. Petitioner requests review of the Claims, and judgment finding them unpatentable under §§102/103.

I. INTRODUCTION

The ’282 is directed to systems for wirelessly reporting sensed conditions. ’282, Abstract, 1:15-19, 2:16-28. The Claims recite automation components and methods for communicating sensor data corresponding to received control information, sensor data in control at another component, or a received communication. Neikirk, ¶37.

During prosecution, the ’282 was allowed after Applicant argued that the prior art disclosed individual sensors and not a “combin[ed]” “multi-sensor

¹ Section cites are to 35 U.S.C. (pre-AIA) or 37 C.F.R. as context indicates. All emphasis/annotations added unless noted. Figure annotations herein generally quote the Claims for reference. All citations herein are exemplary and not meant to be limiting.

package.” Yet such multi-sensor packages were well-known—as shown by the art cited herein. For example, **McFarland** (Ex. 1027) discloses a temperature/humidity “combination[]” “sensor,” and **Ahmed-629** (Ex. 1036) discloses a single-substrate “MEMS sensor suite.” *McFarland*, [0043]; *Ahmed-629*, [0048]-[0049]. *Neikirk*, ¶¶38-40.

The Claims are disclosed by **McFarland** alone, and obvious over combinations of **McFarland**, **Kates-089** (Ex. 1032) (providing wake-up/power-down command teachings), **Stoner** (Ex. 1030) (providing sensor control information teachings), and/or **Ahmed-629**. *Neikirk*, ¶41.

Petitioner requests that the Board institute trial and find the Claims unpatentable.

II. MANDATORY NOTICES (§42.8)

A. Real Party-In-Interest

Pursuant to §42.8(b)(1), Petitioner identifies Emerson Electric Co. and Verdant Environmental Technologies Inc. as real parties-in-interest.

No other party had access to or control over the present Petition, and no other party funded or participated in preparation of the present Petition.

B. Related Matters

The '282 is currently the subject of the following district court litigations: *Ollnova Technologies Ltd. v. ecobee, Inc.*, No. 2-22-cv-00072 (E.D.

Tex., filed 3/8/2022) (“ecobee Litigation”), *Ollnova Technologies Ltd. v. Carrier Global Corp.*, No. 9-22-cv-80388 (S.D. Fla., filed 3/11/2022) (“Carrier Litigation”), and *Ollnova Technologies Ltd. v. Emerson Electric Co. et al.*, No. 4-22-cv-01387 (E.D. Mo.) (transferred to E.D. Mo. 12/29/2022 after originally being filed 4/5/2022 in W.D. Tex.) (“Emerson Litigation”). None of the parties in the ecobee Litigation or the Carrier Litigation had any involvement in, funded, or participated in the preparation of the present Petition.

Petitioner is filing an IPR petition against another unrelated patent asserted in the Emerson Litigation: U.S. 7,746,887 (IPR2023-00626).

C. Lead and Back-Up Counsel and Service Information

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Petitioner consents to electronic service of documents to the email addresses of the counsel identified above.

III. PAYMENT OF FEES

The undersigned authorizes the Office to charge the fee required by §42.15(a) and any additional fees that might be due to Deposit Account No. 18-1945, under Order No. 001264-0145-651.

IV. REQUIREMENTS FOR INTER PARTES REVIEW

A. Grounds for Standing

Pursuant to §42.104(a), Petitioner certifies the '282 is available for IPR. Petitioner is not barred or estopped from requesting IPR challenging the claims of the '282 on the grounds identified herein.

B. Identification of Challenge

Pursuant to §42.104(b), Petitioner requests IPR of the Claims, and that the Board cancel the same as unpatentable.

1. The Specific Art on Which the Challenge Is Based

Petitioner relies upon the following prior art:

Name	Ex.	Patent / Publication	Priority Date	Issued / Published	Prior Art Under at Least §102 ²
McFarland	1027	U.S. 2007/0242688	4/12/2006	10/18/2007	(a)/(b)
Kates-089	1029	U.S. 2006/0071089	10/6/2004	4/6/2006	(b)/(e)
Stoner	1030	U.S. 8,276,829	11/30/2007	10/2/2012	(e)
Ahmed-629	1036	U.S. 2005/0268629	3/25/2004	12/8/2005	(b)/(e)

While **McFarland** and the '282 are commonly assigned to PO, **McFarland** was published 10/18/2007 and shares no common inventors with the '282. Accordingly, **McFarland** is prior art under §§102(a)/(b).

C. Statutory Grounds on Which the Challenge Is Based

Petitioner respectfully requests cancellation of the Claims on the following grounds:

² The Claims are not entitled to the date of provisional application 61/037,739, which describes “multiple sensors,” but not a multi-sensor package. *See* Ex. 1045, 2-3; §IX.B; Neikirk, ¶45.

Grounds		Claims	Prior Art
1	§102/§103	1-5, 7-11, 20-21	McFarland
2	§103	13-16	McFarland in view of Kates-089
3		1-5, 7-11, 20-21	McFarland in view of Stoner
4		13-16	McFarland in view of Stoner and Kates-089
5		1-5, 7-11, 20-21	McFarland in view of Ahmed-629
6		13-16	McFarland in view of Kates-089 and Ahmed-629
7		1-5, 7-11, 20-21	McFarland in view of Stoner and Ahmed-629
8		13-16	McFarland in view of Stoner, Kates-089, and Ahmed-629
9		20-21	Kates-089 in view of Ahmed-629

D. How the Claims Are Unpatentable

Petitioner provides the information required under §§42.104(b)(4)-(5) in §X.

V. '282 PATENT

The Claims recite components or methods for wireless communication in a building automation system that communicates sensor data corresponding to received information. '282, 2:23-28. Fig. 2 shows an embodiment of such a component:

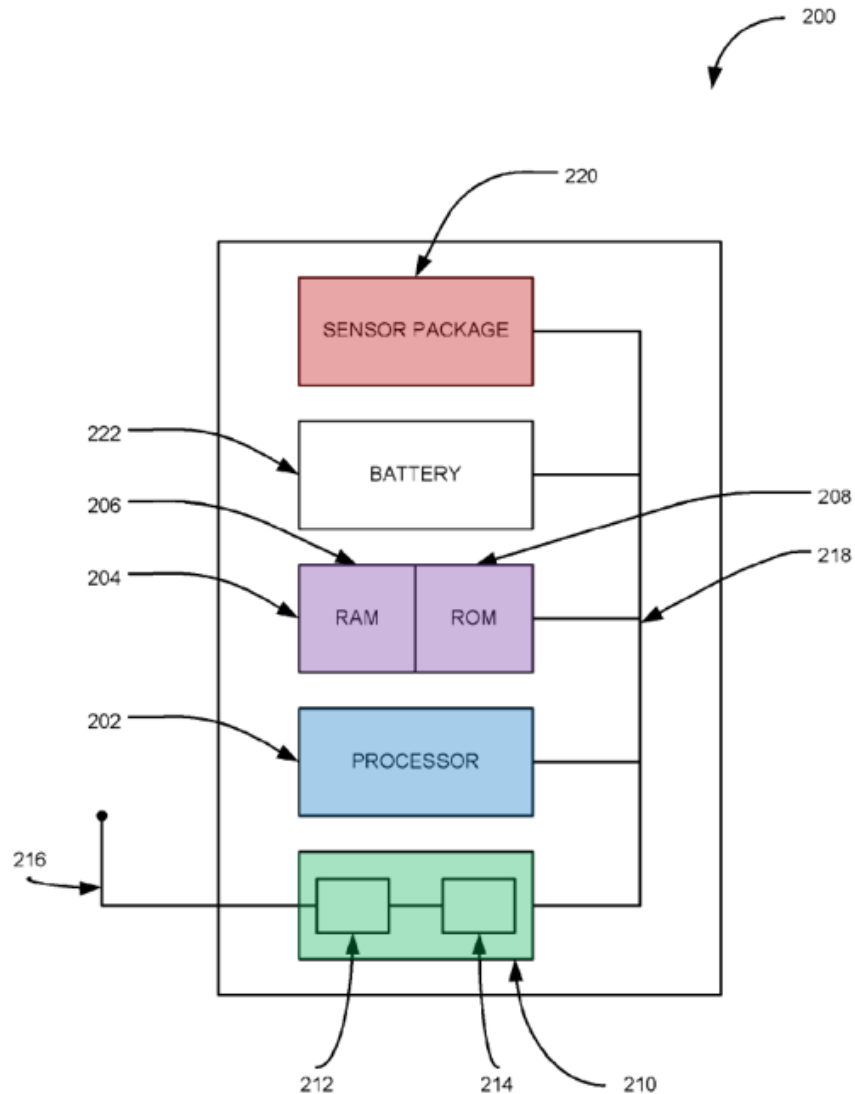


FIG. 2

'282, 3:33-35, 5:52-57, Fig. 2. The component of Fig. 2 comprises a “**processor**,” “**memory**,” “**communications component**,” and “**sensor package**” that senses multiple variables—e.g., temperature and humidity. *Id.*; '282, 6:22-28. The **memory** stores **processor**-executed programs and **sensor package** readings. '282, 5:57-62, 6:10-14, 6:28-30; Neikirk, ¶42.

The component receives, *e.g.*, control information relating to or identifying “sensor values and routines that are controlling and driving” a “field panel” (or other automation component) (’282, 9:9-16), or status information about the field panel’s control routines (’282, 9:55-60). The component sends sensor data corresponding to data being analyzed by and/or controlling the field panel. ’282, 9:23-26, 9:64-67. The component may also communicate sensor data at regular intervals. ’282, 9:27-31, 10:1-5. Neikirk, ¶43.

VI. ’282 PROSECUTION HISTORY

Application 12/406,799 matured into the ’282 (filed 3/18/2009). Ex. 1003 (“’282FH”), 1-51. The examiner twice rejected the claims as anticipated by Petite (U.S. 6,437,692) (’282FH, 72-76, 95-100). In response to the first rejection, Applicant amended the independent claims to recite that the multi-sensor package detects/generates sensor data for multiple variables and argued that Petite discloses only a single sensor in response. ’282FH, 82-91. In response to the second rejection, Applicant further argued that Petite does not disclose or suggest that its individual sensors “could be combined to create a multi-sensor package.” ’282FH, 109-113. The Examiner allowed the Claims. ’282FH, 119-123. Neikirk, ¶44.

VII. THE BOARD SHOULD NOT EXERCISE ITS DISCRETION TO DENY INSTITUTION

A. §325(d)

Considering the two-part framework in *Advanced Bionics, LLC v. Med-El Elektromedizinische Gerate GMBH*, IPR2019-01469, Pap. 6, *8-9, the Board should not exercise §325(d) discretion.

This Petition’s grounds are not the same or substantially the same as the art or arguments raised during prosecution. The Examiner did not consider **McFarland, Kates-089, Stoner, Ahmed-629**, art with substantially the same disclosures (or the same or substantially the same arguments) as those herein. The Examiner considered Petite’s individual sensors (*see* §VI), but not the multi-sensor package teachings cited in this Petition. *See* §X.

Even if the art and arguments were substantially the same, the Examiner erred in a manner material to the patentability of the Claims. Where the “Examiner did not expressly consider” **McFarland, Kates-089, Stoner, and Ahmed-629**, it is difficult, if not impossible, to explain “why the Examiner allowed the claims” or “how the Examiner might have considered the arguments presented in the Petition.” *Bowtech, Inc. v. MCP IP, LLC*, IPR2019-00379, Pap. 14, *20 (not exercising §325(d) discretion). If the Examiner had considered substantially the same art or arguments, it was error to allow the claims because,

e.g., the Examiner failed to reject the Claims over references or combinations of references teaching a multi-sensor package.

B. §314(a)

Discretionary denial based on the six factors in *Apple Inc. v. Fintiv, Inc.* IPR2020-00019, Pap. 11, is not warranted.

1: Petitioner intends to seek a stay of the Emerson Litigation pending the outcome of this IPR and No. IPR2023-00626.

2: E.D. Mo.’s median time to trial is approximately 665 days (*see* Ex. 1035, 3)—putting the approximate trial date four months after a final written decision is expected in this IPR.

3: To date, the court has not issued any substantive orders regarding the ’282.

4: After the final written decision, the same grounds and arguments could not be presented in the litigation.

5: The litigation and PTAB parties are the same.

6: Petitioner is highly likely to prevail with respect to the Claims as shown herein. *See* §X.

VIII. LEVEL OF ORDINARY SKILL

A person of ordinary skill in the art (“POSITA”), at the time the ’282 or its parent applications were filed, would have had a minimum of a bachelor’s degree

in electrical engineering, or a related field, along with at least two years of professional experience in sensors, controls, and/or wireless communications. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education. Neikirk, ¶¶45-49.

IX. CLAIM CONSTRUCTION

Claim terms in IPR are construed using *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). Only terms necessary to resolve the controversy need to be construed. Because the prior art asserted herein discloses embodiments within the indisputable scope of the Claims, the Board need not construe the outer bounds of the Claims. All claim terms should be construed according to their plain and ordinary meaning as would have been understood by a POSITA in view of the specification. Neikirk, ¶50.³

³ While third parties have proposed different constructions for certain terms (*e.g.*, Ex. 1015, 12-21; Ex. 1017, 2-5; Ex. 1023, 8-16), unless otherwise indicated, Petitioner maintains that such terms should be given their plain meaning and are not means-plus-function limitations. PO has taken the same position. See Ex. 1014, 16-19, 24-28; Ex. 1016, 11-13, 16-19, 22-25; Ex. 1017, 2-5; Ex. 1044, 10-

A. Preambles ([1.pre], [7.pre], [13.pre], [20.pre])

Regardless of whether the preambles are limiting, the prior art discloses the preambles. *See* §X; Neikirk, ¶51.

B. “a multi-sensor package” ([1.a], [7.a], [13.a], [20.a])

Petitioner agrees with PO that “a multi-sensor package” means “a single packaged sensor device, not a group of individual sensors.” Ex. 1013, 1; *see also* Neikirk, ¶52.

C. “identification flag for each identified sensor value” ([4], [10], [16])

Regardless of whether the antecedent for this element refers to the sensor value in, *e.g.*, [1.a]/[7.a]/[13.a], [1.d]/[7.d]/[13.d], [1.e]/[7.e]-[7.f]/[13.f], [1.f]/[7.g]/[13.f], or [3]/[9]/[15] (*see* Ex. 1009, 10-12; Ex. 1010, 8-10; Ex. 1011, 10-13; Ex. 1012, 7-9), the prior art discloses this element under any interpretation because it discloses setting identification flags each time sensor data is read and stored, and also setting identification flags for sensor values (which are stored in memory) exceeding limits. *See* §X; Neikirk, ¶53.

21.. The prior art discloses the Claims under any reasonable interpretation. *See* §X; Neikirk, ¶¶55-56.

D. “power-down command” ([13.g])

Petitioner agrees with PO that this term encompasses a “command that turns off a device or returns it to a low-power state.” Ex. 1009, 12-13; Ex. 1010, 10-12; Ex. 1011, 14; Ex. 1012, 9-11. The Board need not determine this term’s outer bounds because the prior art discloses this limitation under any reasonable interpretation. See §X; Neikirk, ¶54.

X. GROUNDS OF UNPATENTABILITY

As explained below, the Claims are unpatentable as anticipated or obvious. This Petition is supported by the Declaration of Dr. Neikirk, which describes the prior art’s scope and content at the time of the ’282. Neikirk, ¶¶1-36.

A. Ground 1: McFarland (Claims 1-5, 7-11, 20-21) (§§102/103)

1. McFarland

McFarland discloses a “wireless automation system” that uses “dynamic value reporting” to communicate data “between devices related to changes in a value of a monitored condition and/or measured parameter”—*e.g.*, temperature for HVAC. McFarland, [0002], [0016]. Fig. 2 shows an embodiment of such a system’s wireless automation device. McFarland, [0036]-[0037].

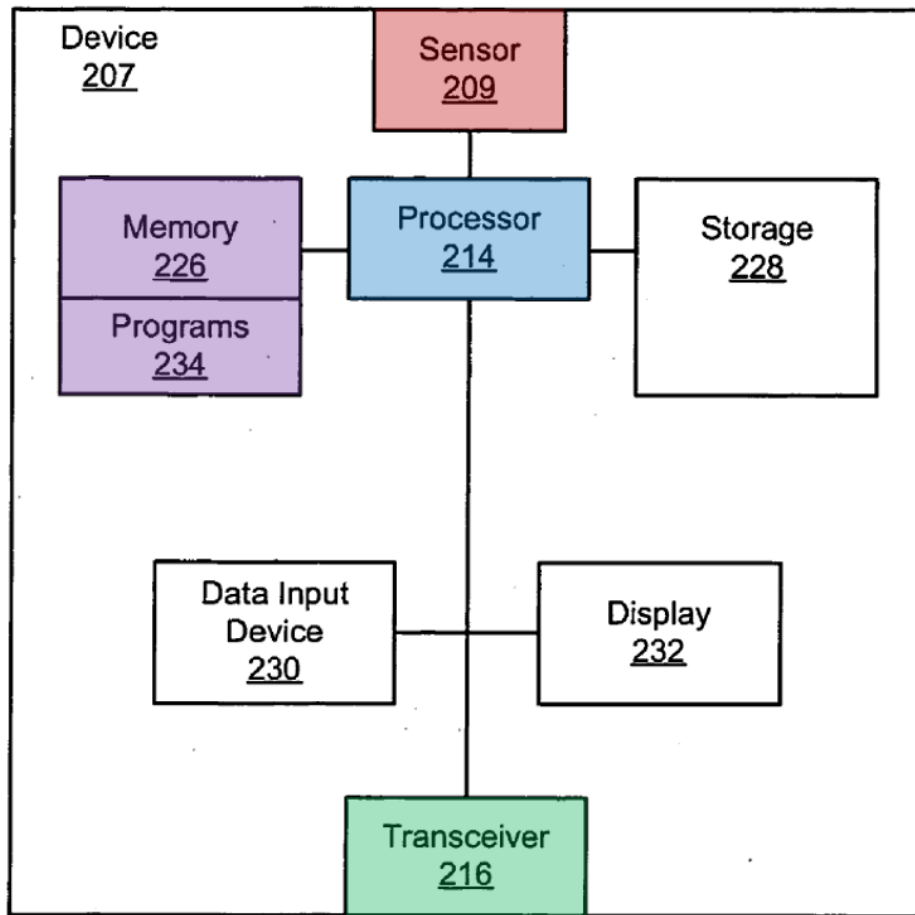


Figure 2

This device comprises a “**transceiver**,” “**processor**,” “**memory**,” and a “**sensor**” that is a “combination[]” of temperature and humidity sensors. McFarland, Fig. 2, [0038]-[0044]. The **memory** stores **sensor** readings and **processor**-executed programs. McFarland, [0038], [0040], [0047]. Neikirk, ¶62.

The **processor** uses **sensor** information for control. McFarland, [0039]-[0040], [0043]-[0044]. For example, when the **processor** determines that a change in a sensed condition exceeds a range, it sets a flag identifying that a change was

detected, and controls the **transceiver** to communicate, over a “network,” information including values or “indicators” and timing data. McFarland, [0049]-[0050], [0052]-[0053]. Timing data is stored with the sensor data, and flags the times when sensor data was identified. McFarland, [0047], [0050]. Neikirk, ¶63.

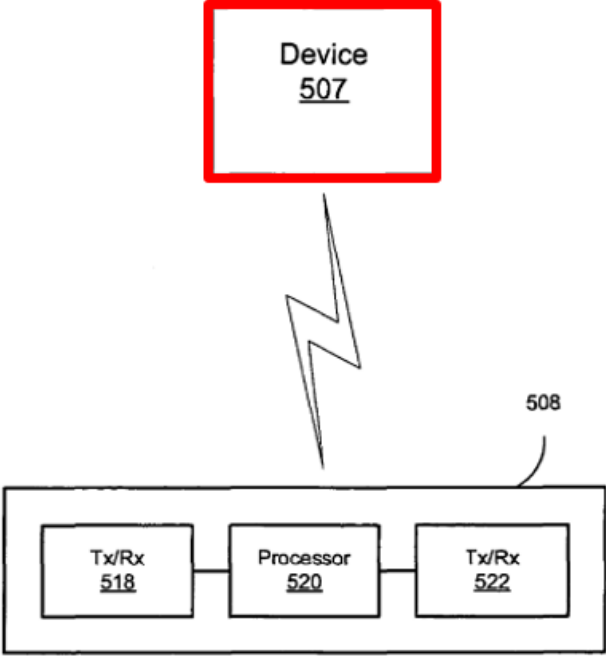
The wireless automation device also receives and responds to wirelessly-received control instructions from, *e.g.*, a controller instructing the device to, *e.g.*, sense conditions, synchronize timing information, change sensor threshold limits, and report information. McFarland, [0024]-[0026], [0060]-[0062]. A controller receiving information from the wireless automation device responds by, *e.g.*, processing the information based on control algorithms. McFarland, [0061]-[0062]. Neikirk, ¶64.

McFarland’s automation device 507 implements “dynamic value reporting as described ... with respect to FIGS. 1-4.” McFarland, [0060]. In Fig. 1, “sensor 109a” “report[s] sensor information” and other information “using dynamic value reporting.” McFarland, [0019], [0023], [0025]-[0026]. Similarly, the “automation device [or sensor] 207” in Fig. 2 “reports information” “using dynamic value reporting.” McFarland, [0036]-[0037]. This not only renders obvious but affirmatively discloses that **McFarland’s** teachings of automation and sensor devices monitoring and reporting sensor information are applicable to each of devices 207 and 507 and sensor 109a. Neikirk, ¶65. Similarly, because controllers

108a-108e and 508 each execute control processes using such monitored and reported information, **McFarland** not only renders obvious but affirmatively discloses implementing its teachings of such “control” functions in each of these devices. *See* McFarland, [0002]-[0004], [0008], [0011], [0015], [0018], [0021], [0023]-[0027], [0033]-[0034], [0060]-[0062]; Neikirk, ¶65. To the extent such disclosures may be considered distinct teachings/embodiments (they are not), it would have been obvious to combine these teachings, which **McFarland** explains are either directly related or the same—and a POSITA would have had a reasonable expectation of success combining the teachings of such embodiments as they are taught as part of the same system. McFarland, [0060] (“[D]evice 507 is configured ... as described ... with respect to FIGS. 1-4.”); Neikirk, ¶65; *see Bos. Sci. Scimed, Inc. v. Cordis Corp.*, 554 F.3d 982, 991 (Fed. Cir. 2009) (combining adjacent embodiments in prior art “does not require a leap of inventiveness”).

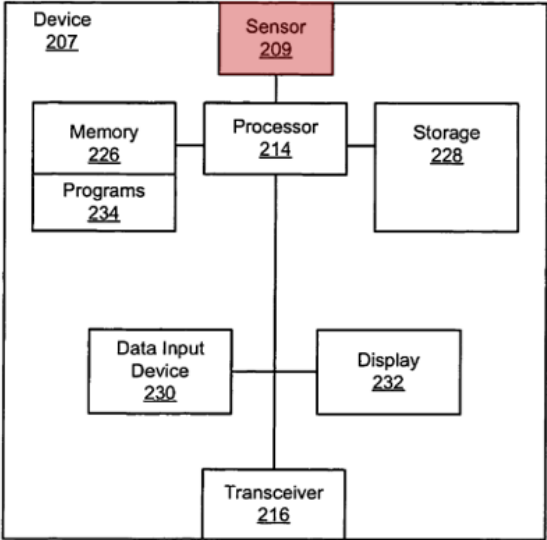
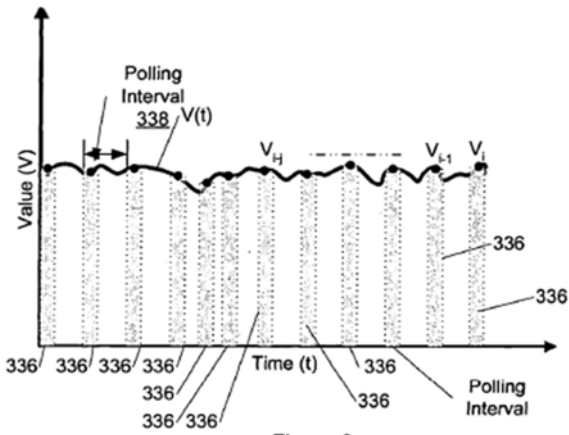
2. Claim Chart

'282	McFarland
[1.pre] An automation component configured for wireless communication within a building automation system, the	McFarland discloses an automation component (e.g., a “wireless automation device”) configured for wireless communication (e.g., configured to “wirelessly report[]” events) within a building automation system (e.g., within a “building automation system”). <u>E.g., McFarland:</u> McFarland’s “wireless automation device[]” performs two-way wireless communication with controllers within a “building automation system” without human interaction.

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automation component comprising:	McFarland, [0024], [0036], [0060].⁴ Neikirk, ¶¶66-68. Fig. 5  Figure 5 [0024] (“The <u>controllers 108a-108e communicate with one or more sensors 109a using two-way wireless communication protocol....</u>”) [0036] (“FIG. 2 illustrate a block diagram of <u>an automation device 207 for a wireless automation system using dynamic value reporting.</u>”) [0060] (“FIG. 5 illustrates an exemplary <u>controller 508 of a building automation system in communication with a device 507</u>. The <u>device 507 is configured for dynamic value reporting</u> as described above with respect to

⁴ **McFarland** thus discloses this element under third parties’ proposed constructions as well. Neikirk, ¶¶69.

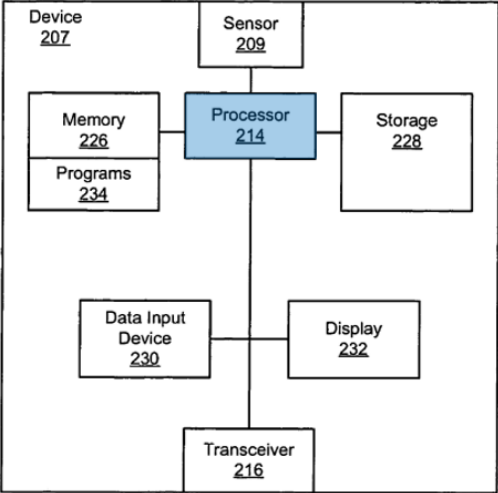
'282	McFarland
	FIGS. 1-4. ... <u>The controller [508] may transmit data and information addressed to a specific device 507...</u> The <u>information may include control instructions, communications settings or other information</u> transmitted from another device 507 or controller.”) • [0061] (“The <u>controller 508 receives information communicated from the device 507</u>. The <u>controller 508 processes the information according to a control algorithm</u> for the system and for the device 507. <u>The controller 508 may be configured to communicate instructions to the device 507</u>. For example..., <u>the controller 508 may instruct or reprogram the device 507 to a smaller difference limit D</u>. Similarly, the controller 508 may instruct the device to <u>increase the difference limit D...</u>”) • [0062] (“The controller 508 may also <u>communicate a report instruction to the device 507</u>. <u>In response to a report instruction, the device 507 may wake up from a sleep mode, and sense and report a current indicator V_i or other requested information</u>. ... The controller 508 may also be configured or programmed to communicate information with other devices in response to the information received from device 507.”) • See also Abstract, [0006], [0008], [0016], [0019]-[0021], [0036]-[0037].
[1.a] a multi-sensor package configured to detect a plurality of variables and generate sensor data for each detected variable;	McFarland discloses a multi-sensor package configured to detect a plurality of variables (e.g., a “combination[.]” “sensor” that “sense[s] conditions” including “temperature” and “humidity”) and generate sensor data for each detected variable (e.g., “generates information or data related to the sensed or monitored condition”). <u>E.g., McFarland:</u> McFarland’s wireless automation device includes “sensor 209”—a “combination[.]” micro-electro-mechanical sensor that detects multiple variables (e.g., temperature and

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	humidity)—thus, disclosing a multi-sensor package. McFarland, [0043]; <i>see also</i> Ex. 1003, 110 (distinguishing Petite for lacking these teachings); Neikirk, ¶¶70-73. The sensor generates and outputs sensor data for each measured variable as “a measured value” or “indicator.” McFarland, [0039], [0045], [0047]. Neikirk, ¶74. Fig. 2  Figure 2 is a block diagram of a device 207. The device 207 includes a processor 214. The processor 214 is connected to a sensor 209, a memory 226 (which contains programs 234), a storage 228, a data input device 230, a display 232, and a transceiver 216. Fig. 3  Figure 3 is a graph showing the value $V(t)$ over time t. The vertical axis is labeled "Value (V)" and the horizontal axis is labeled "Time (t)". The graph shows a fluctuating signal $V(t)$ with several vertical dashed lines indicating polling intervals 336. The signal $V(t)$ is labeled with V_H, V_{i-1}, and V_i. The polling intervals 336 are labeled with "Polling Interval" and "336". [0038] (“The <u>device 207</u> includes a <u>processor 214</u>, a

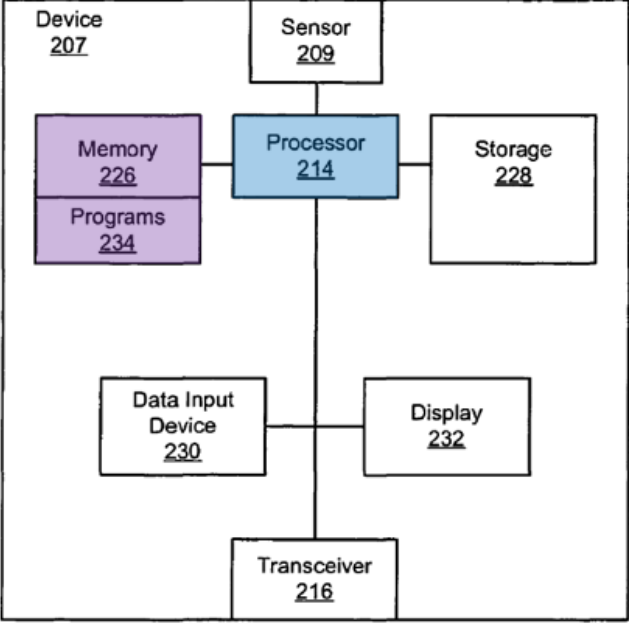
'282	McFarland
	<u>transceiver 216</u>, and a <u>sensor 209</u>. Additional, different or fewer components may be provided, such as providing <u>a plurality of different or the same types of sensors</u>. For example, the device may also have a <u>memory 226</u>, a storage device 228, a data input device 230, and a data output 232. A <u>program 234 resides in the memory 226 and includes ... executable code or coded instructions.... The program 234 may be implemented using any known or proprietary software platform ... including ... C, C+, C++ ... and like software systems.</u>") • [0039] ("<u>The processor 214 implements a control process for the device 207. The control process may be implemented based on a signal that is read from and/or provided by the sensor 209, such as a measured value of a parameter, an indicator of a sensed condition and/or status of an event.</u> The processor 214 may be may be one or more devices including a general processor, digital signal processor (DSP), control processor unit (CPU).... <u>The processor 214 has a processing power or capability and associated memory corresponding to the needs of one or more of a plurality of different types of sensors 209 and transceiver 216. The processor 214 implements a control process algorithm specific to the sensor 209. Other control processes may be stored but unused due to a specific configuration.</u>") • [0040] ("The processor 214 executes one or more sequences of instructions of the program 234 to process data. Data and/or instructions may be preprogrammed to the device 207 and or provide to the device 207 using the data input device 230. <u>Data and/or instructions may also be received via the transceiver 216. The processor 214 interfaces data input device 230 and/or the transceiver 216 to receive data and instructions.</u> The processor 214 may also interface the storage device 228 for storage and retrieval of data. <u>Data processed by the</u>

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	<u>processor 214 may be stored in and retrieved from in storage device 228, communicated via the transceiver 216, and/or presented via data output device 232. The data output device 232 may be a display, monitor, a printer, a communications port, an array of lights, combinations thereof and the like. For example, the processor may control a light array of the output device 232 to indicate an operation status, or read data status, a transmit status and the like.”)</u> • [0043] (<u>“The sensor 209 may include a device or a collection of devices that sense conditions, parameters and/or events such as an environmental condition in a building. The sensor 209 generates information or data related to the sensed or monitored condition. The information may be provided an output as one or more signals that may be read by the processor 214.... The may be provided as an indicator of the sensed condition, parameter or event. In an example, the sensor 209 is configured as any of a temperature sensor, humidity sensor, fire sensor ... combinations thereof, or other now known or later developed sensors. The sensor 209 may be a micro-electro-mechanical sensors (“MEMS”) ... for sensing any condition or parameter.”)</u> • [0045] (<u>“FIG. 3 illustrates a chart 300 of signal V(t) generated by the sensor 209 representing an indicator of a sensed condition versus time (t).”)</u> • [0047] (<u>“A signal V(t) representing the sensed condition may be generated. The signal V(t) may be a continuous or discrete signal representing a current value for the sensed condition, or the status of the condition, during the current interval 336. During a polling period 336, the processor 214 reads the signal V(t) from the sensor 209, and determines value, or most-current indicator V_i, for the current sensed condition. For example, the processor 214 may poll or sample the signal from the sensor 209 to read the most current indicator of the</u>

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	sensed condition.... <u>The indicator may be stored in memory 226. The memory may also store prior readings V_{i-j}, or indicators read during prior periods 336. Associated timing data or an interval sequence may be stored with the indicator V_i to identify a point in time or interval in which the indicator was read.</u>") • See also [0002]-[0003], [0008], [0016], [0021], [0023]-[0024], [0046], Figs. 1-2.
[1.b] a wireless communications component;	McFarland discloses a wireless communications component (e.g., “wireless transceiver”). <u>E.g., McFarland:</u> McFarland’s “wireless transceiver” is a wireless communications component. Neikirk, ¶¶75-77. • Fig. 2 <pre> graph TD subgraph Device_207 [Device 207] Sensor_209[Sensor 209] --- Processor_214[Processor 214] Memory_226[Memory 226] --- Processor_214 Programs_234[Programs 234] --- Processor_214 Storage_228[Storage 228] --- Processor_214 Processor_214 --- Data_Input_Device_230[Data Input Device 230] Processor_214 --- Display_232[Display 232] Processor_214 --- Transceiver_216[Transceiver 216] end style Transceiver_216 fill:#90EE90 </pre> Figure 2 • [0008] (“wireless automation device includes <u>a wireless transceiver ... that wirelessly communicates packets of information over a wireless network.</u>”) • See also [0038]-[0042], [0046], [0052]-[0054], [0060], Fig. 5.

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[1.c] a processor in communication with the wireless communications component and the sensor package;	McFarland discloses a processor in communication with the wireless communications component and the sensor package (e.g., “processor” receives “signal” from the “sensor” and “interfaces” with the “transceiver”). <u>E.g., McFarland:</u> See [1.pre]-[1.b]. McFarland’s wireless automation device also includes “processor 214” that “interfaces” with and “controls” the “transceiver,” and “read[s]” sensor 209, which is “responsive to” “logic executed by the processor 214.” Neikirk, ¶¶78-80. • Fig. 2  Figure 2 • [0038]-[0040] (see [1.a]) • [0043] (see [1.a]) • [0044] (“The <u>sensor 209 is responsive to the processor 214 and/or logic executed by the processor 214.</u>”) • [0046] (“<u>[T]he processor 214 polls the sensor 209 during a recurring polling period 336.... Each period 336 recurs at a variable frequency or interval 338.</u>”) • [0052] (“<u>The processor 214 controls the transceiver 216</u>”)

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	<i>to selectively communicate information during a period of a transmission interval.</i> FIG. 4 illustrates a transmission interval for a device configured for dynamic value reporting. For example, a processor 214 may control or trigger the transceiver 214 to communicate information during a transmission period 436. The transceiver may communicate the information during the transmission period in response to a triggering event such a detecting whether a flag. <u>The flag may be set in response to detecting or identifying a change in the sensed condition beyond a limit, outside a range, or a reading of an indicator above an upper limit or below a lower limit, or in response to an external stimulus, such as a control signal received by the sensor.</u> The triggering event additionally or alternatively may be ... a determination that ... the current value Vi exceeds a limit such as Vmax and/or Vmin, combinations thereof, and the like.”) • See also [0037], [0047]-[0048], [0060]-[0061], Figs. 4-5.
[1.d] a memory in communication with the processor, the memory configured to store sensor data provided by the sensor package and computer readable instructions which are executable by the processor;	McFarland discloses a memory in communication with the processor, the memory configured to store sensor data provided by the sensor package and computer readable instructions which are executable by the processor (e.g., “memory,” in communication with the “processor,” is configured to store “readings” or “indicators” from the “sensor,” and a “program” executable by the “processor”). <u>E.g., McFarland:</u> See [1.pre]-[1.a], [1.c]. McFarland’s wireless automation device also includes “memory 226,” which communicates with the “processor” and stores current and prior readings of “indicator[s]” generated by sensor 209 and “programs” executed by processor 214. Neikirk, ¶¶81-83.

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	• Fig. 2  Figure 2 • [0038]-[0040], [0047] (see [1.a]) • <i>See also</i> [0017], [0037], [0050], [0055].
[1.e] wherein the computer readable instructions are programmed to: receive sensor control information related to sensor data in control at a second automation component in communication with the building	McFarland discloses that the computer readable instructions are programmed (e.g., the “program’s” instructions are programmed “using” “software” such as “C”) to receive sensor control information (e.g., “wireless automation device” receives “control instructions” including a “report instruction” for a sensor to “sense and report” an “indicator”) related to sensor data in control at a second automation component in communication with the building automation system (e.g., the “control instructions” are related to the data from the “sensor” that a separate “controller” uses to “control[] a subsystem” (e.g., through an actuator) “based on sensed conditions and desired set point conditions” within the “building automation system”). <u>E.g., McFarland:</u>

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automation system; and	See [1.pre]-[1.c]. McFarland also discloses “controller 508” (represented, in Fig. 1, by controller 108a), which is a second automation component in communication with the “wireless automation device.” McFarland, [0025]-[0026], [0060]. Neikirk, ¶¶84-86. The “wireless automation device” receives sensor control information from the controller including “instructions”—e.g., a “report instruction”—that causes the wireless automation device to “sense and report a current indicator ... or other requested information” for a sensor—e.g., the temperature or humidity. McFarland, [0025], [0043], [0060]-[0062]. Control processes are “specific to the sensor”; e.g., if one of “a plurality of different types of sensors” is currently in use (e.g., temperature and not humidity), humidity data “may be stored but unused” during that control process. McFarland, [0039]-[0040]. When controller 508 receives information about “the sensed condition,” then based on the current control process, the controller “provides an appropriate control signal to [an] actuator” to “drive the sensed condition” to a “set point.” McFarland, [0025]-[0026]. The sensor data is in control at the controller because it is used to control the actuator to reach the set point. And the “report instruction” is sensor control information because the “controller” implements a sensor-specific control operation to obtain an “event reported by a sensor,” including sensor values and other data, to “control[] the operation of one or more actuators.” <i>Id.</i> Neikirk, ¶¶87-88. • Fig. 1

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	Figure 1 • Fig. 5

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	<pre> graph TD 507[Device 507] --- 508 subgraph 508 [508] 518[Tx/Rx 518] --- 520[Processor 520] --- 522[Tx/Rx 522] end </pre> Figure 5 • [0020] (“<u>The devices generate and/or receive information related to a specific event, condition, status, acknowledgement, control, combinations thereof and the like. The devices may also respond to control commands and/or execute an instruction received by or in a signal.</u>”) • [0025] (“<u>The controller 108a provides control functionality of each, one, or both of the sensor 109a and the actuator 109b. Controller 108a controls a subsystem based on sensed conditions and desired set point conditions. The controller 108a controls the operation of one or more actuators in response to an event reported by a sensor 109a. The controller 108a may drive the one or more actuator to a desired set point.</u>”) • [0026] (“<u>The controller 108a is programmed with the set points and a code setting forth instructions that are executed by the controller for controlling the actuators</u>”)

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	<i>to drive the sensed condition to be with the set point.</i> For example, the actuator 109b is operatively connected to an air conditioning damper and sensor 109a may be a room temperature sensor that reports information related to a temperature being monitored by the sensor. ... <i>If the temperature sensed by the sensor 109a exceeds a threshold, the actuator may respond accordingly to open a damper, allowing air conditioning to flow into a room. The sensor 109a may communicate the sensed condition</i> to the actuator 109b and/or <i>to the controller 108a, which thereafter provides an appropriate control signal to the actuator 109a.</i>") • [0038]-[0040] (see [1.a]) • [0060]-[0062] (see [1.pre]) • See also [0003], [0021], [0023]-[0027], [0033]-[0034], [0037], [0056]-[0059].
[1.f] communicate a portion of the stored sensor data corresponding to the received sensor control information to the second automation component.	McFarland discloses that the computer readable instructions are programmed to communicate a portion of the stored sensor data corresponding to the received sensor control information to the second automation component (e.g., “[i]n response to a report instruction” from the “controller,” the wireless automation device, executing its “program,” will “sense and report a current indicator V_i” or “prior measurements”). <u>E.g., McFarland:</u> See [1.pre], [1.d]-[1.e]. McFarland also discloses that, in response to a “report” command from the controller, the wireless automation device, executes a “program” by sending corresponding reports including a portion of the stored sensor information such as “a current value or indicator” or “prior measurements” or other requested information. McFarland, [0023], [0038]-[0040], [0047], [0053]-[0054], [0062]. Neikirk, ¶¶89-91.

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	• [0023] (“A sensing device monitors a condition and/or status of an event. The <u>sensing device may report</u> appropriate sensor information, such as <u>a current value or indicator of the condition, timing of a reading, prior measurements, status of the sensor</u> and/or <u>a comparison of a measured value to a desired limit, range or a previous measurement.</u>”) • [0038]-[0040], [0047] (see [1.a]) • [0053] (“The transceiver communicates the information as packets of information.... The information may also include one or more of the triggering event, <u>the most current indicator Vi, one or more prior indicators current value Vi-j....</u> Alternatively, the <u>transceiver 216 may be controlled to communicate the information in response to a triggering event</u> such as the flag being set.... <u>The transceiver 216 also may transmit information in an interval or subsequent interval in which an external control signal is received from another device.</u>”) • [0054] (“The information may include multiple indicators such as <u>the most current indicator Vi and one or more indicators Vi-j read during one or more prior polling periods 336.</u> A counter may count a number of successive <u>polling periods 336 for which a flag or triggering event has not been set,</u> and thus a transmission of information may not have been made. If the counter exceeds a maximum, the transceiver may communicate information such as a current time during a current or successive transmission period. <u>The counter also or alternatively may [count] a number of polling intervals when a change has been detected, such as when a flag has been set.</u> When the count reaches a maximum or a limit. The transceiver may be controlled to suspend the transmission of information transmission period, until the counter reaches a send limit. For example, the send limit may be set at five. <u>During each</u>

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	<u>polling period 336 in which a change in the sensed condition is determined, the indicator Vi is stored and the count incremented.</u> The transmission of information is suspended during a transmission period 436 until the counter is increment to the send limit (i.e., 5). <u>When the counter reaches the send limit, each of the five stored indicators Vi are communicated. The information may include timing information or date associated with the indicators Vi and the counter information.</u> Similarly, <u>the information may be transmitted, notwithstanding the status of the counter, in response to other stimulus or determinations.</u>") • [0062] (see [1.pre]) • See also [0003], [0008], [0024]-[0027], [0037], [0040], [0046]-[0047], [0052]-[0054], [0055], [0060]-[0062]; Figs. 1, 5; Claims 2, 4.
[2] The automation component of claim 1, wherein the sensor package includes one or more sensors selected from the group consisting of a temperature sensor, a humidity sensor; a carbon monoxide sensor; a carbon dioxide sensor and a volatile organic compound sensor.	See [1]. McFarland discloses this element. See [1.a]. Neikirk, ¶¶92-94.

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[3] The automation component of claim 1, wherein the computer readable instructions are further programmed to: identify sensor values within the sensor data that exceed a corresponding change-of-value threshold.	See [1]. McFarland discloses that the computer readable instructions are further programmed to identify sensor values within the sensor data that exceed a corresponding change-of-value threshold (e.g., “program” instructions are programmed to “detect[] or identify[] a change in the sensed condition beyond a limit [or] outside a range”). <u>E.g., McFarland:</u> See [1.pre], [1.d]-[1.f]. McFarland also discloses that a sensor value is generated each “polling period” or “interval” for “the most current” sensed condition. McFarland, [0047]. The processor is programmed to “process[]” each sensor reading V_i (the most current value) to determine whether “the sensed condition has changed” by comparing the “difference” between V_i and sensor values for “different periods” or “intervals” to a “limit,” which is a change-of-value threshold. McFarland, [0049]-[0050]. When the difference exceeds a limit or range (<i>i.e.</i>, a change-of-value threshold), a “flag may be set” and “stored in memory” to “identify[]” the detected change. McFarland, [0049]-[0050], [0052]. Such “flags” identify each sensor value exceeding the change-of-value threshold because the most current sensed condition V_i is determined once per sensor polling “period,” each V_i is evaluated to determine a difference value, and a flag is set each time a difference exceeding a limit is detected. <i>See id.</i>; <i>see also</i> McFarland, [0054]; Neikirk, ¶¶95-97. • [0047] (see [1.a]) • [0049]-[0050] (“<u>The value V_i is processed by the processor 214 according to a control algorithm to identify whether the sensed condition has changed.</u> For example, the most current indicator V_i may be compared to one or more indicators read during a prior periods V_{i-j}. <u>Thus, a change in the sensed condition may be identified by comparing indicators V_i and V_{i-j} read</u>

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	<i>during different periods 336. The change or difference may be compared to a limit. ... Where the current difference D_i greater than the difference limit D_l (i.e., $D_i > D_l$) the difference between the current value V_i and the value V_{i-j} in the prior interval may be considered outside a control range or band limit.</i> Similarly, a negative difference ... may be compared to a lower limit LL, and a positive difference ... may be compared to an upper limit UL.... <i>Where a change has been determined, a flag may be set, and/or stored in memory, identifying a change in the sensed condition has been detected.</i> The most current indicator V_i also or alternatively may be compared to a limit V_{max} and/or V_{min}. <i>The flag may be set if the most current indicator is determined to be greater than V_{max} or less than V_{min}.</i> A time or interval identifier associated with when the flag was set may also be identified and stored in memory.”) • [0052] (see [1.c]) • [0054] (see [1.f]) • See also Abstract, [0003], [0007]-[0008], [0016]-[0018], [0026], [0044], [0053], [0056]-[0059].
[4] The automation component of claim 1, wherein the computer readable instructions are further programmed to: set an identification flag for each identified sensor value.	See [1]. McFarland discloses that the computer readable instructions are further programmed to set an identification flag for each identified sensor value (e.g., a “flag may be set in response to detecting or identifying a change in the sensed condition beyond a limit” during “each polling period;” “timing data or an interval sequence” that is “stored with the indicator” for each indicator). <u>E.g., McFarland:</u> See [1.pre], [1.d], [3]. See §IX.C (claim construction). As discussed for [3], McFarland discloses that each time a sensor value is identified (e.g., because it exceeds a limit), the sensor value is flagged. See [3]. McFarland further

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	discloses that a “flag” is set for every identified sensor value, including, e.g., for sensor values identified each polling period having a “change in the sensed condition” or in response to an “external stimulus, such as a control signal received by the sensor.” McFarland, [0052]. Neikirk, ¶¶98-100.⁵ McFarland further discloses that each time sensor data is read and stored by processor 214, the value is associated with “timing data or an interval sequence”; this “timing data” or “interval sequence” is also a flag because it is stored with the indicator and used “to identify a point in time or interval” in which the values were identified. McFarland, [0047], [0050]; Neikirk, ¶101. • [0047] (<i>see</i> [1.a]) • [0050] (<i>see</i> [3]) • [0052] (<i>see</i> [1.c]) • [0054] (<i>see</i> [1.f]) • <i>See also</i> [0053], [0055], [0059].
[5] The automation component of claim 1, wherein the computer readable instructions are further programmed to: communicate all of the stored sensor data	<i>See</i> [1]. McFarland discloses that the computer readable instructions are further programmed to communicate all of the stored sensor data corresponding to the received sensor control information to the second automation component (e.g., in response to a “report instruction” from the “controller,” the wireless automation device “sense[s] and report[s] a current indicator V_i or other requested information” such as “prior indicators” to the “controller”). <u>E.g., McFarland:</u>

⁵ **McFarland** thus discloses this element regardless of which prior claimed sensor value “each identified sensor value” refers to. Neikirk, ¶102.

'282	McFarland
corresponding to the received sensor control information to the second automation component.	See [1.pre], [1.d]-[1.f]. McFarland also discloses that the wireless automation device communicates information in response to, e.g., a control signal or report instruction from the controller. McFarland, [0052], [0062]. The communicated information corresponding to the control signal or report instruction includes, e.g., a “current indicator,” “prior indicators,” or “other requested information.” McFarland, [0053]-[0055], [0062]. The device thus reports to the controller all information requested by (i.e., corresponding to) the control signal/instruction, disclosing this element. Neikirk, ¶¶103-105. • [0052] (see [1.c]) • [0023], [0053]-[0054], [0062] (see [1.f]) • See also [0024]-[0027], [0037], [0040], [0052], [0060]-[0061], Fig. 5.
[7.pre]-[7.d]	See [1.pre]-[1.d]. These elements are identical except for [1.a]/[7.a]; McFarland discloses that the multi-sensor package is configured to generate a plurality of sensor data (e.g., current and prior periodic readings) for each sensor within the multi-sensor package ([7.a]) for the same reasons it is configured to detect a plurality of variables and generate sensor data for each detected variable ([1.a]). Neikirk, ¶¶106-107.
[7.e] wherein the computer readable instructions are programmed to: receive status data related to sensor data in control at a	McFarland discloses that the computer readable instructions are programmed to receive status data related to sensor data in control at a second automation component in communication with the building automation system (e.g., the “wireless automation device” is programmed to receive “a value or status” for the “condition and/or sensor” used for “process control” at the controller in the building automation system (see [1.e]) in order to “execut[e] a responsive action” or “communicat[e]

'282	McFarland
second automation component in communication with the building automation system;	an appropriate control signal”). <u>E.g., McFarland:</u> See [1.e]. McFarland also discloses and at least renders obvious [7.e]-[7.f] based on its description of (1) an automation device receiving a transmission from a controller identifying data to be provided to the controller (“<u>Information Disclosures</u>”); and/or (2) an automation device receiving a transmission from a controller regarding a sensor setpoint, which, under the interpretation espoused by Ollnova in the Emerson Litigation, satisfies this claim element (“<u>Setpoint Disclosures</u>”). Neikirk, ¶¶108-110. <u>Information Disclosures:</u> McFarland discloses that the automation device “receives” a “status for the ... sensor” from the controller. McFarland, [0018]. The status data received by the device is, e.g., information specifying the “condition” or “event” data that the device must transmit back to the controller to be used for controlling the system. McFarland, [0018], [0059], [0061]-[0062]. McFarland not only renders obvious, but affirmatively discloses the claimed status data because the data requested by the controller identifies to the device the data needed by the controller—and therefore the data currently being used for control—disclosing this element. Neikirk, ¶111. <u>Setpoint Disclosures:</u> In its Preliminary Infringement Contentions in district court, Ollnova took the position that this element is met, for example, by a thermostat receiving a temperature or humidity “set point” from a smart phone via the cloud. Ex. 1025, Exhibit A at 39-45. In the same way, McFarland’s device receives and implements “difference limit” and “threshold” set points, which are also used in

'282	McFarland
	process control algorithms to evaluate conditions for reporting. McFarland, [0058], [0061].⁶ Applying Ollnova's understanding, McFarland therefore discloses that the device receives and implements "status data related to sensor data in control..." in the form of "difference limit" and "threshold" status data used to control the system. McFarland, [0058], [0061]. Neikirk, ¶112. • Figs. 1, 5 (see [1.e]) • [0018] ("<u>The device wirelessly receives and transmits information.... The information may include a current indicator of the condition, <i>a value or status for the condition and/or sensor</i>, ... The information is communicated to destination device, such as ... <i>a controller that executes a process control such as executing a responsive action, and/or communicating an appropriate control signal.</i>")</u> • [0020], [0025]-[0026] (see [1.e]) • [0038]-[0040] (see [1.a]) • [0058] ("The <i>difference limit D_I</i> and the period 338 may also be <u>adjusted in accordance with state of the control algorithm</u> for the system. For example ... a temperature sensor may be controlled to ignore greater temperature fluctuations.... <u>The device may be controlled to compare a value to a larger difference limit D_I, to only report information after a predetermined number of intervals, or to report after a difference D_I below a threshold is detected, or other condition</u> when it is appropriate for the device to report a condition.") • [0061] (see [1.pre])

⁶ Indeed, the '282 includes similar disclosures of using setpoints for process control. '282, 1:38-42.

'282	McFarland
	• <i>See also</i> [0023], [0027], [0044], [0047], [0056].
[7.f] determine the sensor data in control at the second automation component based on the received status data; and	McFarland discloses wherein the computer readable instructions are programmed to determine the sensor data in control at the second automation component based on the received status data (e.g., based on the received status data related to sensor data in control at a second automation component (<i>see</i> [7.e]), determine the “sensor” associated with the “status data” to “report” on the “status of the sensor”). <u>E.g., McFarland:</u> <i>See</i> [3], [1.pre], [1.e], [7.pre], [7.d]-[7.e]. McFarland also discloses that the wireless automation device stores multiple control processes, only some of which are used at a given time. McFarland, [0039]. “Data and/or instructions” may be received to configure the device when not specifically “preprogrammed.” McFarland, [0040]. Thus, with respect to <u>Information Disclosures</u>, McFarland discloses that when the device receives “information” from the controller, such as “control instructions, communications settings or other information,” the device “respond[s] to [the] control commands” and takes “appropriate responsive action[s].” McFarland, [0003], [0020], [0040], [0060]. Neikirk, ¶¶113-115. Because the device receives “status data” that specify the information to be transmitted to the controller, this not only renders obvious, but discloses, that when the device receives the “status for the ... sensor” from the controller (<i>see</i> [7.e]), the “appropriate responsive action” taken by the device includes analyzing the status data to determine what event and condition “status[es]” (<i>i.e.</i>, sensor data) to monitor and report to the controller; this is a determination of the sensor information that is in control at the controller. McFarland, [0018], [0059], [0061]-[0062]. Neikirk, ¶116. Additionally, with respect to the <u>Setpoint Disclosures</u>, PO took the position in district court that this element is met,

'282	McFarland
	<i>e.g.</i>, by a thermostat “enabling and setting” temperature or humidity “set points” received from a smart phone via the cloud. Ex. 1025, at 45-52. Applying Ollnova’s understanding, McFarland discloses this element because the wireless automation device determines the sensor data in control at the controller when the wireless automation device is “reprogram[med]” with the “difference limit” and “threshold” status data, which are types of set point status data that are received from the controller and used to control the system. McFarland, [0058], [0061]. Neikirk, ¶117. • [0003] (“The controller generates <u>control signals</u>, which are <u>communicated to a device for an appropriate responsive action</u>.”) • [0020] (<i>see</i> [1.e]) • [0023] (<i>see</i> [1.f]) • [0039]-[0040] (<i>see</i> [1.a]) • [0058] (<i>see</i> [7.e]) • [0060]-[0062] (<i>see</i> [1.pre]) • <i>See also</i> [0018], [0025]-[0027], [0031], [0033], [0044], [0047], [0059].
[7.g] communicate the stored sensor data corresponding the sensor data in control to the second automation component.	McFarland discloses wherein the computer readable instructions are programmed to communicate the stored sensor data corresponding the sensor data in control to the second automation component (e.g., reporting “current” and “prior” measurements, which correspond to sensor data in control (<i>see</i> [7.e]-[7.f])). <u>E.g., McFarland:</u> <i>See</i> [1.f], [7.e]-[7.f]. McFarland also discloses that the wireless automation device sends reports that include “appropriate sensor information” including “a current value or indicator” “and” “prior measurements” or other requested information responsive to the request. Neikirk, ¶¶118-120.

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	• [0023] (<i>see</i> [1.f]) • [0062] (<i>see</i> [1.pre]) • <i>See also</i> [0038]-[0040], [0047], [0053]-[0054].
[8]-[10]	<i>See</i> [2]-[4]. Neikirk, ¶121.
[11] The automation component of claim 7, wherein the computer readable instructions are further programmed to: communicate all of the stored sensor data corresponding to the received status information to the second automation component.	<i>See</i> [7]. McFarland discloses that the computer readable instructions are further programmed to communicate all of the stored sensor data corresponding to the received status information to the second automation component. <u>E.g., McFarland:</u> <i>See</i> [5], [7]. McFarland discloses communicating “all of the stored sensor data corresponding to the received status information to the second automation component” for the same reasons as claims [7] and [5] are disclosed. Neikirk, ¶¶122-124. As discussed in [7], the received “status data” is related to “sensor data in control” at the second automation component (<i>see</i> [7.e]), and the automation component uses the “status data” to determine the “sensor data in control” and also communicate stored “sensor data corresponding” to the “sensor data in control” (<i>see</i> [7.f]-[7.g]). Therefore, “sensor data” corresponding to the received “status information” or “status data” includes “sensor data” corresponding to “sensor data in control.” Neikirk, ¶124. Additionally, as discussed in [5], McFarland discloses reporting appropriate information that includes a “current value or indicator” “and” “prior indicators.” McFarland, [0023], [0053]-[0055], [0062]. Therefore, McFarland discloses communicating all—current and prior—corresponding sensor data. Neikirk, ¶125.
[20.pre] A method for providing power	McFarland discloses a method for providing power saving wireless communication within a building automation system (e.g., a method for using “low-power

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saving wireless communication within a building automation system, the method comprising:	wireless RF communications” within a “building automation system” (see [1.pre])). <u>E.g., McFarland:</u> See [1.pre]/[7.pre]/[13.pre]. McFarland further discloses that the device’s wireless communication is power saving by “using low-power wireless RF communications,” causing devices to “enter a standby or sleep mode” between transmission intervals, and “reducing an amount of communication...using dynamic value reporting.” McFarland, [0005], [0022], [0048]. Neikirk, ¶¶126-128. • [0004]-[0005] (“The <u>continuous monitoring of conditions and broadcast of information consumes larges amounts of power</u>, which may shorten a limited-lifetime power source. <u>The continuous stream of information from and to devices uses a great amount processing power</u> for a controller, and may provide redundant information that may need to be filtered before being processed. <u>Accordingly, there is a need for a system for reducing an amount of communication over a wireless automated system using dynamic value reporting.</u>”) • [0006] (“methods ... and systems for reporting information over ... a <u>wireless building automation system</u>. An <u>automated wireless system using dynamic value reporting</u> provides for a robust process control that <u>minimizes an amount of communications</u> in the wireless network.”) • [0022] (“That is, the communication of information between and among devices includes <u>transmitting, routing, and/or information hopping using low-power wireless RF communications across a network defined by the devices.</u>”) • [0048] (“<u>the processor 214</u> may enter a standby or sleep mode, where the processor <u>operates at lower or with</u>

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	<i>very little power consumption.</i>") • <i>See also</i> Abstract, [0008], [0016], [0018]-[0021], [0036]-[0037], [0048], Figs. 1-2.
[20.a] scanning sensor data associated with each of a plurality of sensors contained within a multi-sensor package of a first automation component;	McFarland discloses scanning sensor data associated with each of a plurality of sensors contained within a multi-sensor package of a first automation component (e.g., “poll[ing] the sensor” during a “recurring polling period” for each of a plurality of sensors within a multi-sensor package of a wireless automation device, <i>see</i> [1.pre]-1.a], [1.c]). <u>E.g., McFarland:</u> <i>See</i> [1.pre]-[1.a], [1.c], [7.pre]-[7.a], [7.c], [13.pre]-[13.a], [13.c], [20.pre]. As discussed for [1.a], McFarland’s “sensor 209” is a multi-sensor package. McFarland, [0043]. As discussed for [1.c], processor “poll[s]” (scans) sensor information from the sensor values detected using sensor 209. McFarland, [0038]-[0040], [0043]-[0044]. Neikirk, ¶¶129-131. • [0038]-[0040], [0043], [0045], [0047], Figs. 2-3 (<i>see</i> [1.a]). • [0044], [0046], [0052], Fig. 2 (<i>see</i> [1.c]). • <i>See also</i> [0023], [0048], [0053]-[0054].
[20.b] identifying changed sensor values within the sensor data;	McFarland discloses identifying changed sensor values within the sensor data (<i>see</i> [3]). <u>E.g., McFarland:</u> <i>See</i> [3], [9], [15], [20.pre], [20.a]. As discussed for [3], McFarland discloses identifying values of sensor data that have changed by comparing them to a change-of-value threshold. Neikirk, ¶¶132-134.
[20.c] receiving a first communication from a second	McFarland discloses receiving a first communication from a second automation component (e.g., “wireless automation device” receives, from a “controller,” “control instructions” including a “report instruction”) in

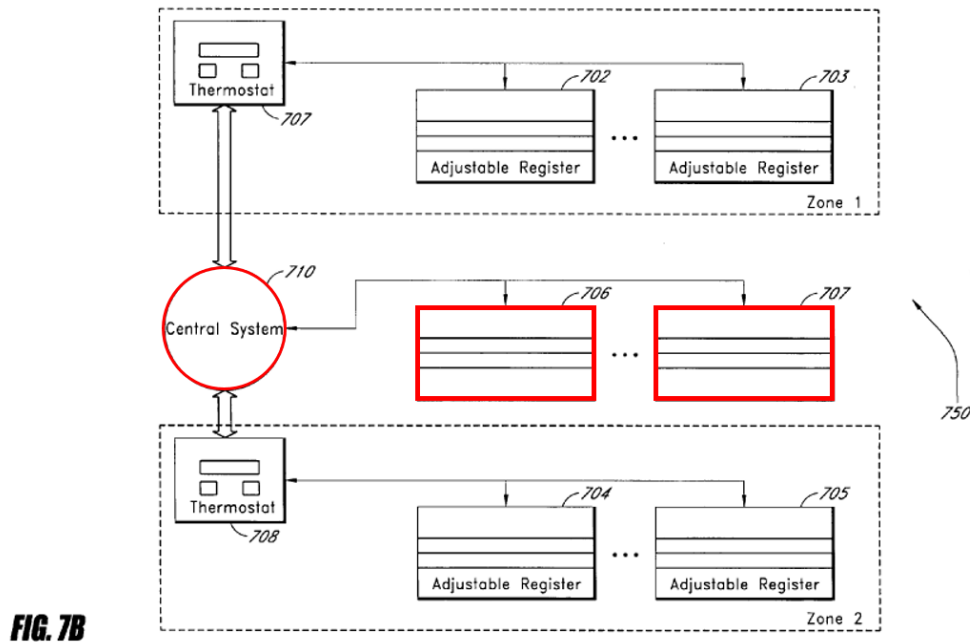
'282	McFarland
automation component in communication with the first automation component and the building automation system; and	communication with the first automation component and the building automation system (“controller” is “in communication with a device 507” and the rest of the “building automation system”). <u>E.g., McFarland:</u> See [1.e], [7.e], [13.e], [13.g], [20.pre], [20.a]. As discussed for [1.e] and [13.e], McFarland discloses that the wireless automation device receives “instructions” as part of a communication from the controller (i.e., the second automation component). McFarland, [0025], [0060]-[0062]. The controller is also part of, and communicates with, the “building automation system.” McFarland, [0060]. Neikirk, ¶¶135-137. • [0020], [0025]-[0026], [0038], [0060]-[0062], Figs. 1, 5 (see [1.e]) • <i>See also</i> [0003], [0021], [0023]-[0027], [0033]-[0034], [0037], [0056]-[0059].
[20.d] communicating a portion of the identified changed sensor values associated with the first communication received from the second automation component.	McFarland discloses communicating a portion of the identified changed sensor values (e.g., “processor” may “communicate” “indicators V_i” where there has been a “change in the sensed condition”) associated with the first communication received from the second automation component (e.g., “in response to...a control signal received by the sensor”). <u>E.g., McFarland:</u> See [1.f], [3], [7.g], [9], [13.f], [15], [20.pre], [20.c]. McFarland discloses storing each indicator when there is a “change in the sensed condition” as an indicator “V_i.” McFarland, [0054]. The most recent indicators V_i are then transmitted in response to “other stimulus” including “control signal[s]” and “report” commands. McFarland, [0052]; see [1.f], [20.b]-[20.c]. McFarland further discloses that reports include portions of sensor values, e.g.: current “or” prior measurements. McFarland, [0023], [0053]-[0055],

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	[0062]. Neikirk, ¶¶138-140. • [0023] (<i>see</i> [1.f]) • [0052] (<i>see</i> [1.c]) • [0053] (<i>see</i> [1.f]) • [0054] (<i>see</i> [1.f]) • [0062] (<i>see</i> [1.pre]). • <i>See also</i> [0003], [0008], [0016], [0018], [0024]-[0027], [0037], [0040], [0044], [0046]-[0047], [0060]-[0062], Figs. 1 and 5.
[21] The method of claim 20, wherein identifying changed sensor values includes identifying changed sensor values as a function of a change-of-value threshold.	See [20]. McFarland discloses that identifying changed sensor values includes identifying changed sensor values as a function of a change-of-value threshold. <i>See</i> [3], [9], [15], [20.pre], [20.b]. As discussed for [3], McFarland discloses that sensor values are processed by a processor to identify values that exceed a change-of-value threshold. During this process, changed sensor values are identified and flagged based on, and therefore as a function of, the change-of-value threshold. <i>See</i> [3]. Neikirk, ¶¶141-143.

B. Ground 2: McFarland in view of Kates-089 (Claims 13-16)

1. Kates-089

Kates-089 discloses a system and method for providing zoned heating and cooling using Electronically Controlled Register Vents (“ECRVs”). Kates-089, [0002], [0010]-[0016]. Fig. 7B shows an embodiment of this system. Kates-089, [0056].



ECRVs 706-707 include controllers, sensors, displays, communication systems, and vent actuators that control airflow. Kates-089, Fig. 10, [0041], [0064]-[0065]. The central system instructs an ECRV to “perform additional measurements, to go to a standby mode, to wake up, to report battery status, to change wake-up interval, to run self-diagnostics and report results, etc.” Kates-089, [0082], [0086]. Neikirk, ¶¶144-145.

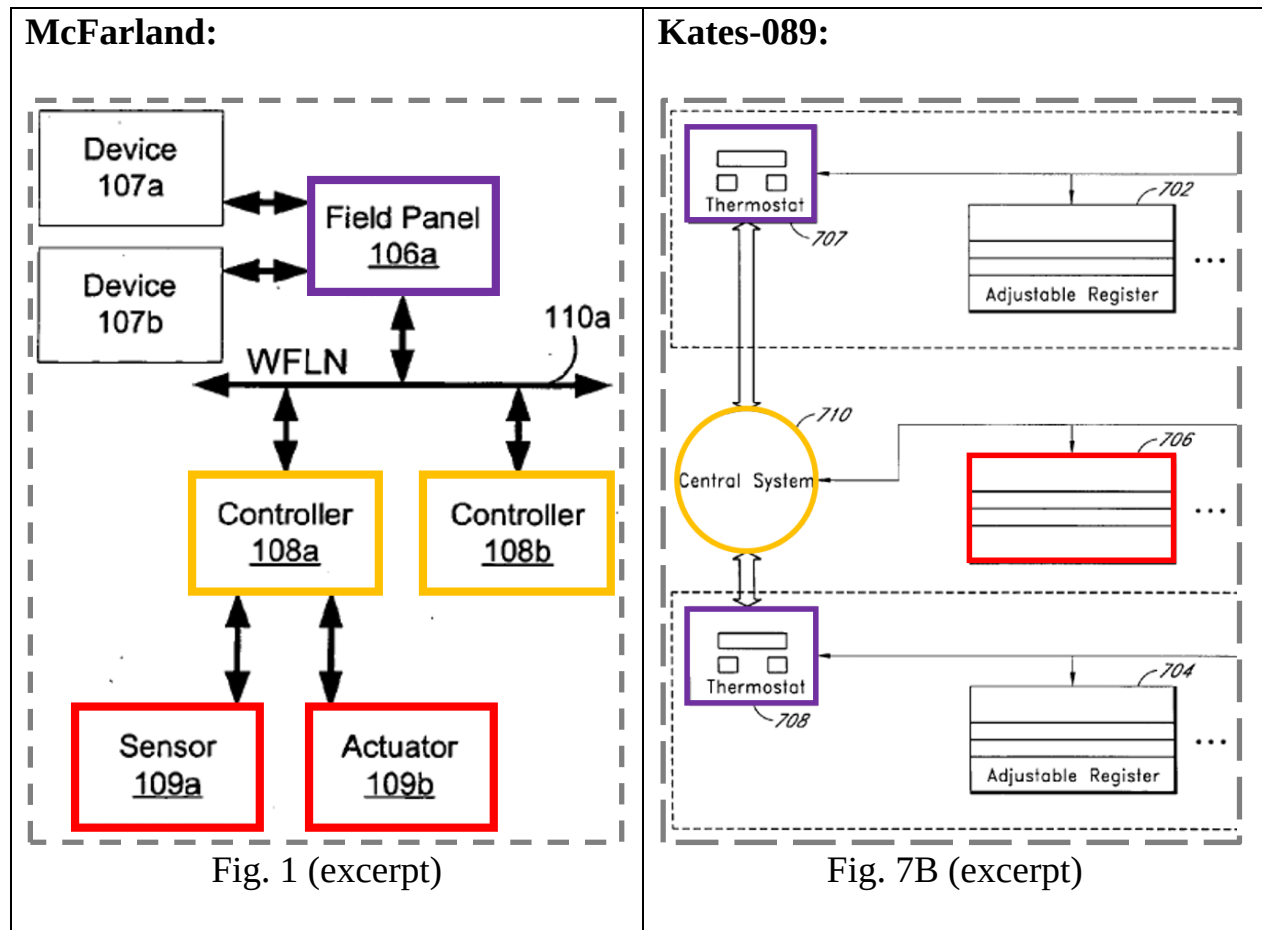
2. Motivation to Modify McFarland with Kates-089

McFarland and **Kates-089** are in the same field as the '282—sensors, controls, and/or wireless communications—and reasonably pertinent to the alleged problem(s) identified in the '282—*e.g.*, avoiding wiring and installation costs while maximizing power conservation to extend the operating life of wireless devices. See '282, 1:63-2:19; McFarland, [0057]; Kates-089, [0008]-[0010] (easily

installed ECRVs), [0014] (wireless), [0065], [0075], [0094], [0103]. Neikirk, ¶146.

McFarland teaches that, in response to a “report instruction,” a wireless automation device “wake[s] up” and “enter[s] a standby or sleep mode” between periodic intervals, but does not explicitly state that the “report instruction” includes a “wake-up command” or describe how the device is instructed to return to a “sleep” mode between reporting intervals. McFarland, [0008], [0018], [0048], [0062]. **Kates-089** explicitly teaches that such a “report instruction” comprises a “wake-up command,” and that a controller issues a “standby mode” instruction (i.e., a “power-down command”). Kates-089, [0078], [0082], [0086]. A POSITA would have been motivated to modify **McFarland** with these teachings to advantageously facilitate reporting data both periodically and in response to commands while conserving power via “wake up” and “standby” (i.e., power-down) commands. McFarland, [0062]; Kates-089, [0050], [0074]-[0075], [0082], [0086]. Neikirk, ¶147.

First, **Kates-089** provides additional compatible detailed teachings for **McFarland’s** report instruction. **McFarland** and **Kates-089** teach similarly-structured systems in which **controllers** and **field panels** (McFarland) and **central systems** and **thermostats** (Kates-089) communicate with **automation devices** (McFarland) and **ECRVs** (Kates-089) using similar commands:



McFarland, [0024]-[0031]; Kates, [0056]-[0062], [0084], [0090]-[0097], [0110];
Neikirk, ¶148.

Second, **McFarland** broadly teaches that a device “wake[s] up” from a report instruction, but leaves it to a POSITA to implement wake-up instructions. McFarland, [0062]. **Kates-089** teaches that signals causing a device to transmit sensor data are “wake up” signals. Kates-089, [0078]-[0079], [0082]. Applying **Kates-089**’s teachings, a POSITA would have understood McFarland’s “report” instruction to teach a wake-up command and alternatively would have been

motivated to modify **McFarland's** “report” instruction to include such a wake-up command. *Id.* Neikirk, ¶149.

Third, implementing a “standby” command advantageously saves power. **McFarland** teaches that the actual “polling period” within an interval “may be a short amount of time”—e.g., “one or more milliseconds every second”—less than 0.1% of the interval—or “minutes every several minutes.” **McFarland**, [0046]. **Kates-089** teaches that it is advantageous to turn off “elements of the ECRV 400 that are not in use.” **Kates-089**, [0050], [0078], [0086]. **Kates-089** further teaches that, in addition to going to sleep after periodic sensor readings in a manner similar to **McFarland** (e.g., **Kates-089**, [0074]-[0076]), the central system separately commands the ECRV to “go to a standby mode.” **Kates-089**, [0079], [0082]. A POSITA would have been motivated to apply this teaching **McFarland** to save power consumed during, e.g., the 99.9% of the polling interval when the device may otherwise be unnecessarily turned on. Neikirk, ¶150.

A POSITA would have reasonably expected success applying **Kates-089's** wake-up and power-down command teachings to **McFarland's** wireless automation device. Indeed, **McFarland** already teaches that the wireless automation device wakes up and powers down in response to certain commands—and such commands were well understood. **McFarland**, [0008], [0018], [0048], [0062]; *see also* Neikirk, ¶151 (discussing prior art wake-up/power-down

commands in Kriz (Ex. 1033), 12:16-22; Hitt (Ex. 1005), [0072]; Kates-236 (Ex. 1032), 12:48-54).

3. Claim Chart

'282	McFarland
[13.pre]-[13.d]	See [1.pre]-[1.d], [7.pre]-[7.d]. ⁷ Neikirk, ¶152.
[13.e] wherein the computer readable instructions are programmed to: receive a wake-up command from a second automation component;	McFarland discloses wherein the computer readable instructions are programmed to receive a wake-up command from a second automation component (e.g., receive a “report” instruction and, “[i]n response,” “wake up from a sleep mode”). <u>E.g., McFarland:</u> See [1.pre], [1.e], [13.pre]. McFarland discloses that “[i]n response to a report instruction, the device 507 may wake up from a sleep mode” (a low power state). McFarland, [0048], [0062]. Because the report instruction is a command that causes device 507 to wake up, it is a wake-up command. Neikirk, ¶¶153-154; see §X.B.2 (understanding of a POSITA). • [0062] (see [1.pre]) • See also [0008], [0018], [0048]. To the extent additional disclosure of a “wake-up command” is required, Kates-089 discloses receiving a wake-up command from the second automation component (e.g., “central system can instruct the ECRV to ... wake up”). <u>E.g., Kates-089:</u> In addition to McFarland’s disclosure of a “report instruction,” Kates-089 further discloses using a “wake up”

⁷ References to elements of claims 1-5 and 7-11 reference §X.A.2.

'282	McFarland
	command to cause a controller to read a sensor. Kates, [0086]. As discussed in §X.B.2, a POSITA would have been motivated to modify McFarland by implementing Kates-089's “wake up command” to, e.g., advantageously facilitate the reporting of sensor data outside of periodic reporting intervals with a specific instruction. Neikirk, ¶¶155-157. • [0082] (“the ECRV ... is configured to <u>receive data and/or instructions from the central system</u>. Thus, for example, <u>the central system can instruct the ECRV to perform additional measurements, to go to a standby mode, to wake up</u>, to report battery status, to change wake-up interval, to run self-diagnostics and report results, etc.”) • [0086] (“In one embodiment, the controller 401 reads the sensors 406, 407, 416 at regular periodic intervals.... <u>In one embodiment, the controller 401 reads the sensors 406, 407, 416 in response to a wake-up signal from the central system</u>. In one embodiment, the controller 401 sleeps between sensor readings.”) • See also [0078]-[0080].
[13.f] communicate stored sensor data related to the sensor data in control at a second automation component; and	See [1.e]-[1.f], [7.e]-[7.g], [13.e]. McFarland discloses this element for the same reasons that it discloses [1.f] and [7.g]. Neikirk, ¶¶158-159.
[13.g] receive a power-down command from the second automation component.	McFarland discloses the second automation component. See [13.f]; Neikirk, ¶¶160-161. Kates-089 discloses receiving a power-down command from the second automation component (e.g., “central system can instruct the ECRV to ... go to a standby mode”).

'282	McFarland
	<u>E.g., Kates-089:</u> McFarland discloses that the processor and sensor “enter a standby or sleep mode” (low power states) between periodic intervals, but leaves it to a POSITA as to how the device re-enters the sleep mode after being woken up—potentially resulting in the device being awake and wasting power for the 99.9% of the polling interval in which the device could otherwise be sleeping. McFarland, [0008], [0018], [0046], [0048], [0062]; see §X.B.2. Kates-089 further discloses issuing a “standby mode” command to return the device to a low power state outside the periodic polling cycle. Kates-089, [0082], [0086]. As discussed in §X.B.2, a POSITA would have been motivated to modify McFarland to, <i>e.g.</i>, advantageously improve power savings within the system by powering down the device before the next periodic cycle. Neikirk, ¶¶162-164. • [0075] (“a sleep block can be implemented to use even less power”) • [0082], [0086] (see [13.e])
[14]-[16]	See [2]-[4], [8]-[10]. Neikirk, ¶165.

C. Grounds 3/4: McFarland in View of Stoner (Claims 1-5, 7-11, 20-21) and Kates-089 (Claims 13-16)

1. Overview of Stoner

Stoner discloses a “remote controller” in a building control system including an HVAC controller. Stoner, 1:7-11, 3:35-54, 6:45-47. Fig. 2 shows an embodiment of a remote controller and HVAC controller. Stoner, 3:35-40. Neikirk, ¶166.

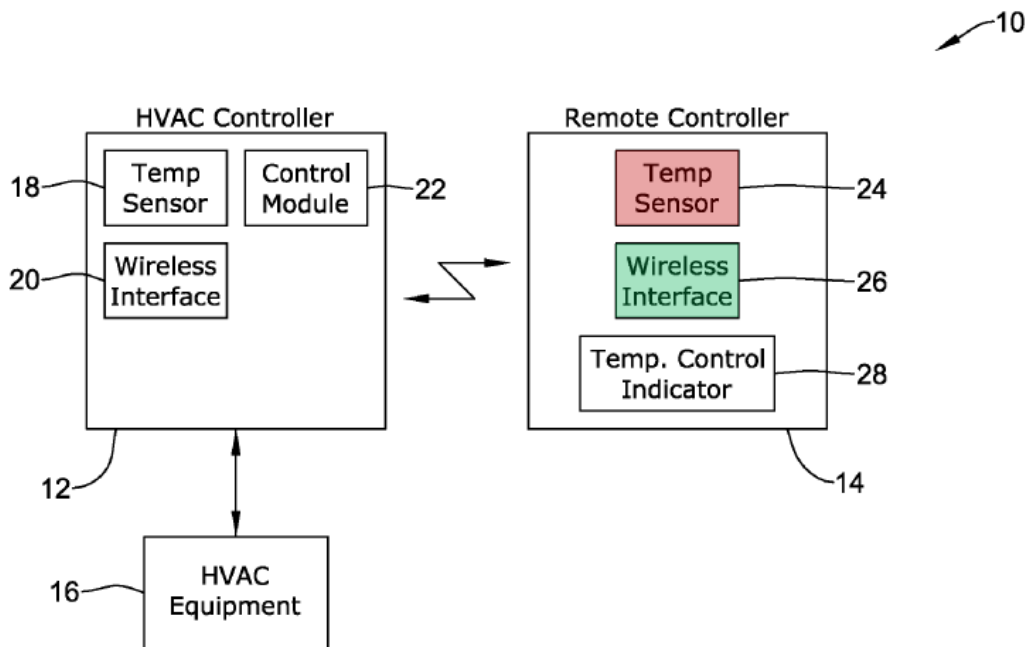


Figure 2

The HVAC and remote controllers “may be any suitable devices, as desired.”

Stoner, 6:26-28. The HVAC controller comprises a “**temperature sensor**” and a “**wireless interface**” for communicating with the remote controller, which controls HVAC equipment and is portable. Stoner, Fig. 2, 3:40-50, 4:28-40, 4:54-63; Neikirk, ¶167.

The HVAC controller selectively controls the environmental conditions of the system (*e.g.*, a building or a zone of the building) using sensed conditions at either the HVAC controller (*i.e.*, at a fixed location) or the portable remote controller. Stoner, 4:5-10, 4:64-5:23, 9:11-23, 9:43-52. For example, the HVAC

controller may switch temperature control between using the HVAC controller's and remote controller's temperature sensors. Stoner, 9:58-67, 10:38-58. **Stoner** further discloses implementing these functions using other sensors, including humidity sensors. Stoner, 1:15-27, 4:64-5:10, 8:53-61. Neikirk, ¶168.

The HVAC controller may use predetermined conditions to switch the sensor used for control. Stoner, 10:1-37. When a predetermined condition is detected and the temperature sensor being used for control is switched, the HVAC controller and remote controller exchange "any suitable data" such as operational information, which includes sensed readings, setpoints, system statuses, and operational statuses. Stoner, 7:48-55, 8:46-52, 9:18-30. When the remote controller receives operational information, it updates its user interface to display whether the HVAC controller's or remote controller's temperature sensor data is currently in control of the HVAC controller, as shown in Fig. 4C. Stoner, 8:46-9:10, 9:34-42. Neikirk, ¶169.

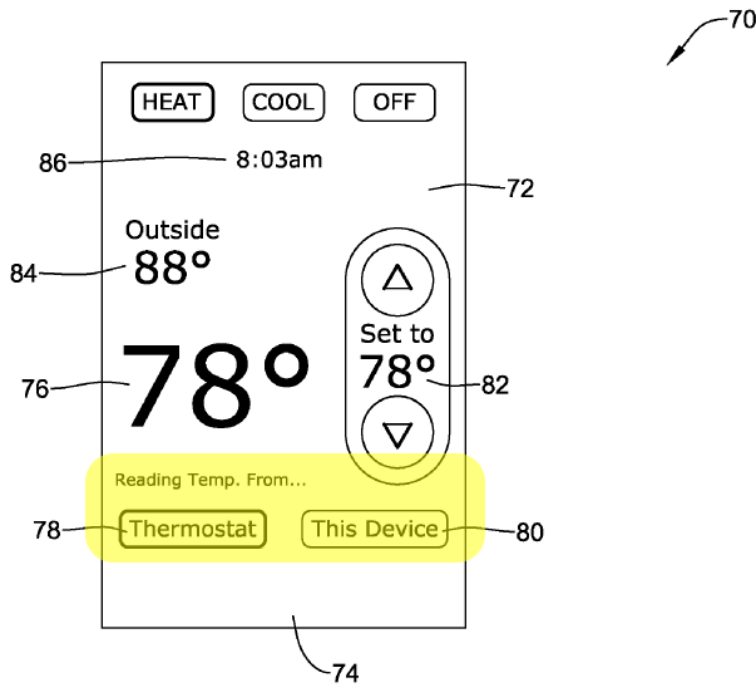


Figure 4C

2. Motivation to Modify McFarland (and Kates-089) with Stoner's Teachings

Like McFarland and **Kates-089**, **Stoner** is in the same field as the '282 and reasonably pertinent to the alleged problem(s) identified in the '282. See §X.B.2; Stoner, Abstract, 1:15-61 (automation system), 2:27-53, 4:28-53, 5:24-36 (energy consumption). Neikirk, ¶170.

McFarland teaches an automation system with devices that monitor temperature, humidity, and other conditions. McFarland, [0036]-[0044]. **Stoner** teaches modifying such a system to use a portable remote controller that monitors conditions and displays the system's status, including specific sensors currently used for control. Stoner, Figs. 4A-4D, 5:13-16, 8:28-9:57. A POSITA would have

been motivated to modify **McFarland** (with **Kates-089**'s teachings optionally applied) with **Stoner**'s teachings by making **McFarland**'s automation device a remote controller as taught by **Stoner**, yielding a device that can be used to adjust system settings from any location with an interface displaying, e.g., the current sensor data being used for control, for several reasons. Neikirk, ¶171.

First, **Stoner** explicitly discloses that its remote controller teachings advantageously improve systems like **McFarland**'s. **McFarland** includes devices “installed, positioned, and/or located” around a building. **McFarland**, [0036]. **Stoner** teaches that such typical thermostats and sensors are wall-mounted. **Stoner**, 1:28-37. Such fixed-location sensors and devices often “do not accurately represent the actual environmental conditions at the location of the occupants,” and are harder to use for control. **Stoner**, 1:38-47. **Stoner** further teaches that its “remote controller 14 may be any suitable device[.]” **Stoner**, 6:24-28. A POSITA therefore would have been motivated to modify **McFarland** by making **McFarland**'s automation component a remote controller based on **Stoner**'s explicit teachings of using remote controllers to improve the accuracy and usability of a system. *See id.*; **Stoner**, 2:15-3:5; Neikirk, ¶172.

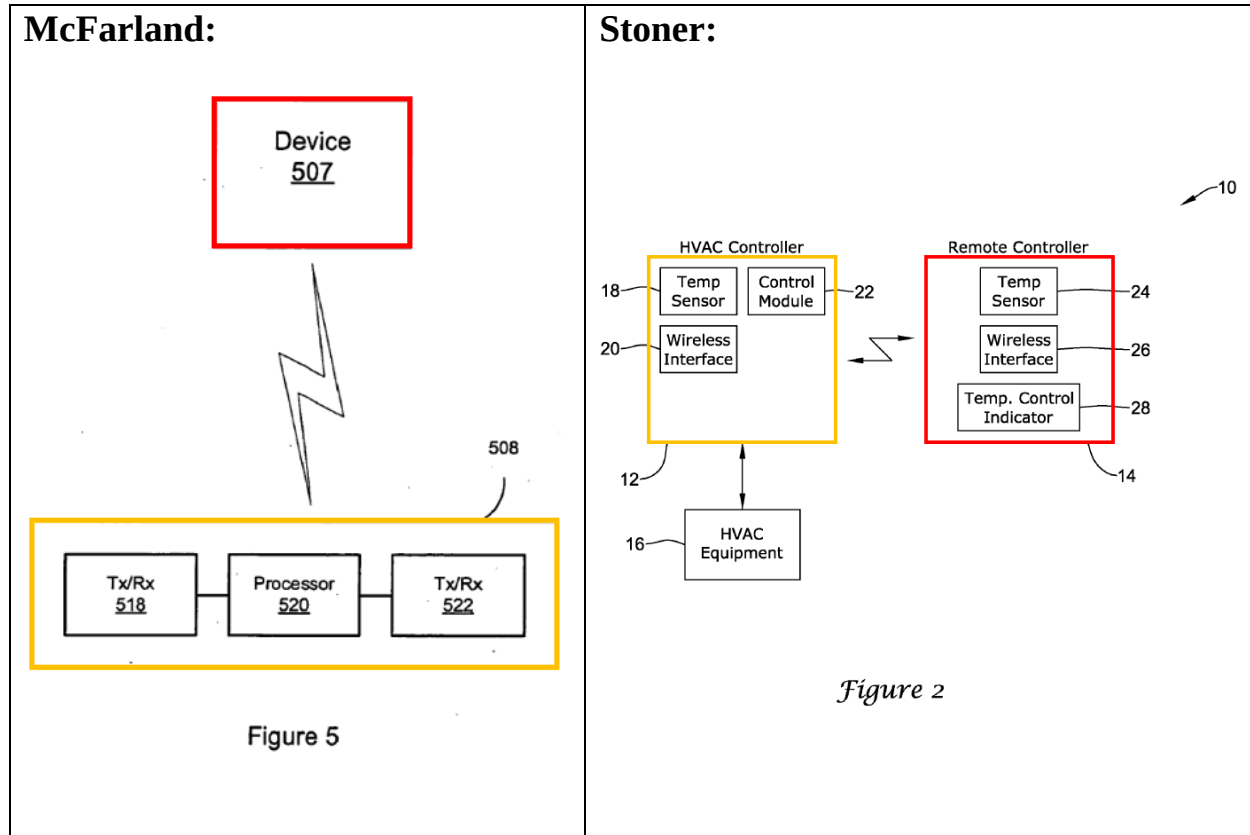
Second, **Stoner** teaches applying its remote controller to a system like **McFarland**'s to advantageously detect temperatures where users are currently located. **Stoner**, 1:28-42, 4:54-5:36. **Stoner** teaches that making sensors (such as

those in **McFarland's** device) portable in a remote controller that “can be carried to various rooms or locations” enables using sensors “at the current location of the Remote Controller 14, instead of using the temperature (and/or other [parameter]) sensed at the fixed location of the HVAC controller 12” for control. Stoner, 5:5-10; Neikirk, ¶173.

Third, **Stoner** teaches that it is advantageous to display the sensor currently used to control the system to allow the user to better make desired changes. Stoner, 1:42-47, 4:36-40, 4:50-53, 8:28-9:57. Wall-mounted thermostat systems require occupants to “walk over and physically interact with the controller”—at times to different controllers in different zones. Stoner, 1:42-47. A POSITA would have been motivated to modify **McFarland's** device with **Stoner's** display teachings to advantageously allow the user to make changes and determine system status without visiting multiple fixed controllers/devices. Stoner, 4:31-40, 5:11-36, 7:48-55; McFarland, [0024]. Neikirk, ¶174.

Fourth, **Stoner** teaches implementing devices including the hardware components in **McFarland's** automation devices using a remote controller. McFarland, [0038]-[0040]. **Stoner's** remote controller “may be any suitable device[,]” and is a sophisticated device in communication with a controller to wirelessly communicate sensor data—just like **McFarland's** device. Stoner, 4:31-40, 4:54-5:4, 6:24-28, 9:24-30; McFarland, Fig. 5 (**automation device 507** in

communication with **controller 508**) and Stoner, Fig. 2 (**remote controller 14** in communication with **HVAC controller 12**).



A POSITA therefore would have been further motivated to make **McFarland's** device a remote controller as taught by **Stoner** based on their similar teachings of these devices in order to capture the above benefits of **Stoner's** portable remote controller. Neikirk, ¶175.

Applying **Stoner's** teachings thus yields a system in which **McFarland's** automation device indicates the sensors currently in control at the controller, enabling users to better control the operation of the system. *E.g.*, Stoner, 1:28-47, 2:15-3:4, 4:41-53, 6:45-7:18. A POSITA also would have reasonably expected

success. **McFarland** discloses that the automation device includes the same essential components as **Stoner's** remote controller, and performs similar functions as **Stoner's** remote controller including receiving status information and providing information for control processes. McFarland, [0018], [0038], [0040], [0061]. Neikirk, ¶176 (describing expectation of success, including as reflected in Simon (Ex. 1028), [0030], [0053], [0138]-[0142]) and Tice (Ex. 1040, 2:60-3:3, 3:440-4:33) (describing switching sensors used for control and sharing status data between devices)).

3. Claim Chart (Claims 7-11)

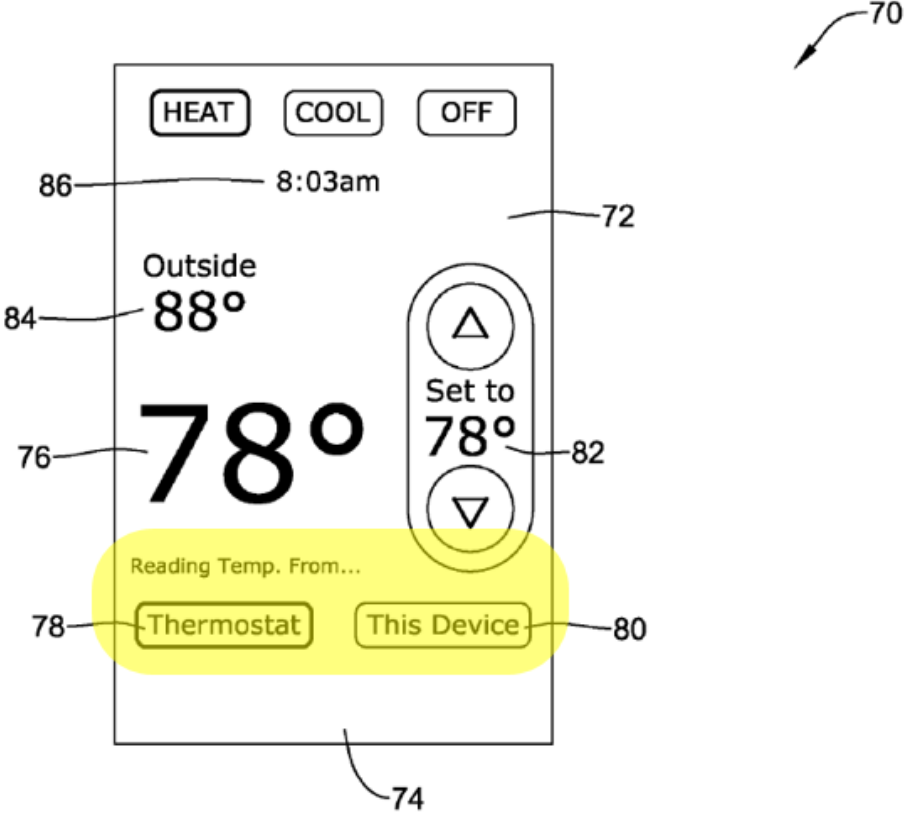
282	McFarland in view of Stoner
[7.pre]-[7.d]	See [7.pre]-[7.d]/[1.pre]-[1.d] (§X.A.2). As discussed for [7.pre]-[7.d]/[1.pre]-[1.d], McFarland teaches a wireless automation device that meets these elements. Stoner further teaches implementing a device that performs the sensor and monitoring functionalities of McFarland's wireless automation device using a remote controller. Stoner, 4:28-5:62. As discussed in §X.C.2, a POSITA would have been motivated to modify McFarland's device with these teachings to advantageously allow the automation system to be monitored and controlled remotely and with sensor data that accurately represents the conditions of occupied locations. Neikirk, ¶177.
[7.e] wherein the computer readable instructions are programmed to:	McFarland discloses [7.e] as discussed in §X.A.2 ([7.e]/[1.e]). To the extent additional disclosure of this element is required, Stoner further discloses receiving status data related to sensor data in control at a second automation

282	McFarland in view of Stoner
receive status data related to sensor data in control at a second automation component in communication with the building automation system;	component in communication with the building automation system (<i>e.g.</i>, “remote controller” receives “operational information” including “updated system status information, updated operational data and/or other data” from “HVAC controller 12,” including information identifying “the temperature sensor [that] is now controlling” the “HVAC controller 12”). See [1.e]/[7.e] (§X.A.2). In addition to McFarland’s teaching of a “sensor” device communicating with a “controller” in an HVAC system, Stoner further discloses a remote controller in the system with its own sensors and that is portable such that the HVAC controller switches between controlling the system (<i>e.g.</i>, a zone of a building) using either the HVAC controller’s or the remote controller’s sensor(s). Stoner, 1:28-42, 4:54-5:50, 8:62-9:52. Neikirk, ¶¶178-180. Stoner further teaches that, based on a predetermined condition, the HVAC controller switches control to, <i>e.g.</i>, use the remote controller’s sensor(s) rather than the HVAC controller’s; the remote controller receives and displays information indicating which sensor the HVAC controller is using for control (<i>e.g.</i>, the HVAC’s or the remote controller’s sensor(s)). Stoner, Figs. 4A-4D, 4:64-5:10, 9:11-67, 10:38-58. This information from the HVAC controller is the claimed status data related to sensor data in control at a second automation component (the HVAC controller).⁸ See <i>id.</i>; Neikirk, ¶¶178-180.

⁸ **Stoner** thus discloses this element under third parties’ proposed constructions as well. See Ex. 1023, 10-11; Neikirk, ¶181. **Stoner** also teaches using, *e.g.*, humidity in addition to temperature for control, and displaying “any or all” such parameters; shared operational information therefore includes all status data about

282	McFarland in view of Stoner
	As discussed in §X.C.2, a POSITA would have been motivated to modify McFarland's device by making it a remote controller as taught by Stoner's remote controller to, e.g., advantageously allow the automation system to be more easily monitored and controlled remotely and with multiple types of sensors at non-fixed, occupied locations. Neikirk, ¶182. <u>E.g., Stoner:</u> • Fig. 4C

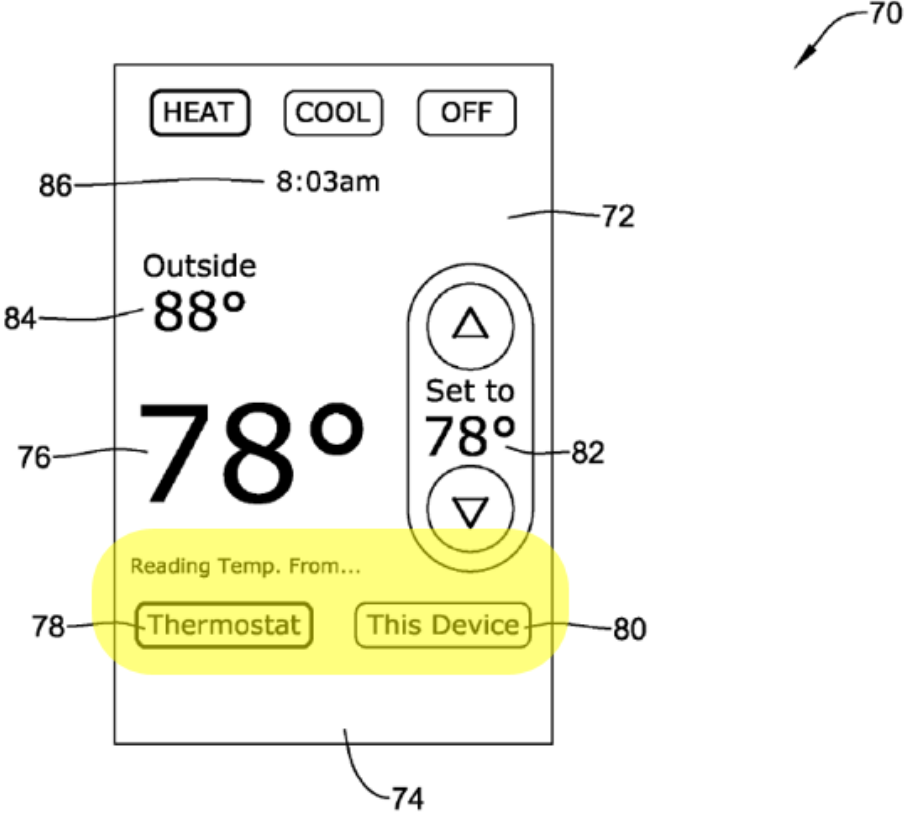
currently-running control routines to display on the device and facilitate performing and displaying status relating to other parameters as well. *E.g.*, Stoner, 4:64-5:10, 9:53-57; Neikirk, ¶181.

282	McFarland in view of Stoner
	 <i>Figure 4C</i> • 3:64-4:10 (“<u>Control module 22 of HVAC controller 12 may be configured to control the comfort level of at least a portion of the building or structure by activating and/or deactivating the one or more HVAC components of HVAC equipment 16.</u> In some cases, control module 22 may be configured to control one or more HVAC functions.... <u>[C]ontrol module 22 may selectively control the comfort level ... using the temperature sensed by temperature sensor 18 or a temperature sensed by a temperature sensor 24 of the remote controller 14...</u>”) • 4:54-63 (“As illustrated, <u>remote controller 14 may include a temperature sensor 24</u> and a wireless interface 26. As briefly mentioned previously,

282	McFarland in view of Stoner
	<i>temperature sensor 24 may be configured to sense the temperature of the environment</i> in the vicinity of the remote controller 14.... In some cases, wireless interface 26 may transmit <i>a signal corresponding to the temperature sensed by temperature sensor 24</i> to the HVAC controller 12.”) • 4:64-5:4 (“Remote Controller 14 can provide for user interaction with the HVAC Controller 12 from locations remote from the HVAC Controller 12.... <i>[T]he remote controller 14 may include a temperature sensor (and/or other type of sensors such as humidity), and may transmit a temperature (and/or other) sensor value</i> to the HVAC Controller 12 for use in controlling the comfort level of at least a portion of the building or structure.”) • 7:61-64 (“By pressing various icon buttons ... the controller can be configured to ... modify various operational settings of the HVAC controller 12.”) • 8:62-9:52 (“<i>[T]he touch screen 54 may also be able to set and/or indicate which temperature sensor (e.g. temperature sensor 18 or temperature sensor 24 of FIG. 1) is being used to control the comfort level of the building or structure.</i> As illustrated, touch screen 74 may include an icon 78 for indicating when the temperature sensor 18 of the HVAC controller 12 is controlling, and an icon 80 for indicating when the temperature sensor 24 of the remote controller 14 is controlling. <i>To indicate which device is controlling, the icon corresponding to the controlling device may include a bold outline, as illustrated by bold outline around icon 80, or may be highlighted or indicated in any other manner, as desired.</i> ... As illustrated in FIG. 4A..., <i>the temperature sensor 24 of the remote controller 14 is currently being used to control the comfort level of the building or structure.</i> When a condition, such as a predetermined condition or

282	McFarland in view of Stoner
	a combination of predetermined conditions, is detected, <u>the temperature control may be automatically switched to use the temperature sensor of the HVAC controller 12.... A data exchange between the HVAC controller 12 and the remote controller 14 may take place during this time period.</u> In some cases, it may take a period of time for the <u>remote controller 14 to communicate with the HVAC controller 12 and to upload and/or download updated data. The updated data can include</u> any suitable data including updated set points, <u>updated sensed temperature readings, updated sensed humidity readings, updated system status information, updated operational data and/or other data,</u> as desired.... As indicated in FIG. 4C, <u>when the remote controller 14 has uploaded the operational information from the HVAC controller 12, the remote user interface 74 may display a similar display 72 as shown in FIG. 4A, with the change of icon 78 indicating that the temperature sensor 18 of the HVAC controller 12 is now controlling instead of the remote controller temperature sensor 24.</u> Also, and in some cases, updated setpoint, sensed temperature, sensed humidity, system status and/or other data may also be displayed. <u>[W]hen the HVAC controller 12 determines that the condition is no longer detected, ... control may be automatically switch back to the remote controller temperature sensor 24.</u> When switching control back to the remote controller temperature sensor 24, as shown in FIG. 4D, a progress bar 88 and icon 80 may be displayed on the remote user interface 74 as described above.”) • 9:53-57 (“While the illustrative temperature control indicator has been described with reference to the remote controller 14, it is contemplated that <u>any or all of the features of the temperature control indicator may instead, or in addition, be included in the user interface</u>

282	McFarland in view of Stoner
	54 of the HVAC controller 12, if desired.”) • See also Figs. 2, 4A-4D; 2:20-26, 3:35-54, 4:11-16, 4:41-50, 5:42-62, 6:29-33.
[7.f] determine the sensor data in control at the second automation component based on the received status data; and	See [7.e] in §X.A.2. To the extent additional disclosure of this element is required, Stoner discloses determining the sensor data in control at the second automation component based on the received status data (<i>e.g.</i>, determine the “temperature sensor ... currently being used to control the comfort level of the building,” and displaying the determination). <u>E.g., Stoner:</u> See [7.c]-[7.e]. Stoner teaches that the remote controller includes a display for showing which sensors (<i>e.g.</i>, belonging to the remote controller or the HVAC controller) are being used to control the system. Stoner, 8:62-66. When the HVAC controller determines that a predetermined condition for switching is met and switches between controlling the system with different sensors, the remote controller receives the operational information from the HVAC controller, determines the sensors in control based on the received operational information, and displays the determination for the user. Stoner, 9:11-42, 9:65-67. As discussed for [7.e] and in §X.C.2, a POSITA would have been motivated to modify McFarland’s automation device with Stoner’s remote controller teachings. Neikirk, ¶¶183-185. • Fig. 4C

282	McFarland in view of Stoner
	 <i>Figure 4C</i> • 8:62-9:52 (see [7.e]) • 9:65-67 (“at block 82, <u>the control module 22 of the HVAC controller 12 may determine if a predetermined condition (or combination of predetermined conditions) has been detected.</u>”) • See also Figs. 4A-4D.
[7.g] communicate the stored sensor data corresponding the sensor data in control to the second	See [7.g] in §X.A.2. To the extent additional disclosure of “sensor data in control” is required, Stoner discloses communicating the sensor data corresponding the sensor data in control to the second automation component (e.g., communicate “a temperature sensed by [the] temperature sensor” and “updated sensed temperature readings,” where the HVAC controller “use[s] the temperature sensed by the remote

282	McFarland in view of Stoner
automation component.	controller 14 to control the comfort level,” and where the HVAC remote controller’s “temperature sensor ... is now controlling”). <u>E.g., Stoner:</u> See [7.c]-[7.f]. Stoner teaches wirelessly transmitting the remote controller sensor data to the HVAC controller. Stoner, 4:14-27. Neikirk, ¶¶186-188. When that remote controller’s sensor data is in control, it communicates stored sensor data (as disclosed by McFarland, see [7.g] in §X.A.2) corresponding to the sensor data in control at the HVAC controller as claimed. See Stoner, 4:46-50, 9:21-30. As discussed for [7.e]-[7.f] and in §X.C.2, a POSITA would have been motivated to modify McFarland’s automation component with Stoner’s remote controller teachings, yielding this element. Neikirk, ¶189. • 4:14-27 (“<u>wireless interface 20 may be configured to communicate with wireless interface 26 of the remote controller 14 to send and/or receive a signal corresponding to, for example, the temperature sensed by temperature sensor 24....</u> Wireless interface 20 may also be coupled to the control module 22 to provide information corresponding to the temperature sensed....”)) • 4:46-50 (“The <u>remote controller 14 may sense an ambient temperature adjacent to the remote controller 14 and relay the temperature to the HVAC controller 12. The control module 22 may then use the temperature sensed by the remote controller 14 to control the comfort level.</u>”)) • 9:11-52 (see [7.e])
[8]-[10]	See [8]-[10] in §X.A.2. Neikirk, ¶190.
[11] The automation component of	McFarland discloses [11] as discussed in §X.A.2. To the extent additional disclosure of this element is required, Stoner further discloses communicating sensor

282	McFarland in view of Stoner
claim 7, wherein the computer readable instructions are further programmed to: communicate all of the stored sensor data corresponding to the received status information to the second automation component.	data corresponding to the received status information to the second automation component (e.g., receiving “operational information” identifying that the remote controller’s temperature sensor “is now controlling,” and communicating “sensed temperature readings”). <u>E.g., Stoner:</u> See [7.e]-[7.g]. Stoner teaches wirelessly transmitting the remote controller sensor data to the HVAC controller. Stoner, 4:14-27. Neikirk, ¶¶191-193. When that remote controller’s sensor data is in control, as determined by the HVAC controller and indicated by the received operational information (status information), the remote controller communicates all stored sensor data (current and prior readings, disclosed by McFarland, see [11] in §X.A.2) corresponding to the received status information as claimed. See Stoner, 4:46-50, 9:21-30. A POSITA would have been motivated to apply these teachings for the same reasons discussed in [7.e]-[7.g] and §X.C.2.

4. Claims 1-5, 13-16, 20-21

As discussed in Grounds 1-2, **McFarland** discloses claims 1-5 and 20-21, and **McFarland** in view of **Kates-089** renders obvious claims 13-16. To the extent additional disclosures are required for elements reciting sensor control information ([1.e]), sensor data in control ([13.f]), and/or first communication ([20.d]), **Stoner** further teaches these elements as discussed for [7.e]. See §§X.C.2-X.C.3 (motivation to combine); Neikirk, ¶194.

As discussed for [7.e], **Stoner’s** received operational information discloses the claimed status data because it includes “updated system status information,

updated operational data, and/or other data” that the remote controller uses to determine and display the sensor that is controlling the automation system. A POSITA would have been motivated to modify **McFarland** with these teachings to advantageously allow the automation system to be monitored and controlled remotely and with sensor data that accurately represents the conditions of occupied locations. See [7.e]; Neikirk, ¶195.

These same teachings also disclose [1.e]/[13.f]/[20.d]. **Stoner’s** received operational information discloses [1.e]’s “control information related to sensor data in control” because it includes data that identifies the sensor data that is controlling the HVAC controller (*e.g.*, the remote controller’s sensor data is in control). Stoner, 9:11-42. Similarly, **Stoner’s** operational information discloses [13.f]’s “sensor data in control” because it identifies the sensor data that is controlling the HVAC controller. *Id.* And, **Stoner’s** operational information discloses [20.d]’s “first communication” because it is a communication from the HVAC controller that identifies the sensor data that is controlling the HVAC controller. *Id.* Neikirk, ¶¶196-198.

Accordingly, **McFarland** in view of **Stoner** and, for claims 13-16, **Kates-089**, renders obvious the Claims.

D. Grounds 5-8: McFarland (Claims 1-5, 7-11, 20-21) and McFarland in View of Stoner (Claims 1-5, 7-11, 20-21), Kates-089 (Claims 13-16), and Stoner and Kates-089 (Claims 1-5, 7-11, 20-21), further in view of Ahmed-629 (All Challenged Claims)

While **McFarland**'s "combination" sensor discloses a multi-sensor package (McFarland, [0043]), to the extent further disclosure is required, **Ahmed-629** further discloses a "MEMS sensor suite" that is "a collection of MEMS sensors," including, *e.g.*, "temperature and humidity" sensors, "incorporated into a single substrate." Ahmed-629, [0047]-[0048]. The sensor suite is used on a "sensor module" used for, *e.g.*, "HVAC sensing" and "building control systems." Ahmed-629, Fig. 2, [0002], [0011]-[0014], [0038], [0044], [0046], [0065]; *see also* [0045]-[0077]. Like **McFarland**, **Kates-089**, and **Stoner**, **Ahmed-629** is in the same field, and reasonably pertinent to the same problems, as the '282. *See* §§X.B.2, X.C.2; Ahmed-629, [0002]-[0014], [0055], [0064], [0067], [0072], [0135]; Neikirk, ¶199. A POSITA would have been motivated to modify **McFarland** (alone and in view of **Kates-089** and **Stoner**) with these teachings to implement **McFarland**'s combination sensor as a MEMS sensor suite on a single substrate, disclosing a multi-sensor module. Neikirk, ¶200.

First, **McFarland** teaches implementing its combination sensor using MEMS, which would include **Ahmed-629**'s teachings of MEMS technology. McFarland, [0043]. **Ahmed-629** was originally assigned to the same company as

McFarland (Siemens), and teaches implementing MEMS sensor suite on a single substrate using well-known commercially available products (e.g., “from Hygrometrics Inc.”). Ahmed-629, [0048]. Indeed, single-substrate sensors were well known. See, e.g., Cummins, Abstract, 2 (single chip wireless sensor manufactured in a single process); Wang (Ex. 1039), [0042] (single chip temperature and humidity sensor); Ahmed-773 (Ex. 1037), [0082] (sensor module including multiple sensors). Neikirk, ¶201. A POSITA therefore would have been motivated to modify **McFarland’s** automation devices to use **Ahmed-629’s** teachings relating to well-known, commercially available products identified by McFarland’s assignee to be used for the same purpose. Neikirk, ¶201.

Second, applying **Ahmed-629’s** teachings of a MEMS sensor suite advantageously simplifies and reduces manufacturing costs and saves power. **McFarland** teaches applying its teachings in a variety of building control applications including, e.g., HVAC and other systems. McFarland, [0002], [0019], [0024], [0063]. **Ahmed-629** teaches using MEMS sensor suites with multiple different “selectable” MEMS sensors, such that the same module “may be manufactured for use in a large majority of HVAC sensing applications.” Ahmed-629, [0002], [0049], [0054], [0056], [0069]. A POSITA therefore would have been motivated to apply **Ahmed-629’s** teachings of a single-substrate sensor to advantageously reduce design and manufacturing costs—and it was known that

such integration also reduces power. Ahmed-629, [0007], [0010]; *see also* Cummins (Ex. 1038), 1-2 (teaching a single-substrate sensor device, stating that “[o]ne of the main driving forces in the electronics industry is the desire to achieve greater integration of functionality so that production is more automated, and size and per-unit cost reduced,” and “higher integration generally results in lower power”); Neikirk, ¶202.

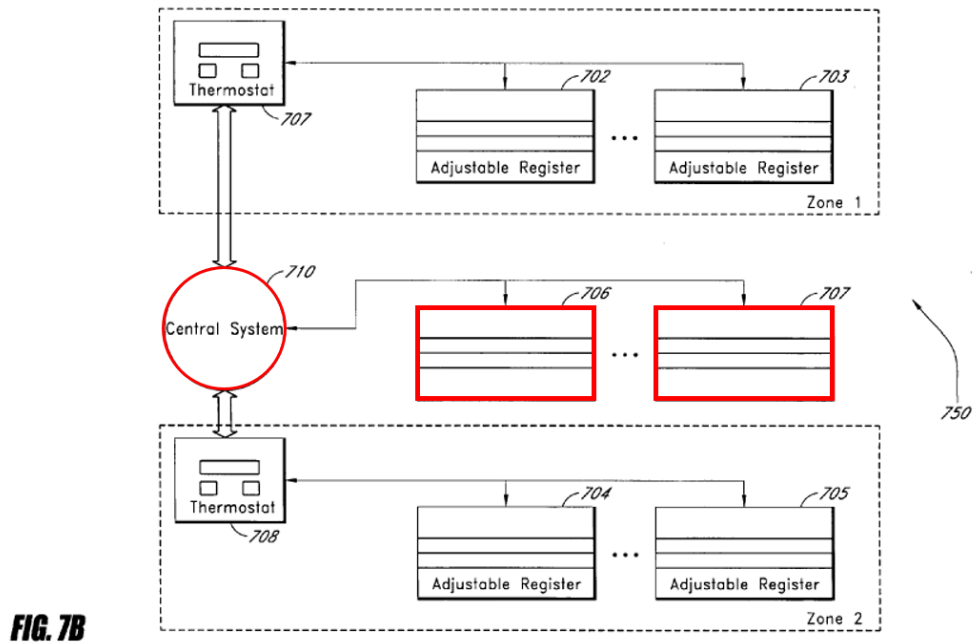
In light of the above teachings, a POSITA also would have reasonably expected success in applying **Ahmed-629’s** multi-sensor package to **McFarland’s** automation device. Indeed, **McFarland** discloses that its sensor is a combination sensor and specifically suggests using a MEMS sensor, and **Ahmed-629** expressly discloses the details of MEMS sensors that sense the same conditions of interest in **McFarland’s** system. McFarland, [0043]; Ahmed-629, [0047]-[0048]. Indeed, sensors were well-understood by POSITAs, as their design and function of producing signals representative of sensed conditions would have lent themselves to integration in most signal processing systems without undue experimentation. McFarland, Fig. 3, [0043]-[0047]. A POSITA would therefore have found it obvious and straightforward to use the MEMS sensors taught by **Ahmed-629** to sense environmental conditions. Neikirk, ¶203.

Accordingly, each of the Claims is further obvious for the reasons set forth for Grounds 1-4, as further modified with **Ahmed-629**'s teachings of a single-substrate MEMS sensor suite that disclose a multi-sensor package. Neikirk, ¶204.

E. Ground 9: Kates-089 in View of Ahmed-629

Kates-089 in view of **Ahmed-629** alternatively further renders obvious [20]-[21]. See §§X.B.1; X.D; Neikirk, ¶205.

[20.pre]. To the extent limiting, **Kates-089** discloses a method for providing power saving wireless communication (*e.g.*, “wireless communication” between ECRVs allows “power conservation” in a “zoned system” that “reduces energy consumption”) within a building automation system (*e.g.*, “HVAC system” in “building structure”). **Kates-089**, Abstract, [0008]-[0010], [0056], [0075], [0077]-[0078], [0084], [0086], [0094], [0103]. **Kates-089** teaches that implementing its ECRVs that communicate wirelessly converts an HVAC system into a zoned system that “reduces energy consumption” as shown, *e.g.*, in Fig. 7B. *Id.*



Neikirk, ¶¶206-208.

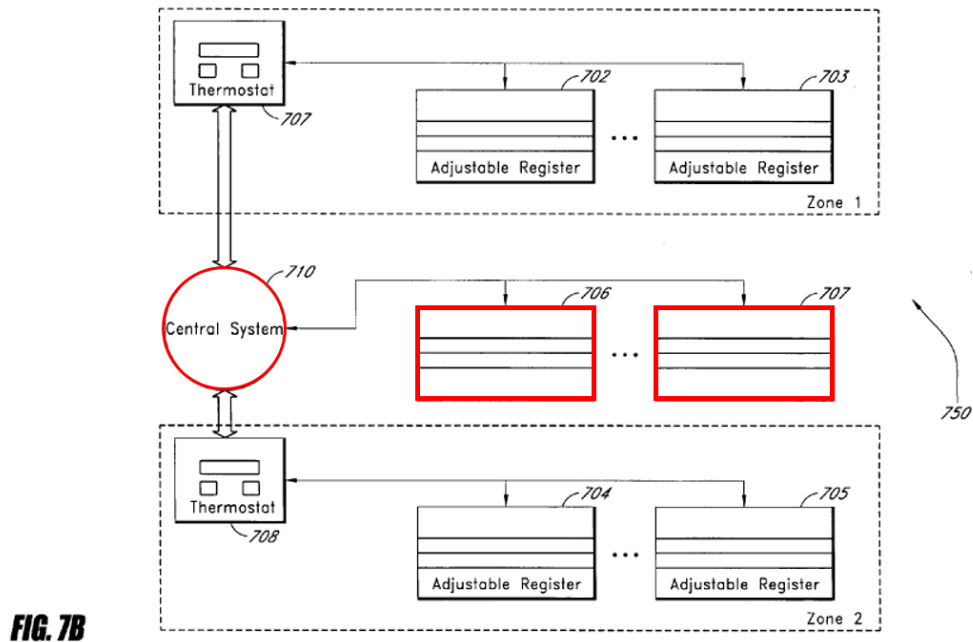
[20.a]. **Kates-089** discloses scanning sensor data associated with each of a plurality of sensors (*e.g.*, “sensor readings are taken ... from one or more sensors” during a “reporting loop process”) of a first automation component (*e.g.*, “ECRV” that includes “air pressure and/or airflow sensor,” “humidity sensor,” and “temperature sensors”). **Kates-089**, [0041], [0051], [0064], [0076], [0086], [0097], Figs. 4-5, 10, 16. These sensor values are periodically scanned as part of a “reporting loop process” monitoring multiple sensors on the ECRV. *Id.*; Neikirk, ¶¶209-211.

Ahmed-629 further discloses the sensors contained within a multi-sensor package. See §X.D. A POSITA would have been motivated to modify **Kates-089** and reasonably expected success for the same reasons explained in §X.D for

McFarland, due to **Kates-089**'s similar compatibility and ability to benefit from the reduced costs and power savings. *See id.*; Kates-089, [0007]-[0010], [0050], [0075]-[0076], [0094], [0101]; Neikirk, ¶¶212-213.

[20.b]. Kates-089 discloses identifying changed sensor values within the sensor data (*e.g.*, “if the sensor data is outside a specified range ... then the process advances to a transmit data block,” otherwise, “the process advances to a sleep block”). Kates-089, [0076], [0107]. A change in sensor values causes the ECRV to “transmit data”—and therefore only values identified as changed are transmitted; when sensor values have not changed, the ECRV returns to a “sleep block.” Neikirk, ¶¶214-216.

[20.c]. Kates-089 discloses receiving a first communication (*e.g.*, during a “listen block ... where the ECRV ... listens for instructions,” receive a “request instruction”) from a second automation component in communication with the first automation component and the building automation system (*e.g.*, from component in “central system” that “communicates with the ECRVs” within the building automation system (*see* [20.pre])). Kates-089, [0008]-[0010], [0056], [0076]-[0080], [0090], [0104]-[0107], Fig. 7B. Fig. 7B shows a “Central System,” which issues the “request instruction” to one or more ECRVs.



Neikirk, ¶¶217-219.

[20.d]. **Kates-089** discloses communicating a portion of the identified changed sensor values (*e.g.*, “report sensor data to the central system”) associated with the first communication received from the second automation component (*e.g.*, in response to “request instruction from the central system”). Neikirk, ¶¶220-222. For example, if a **“request instruction”** is issued for the most recent sensor data when sensor data is **“outside a specified range,”** then the ECRV will **“perform instructions” by reporting that most recent sensor data** to the central system. Kates-089, [0076], [0079], [0090], [0107], Fig. 16:

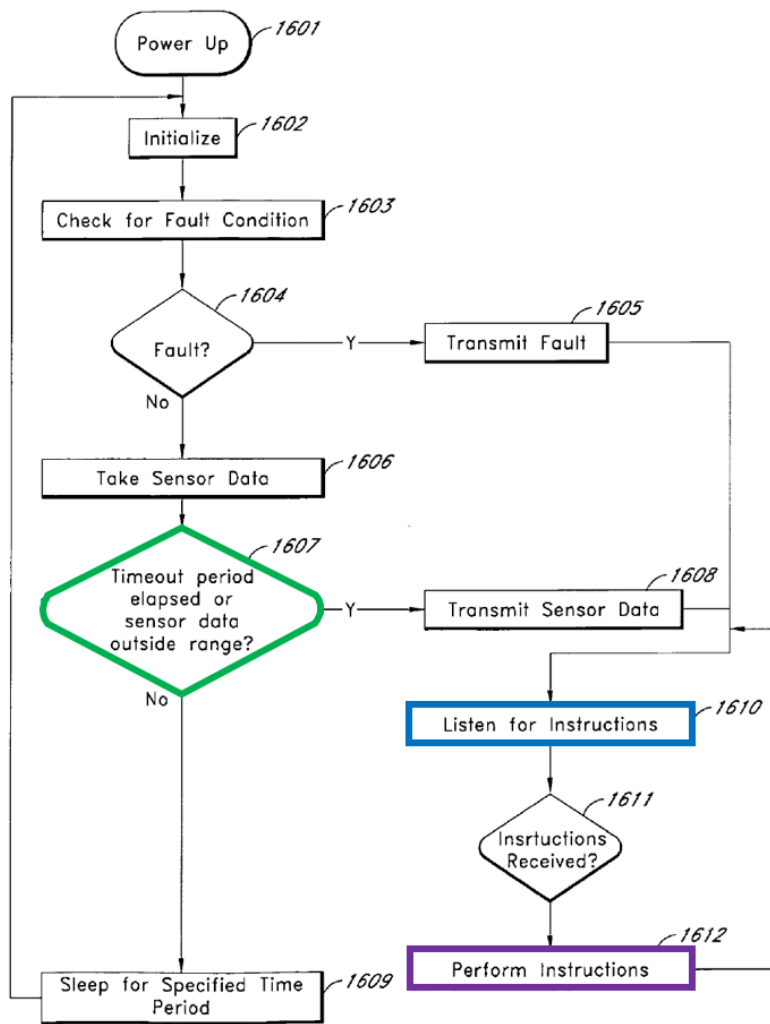


FIG. 16

Neikirk, ¶¶221-222.

[21]. **Kates-089** discloses the method of claim 20, wherein identifying changed sensor values includes identifying changed sensor values as a function of a change-of-value threshold (see [20.b]). The “threshold range” is used to evaluate sensor values, *e.g.*, detecting a “change[] by a specified amount specified by a threshold value”; if so, the values are communicated—thus disclosing identifying

values as a function of the change-of-value threshold to be transmitted based on whether they exceed this threshold. Kates-089, [0076], [0104], [0107]; Neikirk, ¶¶223-225.

XI. SECONDARY CONSIDERATIONS

There is no evidence in the prosecution history of the '282 or any related application that arguments regarding secondary considerations exist, let alone arguments that could overcome the strong showing of obviousness above or that have a sufficient nexus to any of the Claims. *See generally* '282FH; Neikirk, ¶226. Indeed, as demonstrated by the prior art referenced herein, any purported solutions to problems or unexpected results in the '282 were already well known. Neikirk, ¶226. To the extent PO asserts the existence of secondary considerations in its responses, Petitioner reserves the right to address any such evidence.

XII. CONCLUSION

Substantial, new, and noncumulative technical teachings have been presented for the '282's Claims, which are anticipated or rendered obvious for the reasons set forth above. There is a reasonable likelihood—and it is highly likely—that Petitioner will prevail as to claims 1-5, 7-11, 13-16, and 20-21. *Inter partes* review of these Claims is accordingly requested.

Dated: March 6, 2023

Respectfully submitted,

/James L. Davis, Jr./

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 CFR §42.24(a) and (d), the undersigned hereby certifies that this Petition for Inter Partes Review complies with the type-volume limitation of 37 CFR §42.24(a)(i) because, exclusive of the exempted portions, it contains 13,925 words as counted by the word processing program used to prepare the paper.

Dated: March 6, 2023

/Daniel W. Richards/

Daniel W. Richards

Reg. No. 69,652

CERTIFICATE OF SERVICE

The undersigned certifies service pursuant to 37 C.F.R. §§42.6(e) and 42.105(b) on the Patent Owner by Priority Mail Express of a copy of this Petition for *Inter Partes* Review and supporting materials at the correspondence address of record for the '282 patent:

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PALO ALTO, CA 94306

Courtesy copies of the same documents were also served at the following email addresses of record for Ollnova Technologies Ltd.'s litigation counsel:

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Dated: March 6, 2023

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