

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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TESLA, INC.,  
Petitioner

v.

CHARGELOGIC LLC,  
Patent Owner

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Case IPR2026-00379  
U.S. Patent 11,508,996

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**PATENT OWNER'S PRELIMINARY RESPONSE**

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## EXHIBIT LIST

| Exhibit No. | Description                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2001        | March 26, 2025 USPTO Memorandum on Interim Processes for PTAB Workload Management, available at <a href="https://www.uspto.gov/sites/default/files/documents/InterimProcesses-PTABWorkloadMgmt-20250326.pdf">https://www.uspto.gov/sites/default/files/documents/InterimProcesses-PTABWorkloadMgmt-20250326.pdf</a> (“Process Memorandum”)                                                                                      |
| 2002        | March 11, 2026 Squires Memorandum on Additional Discretionary Institution Considerations – U.S. Manufacturing and Small Business Use of AIA Proceedings, available at <a href="https://www.uspto.gov/subscription-center/2026/uspto-issues-additional-discretionary-institution-facts">https://www.uspto.gov/subscription-center/2026/uspto-issues-additional-discretionary-institution-facts</a> (“Small Business Memorandum”) |
| 2003        | Excerpts from File History of U.S. Patent Application 18/298,152 (issuing as U.S. Patent No. 12,272,189)                                                                                                                                                                                                                                                                                                                        |
| 2004        | USPTO Reexaminations – FY 2026, Quarter ending 6/30/2026, available at <a href="https://www.uspto.gov/sites/default/files/documents/reexamination-op-stats.pdf">https://www.uspto.gov/sites/default/files/documents/reexamination-op-stats.pdf</a>                                                                                                                                                                              |
| 2005        | Tesla, Inc. Form 10-K for the Year Ending December 31, 2025                                                                                                                                                                                                                                                                                                                                                                     |
| 2006        | Complaint for Patent Infringement and Jury Demand, <i>ChargeLogic LLC v. Tesla, Inc.</i> , C.A. No. 7:26-cv-00100 (W.D. Tex. March 23, 2026)                                                                                                                                                                                                                                                                                    |
| 2007        | Shareholder Deck for Q2 2026 Update, Tesla Investor Relations, July 22, 2026, available at <a href="https://assets-ir.tesla.com/tesla-contents/IR/TSLA-Q2-2026-Update.pdf">https://assets-ir.tesla.com/tesla-contents/IR/TSLA-Q2-2026-Update.pdf</a>                                                                                                                                                                            |
| 2008        | NHTSA Part 583 American Automobile Labeling Act Report for 2026, available at <a href="https://www.nhtsa.gov/part-583-american-automobile-labeling-act-reports">https://www.nhtsa.gov/part-583-american-automobile-labeling-act-reports</a>                                                                                                                                                                                     |
| 2009        | CM/ECF Docket Report, <i>ChargeLogic LLC v. Tesla, Inc.</i> , C.A. No. 7:26-cv-00100 (W.D. Tex.) (as of August 23, 2026)                                                                                                                                                                                                                                                                                                        |

| <b>Exhibit<br/>No.</b> | <b>Description</b>                                                                                                                   |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 2010                   | Joint Proposed Scheduling Order, <i>ChargeLogic LLC v. Tesla, Inc.</i> , C.A. No. 7:26-cv-00100, Doc. 34-1 (W.D. Tex. Aug. 10, 2026) |
| 2011                   | U.S. Patent 10,090,567                                                                                                               |
| 2012<br>-<br>2099      | RESERVED                                                                                                                             |
| 2100                   | Declaration of Samuel Russ, Ph.D.                                                                                                    |

## **I. INTRODUCTION**

Patent Owner (“Patent Owner” or “ChargeLogic”) respectfully submits that Petitioner has failed to establish a reasonable likelihood that any challenged claim is unpatentable. Petitioner’s element-by-element approach—providing separate proposed combinations, motivation-to-combine, and reasonable-expectation-of-success analyses for individual claim limitations rather than the claimed inventions as a whole—constitutes impermissible hindsight reconstruction uniformly prohibited by *KSR* and Federal Circuit precedent. This approach uses the claims as a roadmap to craft sub-combinations tailored to meeting individual claim elements while failing to address why the claim as a whole would have been obvious.

This approach has the undoubtedly intended effect of hiding the flaws in Petitioner’s analysis. For example, while Petitioner asserts that the Yokota reference discloses allowing selection of an enabled menu function to target a single claim element, Petitioner’s four-way combination (Izuno-Minoshima-Canedy-Yokota) fails to teach or suggest enabling a previously-disabled user control in response to detecting alignment—serial, linked limitations that Petitioner has not shown are disclosed by the asserted references.

Petitioner’s approach also improperly picks and chooses isolated elements from the asserted references, again contrary to unanimous precedent. Most egregious here are Petitioner’s proposed combinations with Minoshima, which extract only one aspect

from Minoshima’s integrated positioning system—its proximity sensors—while discarding the moveable support arm that is critical to Minoshima’s functionality and which defines its permissible misalignment range. Petitioner justifies this as a mere “design choice,” but fails to provide any technical reasoning explaining why this one part of Minoshima’s system would be expected to achieve proper alignment in Izuno’s stationary-coupler system.

Because Petitioner has failed to demonstrate that the proposed combinations possess all claim limitations, or that they had a reasonable expectation of success, and has otherwise failed to prove obviousness, the Board should deny institution.

## **II. LEVEL OF ORDINARY SKILL IN THE ART**

Petitioner’s proposed level of ordinary skill requiring experience in unspecified “automotive systems” is too generic. Pet. 2. Experience with transmissions, cooling systems, and other systems unrelated to batteries or battery charging would not contribute to skill in the relevant art. EX 2100 ¶ 44. Petitioner’s specification of “electric vehicle battery charging systems” (Petition, 2) is also too narrow, as it would exclude someone having significant experience in electric battery charging systems for use in other applications besides electric vehicles. EX 2100 ¶ 44. Thus, the level of ordinary skill in the art would require only two years of experience with electric battery charging systems, of whatever application. *Id.* Patent Owner agrees that experience or training in this field may offset less formal education and that advanced degrees or

education may offset lower levels of industry experience. Here, Patent Owner relies on the testimony of Dr. Samuel Russ, who qualifies as a POSITA under either party's definition. *Id.* ¶ 45.

### III. CLAIM CONSTRUCTION

Petitioner must identify “[h]ow the challenged claim is to be construed.” 37 C.F.R. § 42.104(b)(3). Failure to construe a claim term in controversy, or providing an incorrect claim construction, is grounds for denial. *Jiawei Tech. (HK) Ltd. v. Richmond*, IPR2014-00937, Paper 22 at 7-8 (PTAB Dec. 16, 2014) (noting that “[i]t is Petitioner’s burden to explain how the challenged claims are to be construed and how they read on the prior art” and finding that petitioner failed to meet that burden for an unconstrued claim term); *United Microelectronics Corp. v. Lone Star Silicon Innovations LLC*, Case IPR2017-01513, Paper 8, 16-18 (PTAB Jan. 31, 2018) (reiterating the Board may decline to institute when patentability challenges depend on an incorrect claim construction). Here, Petitioner asserts that it merely applies the “ordinary and customary meaning of all claim terms,” without providing any explanation of any such meanings. Petition, 4.

Patent Owner does not identify any terms that require construction at this time, because as shown herein Petitioner’s asserted grounds do not render any independent claim (and therefore any dependent claim) unpatentable, based on Petitioner’s analysis. Patent Owner reserves the right to propose a construction of any terms it later identifies

as necessary to resolve the dispute should the Board institute trial.

#### **IV. RELEVANT ASSERTED PRIOR ART**

##### **A. Izuno**

Izuno discloses an automatic electromagnetic induction charging system. EX 1004 [0001]-[0007], [0010], [0019]. The system comprises four primary components: (1) a vehicle system installed in the user's electric vehicle; (2) a user communication terminal for remote monitoring; (3) a service system server that centrally manages vehicle information and controls battery charging; and (4) a charging station capable of contact-free charging. *Id.* [0012]. The vehicle system is configured around an electronic control unit (ECU), which controls the motor via the inverter 13 and manages the battery 12. *Id.* [0015]-[0016]. The ECU also includes a communication module for transmitting battery information to the service system server 100. *Id.* [0016]-[0018]. During charging, the user's communication terminal (e.g., in-vehicle display or mobile phone) connects to server 100 and enables the user to receive "battery charge level, charge status, time remaining until full charge, remaining capacity, and estimated driving range." *Id.* [0013]-[0014].

When the vehicle is parked in a predetermined charging space, the vehicle charging coupler and the charging station's charging coupler are positioned opposite each other, enabling contact-free charging via electromagnetic induction. *Id.* [0019]-[0020]. Server 100 periodically acquires and manages user vehicle information,

enabling optimal and flexible charging control. It determines charging feasibility, calculates the required charge amount, charging time, and estimated driving range. *Id.* [0022]. The charging schedule is determined by estimating battery degradation and setting optimal charging parameters. *Id.* [0032].

Importantly, the charge-related activities of the vehicle system (controlled by the ECU) include communicating vehicle information such as battery voltage, remaining battery capacity, and fault information, as well as selected charging mode, to the system server 100. *Id.* [0023], [0026]-[0027], Fig. 3. The service system server determines whether the vehicle is appropriately parked for charging in a predetermined position and, based on stored vehicle information and information received from the ECU, determines whether charging is possible, calculates driving range based on battery capacity and charging schedule, and initiates charging when all prerequisite conditions are satisfied. *Id.* [0030]-[0035], Fig. 4. The charging station 60, upon receipt of the appropriate signal from server 100, controls power supply for charging. *Id.* [0036]-[0037].

## **B. Minoshima**

Minoshima discloses a system that determines whether an electric vehicle has been correctly parked for inductive charging. EX 1005 [0001], [0006]-[0007]. Its primary embodiment utilizes a power receiving coupler for battery charging on the underside of an electric vehicle. *Id.* [0016]. In a garage, a ground-level charging device

has a power transmitting core mounted at the end of a support arm that is movable widthwise (X), up-down (Z), and rotatable 90 degrees. *Id.* [0018]-[0019]. A position detection system integrated with the support arm employs two spaced apart proximity sensors on the ground-level charging device that detect a component on the front bumper of the vehicle. *Id.* [0021]. When the vehicle is parked straight, both proximity sensors detect the detected component on the front bumper. *Id.* [0033]. When the signal transmitted from a vehicle mounted transceiver is received and both proximity sensors are activated, the controller determines whether the vehicle is within a permissible misalignment range, derived from the support arm's ability to move the power transmitting core, and displays a message that the parking position is appropriate for charging or not. *Id.* [0035]-[0039]. If the positioning allows for charging, the support arm moves, utilizing a current detection circuit that detects changes as coils approach each other to complete the alignment between the two coils. *Id.* [0041]-[0042], [0046]. Thus, in Minoshima, the power-transmitting coupler moves via support arm toward the vehicle. *Id.* [0018]. This is the reverse of the claimed arrangement where *vehicle* movement achieves alignment.

Minoshima discloses various alternatives without elaboration on their implementation, including placing the proximity detectors on the vehicle with the detected components on the charger. *Id.* [0059].

### **C. Canedy**

Canedy addresses the problem of indicating the distance from a car's bumper or spoiler to an object such as a curb while parking. EX 1006, 1:5-8. Its improvement over existing systems is providing both audio and visual warnings along with a digital readout of exact distance. *Id.*, 1:10-16, 1:28-34. Canedy discloses optical sensor units (transmitter and detector) on both right and left sides of a vehicle's spoiler, which detect the distance (in a single direction) to a solid object. *Id.*, 3:6-22, Fig. 1. A microprocessor controls the detection process; when sensors on one side come within eighteen inches of an object, the microprocessor activates a light on that side in a silhouette on the display. *Id.*, 3:58-4:23. The microprocessor controls a seven-segment display array to indicate the distance from the object to the vehicle, including arrow indicators. *Id.* By delivering an exact distance indication to the operator during parking, the operator is better able to park within the parking space. *Id.*, 5:26-42.

Canedy is entirely unrelated to inductive battery charging. Canedy discloses a parking-distance detection device that works in a single axis. Its microprocessor and display show only distance information; they do not display multidimensional alignment data. *Id.*, 3:35-47.

### **D. Yokota**

Yokota relates to "function executing apparatuses" and associated menu item display methods; its embodiments relate solely to routing and navigation systems. EX

1007 [0002]-[0003]. Yokota explains that that memory limitations restrict the number of addresses that can be registered (e.g., 90 addresses). *Id.* [0022]. When registration or editing that has been normally performed suddenly cannot be performed, the user becomes confused and may think the apparatus has broken; when attempting to select a shaded (grayed-out) menu item, the user does not understand why it cannot be selected. *Id.* [0026]. The object of Yokota is to cause the user to recognize the reason why a menu item corresponding to a non-executable function cannot be selected. *Id.* [0027]-[0029].

The function executing apparatus displays menu items on a screen and executes a function corresponding to a selected menu item, and comprises: an operation unit, apparatus state storage unit, menu item-function mapping storage unit, function selecting control unit, display control unit, and function executing control unit. *Id.* [0052]. The function selecting control unit determines, based on the apparatus state, whether a function corresponding to a displayed menu item can be executed. When the function cannot be executed, it disables the menu item from being selected. The display control unit displays the menu item in a distinguishably shaded manner along with the reason it cannot be selected. *Id.* When a function cannot be executed, the display control unit displays a simple message on the field of the menu item informing the user of the reason. Messages are concise: “Empty,” “Full,” “No Guidance,” or the like, and when

applicable the relevant menu item is shaded such that it cannot be selected. *Id.* [0053]-[0054], [0063]-[0064], [0056], [0081].

Yokota's invention and disclosure is uniformly framed around disabling menu items and informing the user of the reason for disability—Yokota never discusses re-evaluation of disabled menu functions or disclose any details about transitioning a function from disabled to enabled. *See id.* [0031]-[0034]. There is no teaching of any method or mechanism for enabling a menu function.

**V. Petitioner mixes and matches isolated portions of the asserted references to stitch together sub-combinations directed at individual limitations, rather than the claimed inventions as a whole.**

The Petition, in its entirety, suffers from two fatal flaws, both demonstrating that Petitioner's analysis is infected with impermissible hindsight reconstruction. First, Petitioner's combinations and analyses explicitly entail combining various references with a modified base reference (Izuno) on an element-by-element basis, supported by element-by-element analysis of motivation to combine and reasonable expectation of success. This type of analysis has been explicitly rejected because it uses the claims as a roadmap to craft sub-combinations tailored to meeting individual claim elements, rather than treating the claims as a whole. Second, to build its element-by-element sub-combinations, Petitioner isolates and extracts various components from the asserted references, ignoring their overall teachings and what they conveyed to those of skill in the art as a whole. Both *KSR*, and Federal Circuit case law before and after, explain that

proper obviousness analysis must focus on the entire claim or invention, and must analyze the prior art references as a whole, versus merely mixing and matching various disclosures to map to the challenged claims.

In *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418-19 (2007), the Court explained that “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. ... This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” Proper obviousness analysis instead required showing why a POSITA would combine the references “in the way the claimed new invention does.” *Id.* The Federal Circuit had previously explained that “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.” *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988). Rather, “the decisionmaker must step backward in time and into the shoes worn by a [POSITA] when the invention was unknown and just before it was made ... [and] must then determine whether ... **the claimed invention as a whole** would have been obvious.” *Id.*, 1073-74.<sup>1</sup>

In *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132 (Fed. Cir. 1985), the court

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<sup>1</sup> Unless otherwise indicated, all emphasis herein has been added.

explained that “[n]ot only must the claimed invention as a whole be evaluated, but **so also must the references as a whole**, so that their teachings are applied in the context of their significance to a technician at the time -- a technician without our knowledge of the solution.” *Feil*, 774 F.2d at 1143. The court condemned the analytical method employed by Petitioner here, where “[t]he claims were used as a frame, and **individual, marked parts of separate prior art references were employed as a mosaic** to recreate a facsimile of the claimed invention.” *Id.* (quoting *W. L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1552 (Fed. Cir. 1983)).

The Federal Circuit further explained in *GE v. Raytheon Techs. Corp.*, 983 F.3d 1334 (Fed. Cir. 2020) that an approach utilizing a motivation to combine each element of the claim “unduly dissects prior art references into collections of individual elements,” and that both “[t]he claimed invention and an invention in the prior art must both be analyzed as a whole for the same reason: an invention is more than the sum of its individual elements.” *GE*, 983 F.3d at 1352; *see also In re Enhanced Security Research, LLC*, 739 F.3d 1347, 1355 (Fed. Cir. 2014) (explaining the court’s holding in *Panduit Corp. v. Dennison Manufacturing Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987) as requiring both challenged claim and references be treated as whole, and that § 103 does not permit “stitch[ing] together an obviousness finding from discrete portions of prior art references without considering the references as a whole”).

Petitioner’s analysis here runs afoul of both of these prohibitions. Petitioner

provides independent motivations to combine and reasonable expectation of success arguments for combinations directed at individual elements, rather than the claims as a whole. In doing so, Petitioner extracts isolated components and systems for combination rather than combinations reflecting the holistic teaching of each reference to a POSITA. *See* Section VI. This is impermissible, and if permitted such an approach would lead to wholesale invalidation of inventions which comprise novel combinations of known elements—which comprise most, if not all, inventions—contrary to *KSR*.

## **VI. GROUND 1 DOES NOT RENDER INDEPENDENT CLAIM 1 UNPATENTABLE**

In Ground 1, Petitioner asserts that Izuno alone teaches claims 1[pre], 1[a], 1[b], and 1[c]. Petitioner asserts that Izuno-Canedy alternatively teaches claim 1[b]. Petitioner then combines Izuno and Minoshima to target claim 1[c][i], but alternatively asserts Izuno-Minoshima-Canedy. Petitioner asserts that Izuno-Minoshima-Canedy discloses claim 1[c][ii], as well as Claim 1[c][iv]-[v]. For claims 1[c][iii], and 1[c][vi]-[vii], Petitioner asserts the full four-reference combination of Izuno-Minoshima-Canedy-Yokota. Petitioner provides one or more separate motivation to combine analyses and reasonable expectation of success arguments with respect to each combination and alternative combination. Petition, 7-59 (providing nine separate motivation to combine and reasonable expectation of success analyses for the eleven claim elements). As shown below, Petitioner fails to show a reasonable likelihood of

proving that Claim 1 is unpatentable. *See* EX 2100 ¶ 118.

**A. 1[Pre]: Izuno does not disclose a vehicle alignment system.**

Petitioner relies solely on Izuno to disclose element 1[Pre], which specifies a “vehicle alignment system for an inductive vehicular battery charger.” Petition, 7. Petitioner admits that Izuno discloses inductive battery charging which is enabled “only after the vehicle is parked in a predetermined position in a charging space.” *Id.*, 9. Petitioner asserts that Izuno teaches a “vehicle alignment system” because in Izuno the user is informed of correct or incorrect alignment by whether charging is able to be performed. *Id.*; EX 1003 ¶ 115. However, nothing in Izuno discloses vehicle alignment or informing the user of appropriate alignment at all; rather, charging is premised on parking in a predetermined position. EX 1004 [0019]-[0020]; EX 2100 ¶ 51. Izuno does not disclose any details of vehicle alignment, but merely a check for whether the vehicle is parked in the predetermined position. *Id.* [0037]; EX 2100 ¶ 51. Dr. Andrews even admits that Izuno does not disclose a vehicle alignment system, explaining that Izuno “does not provide any specific guidance to the user to help them determine how to move the vehicle when it is not aligned, so that charging can begin.” EX 1003 ¶ 117. Izuno simply does not provide any guidance on appropriate alignment, which is instead preestablished based on the predetermined position. EX 2100 ¶ 51. Thus, Izuno alone does not disclose claim element 1[Pre].

**B. 1[a]: Izuno does not disclose the claimed controller.**

Petitioner asserts that Izuno's ECU 11 is the controller required by elements 1[a] and 1[c], including the claimed functions for claims 1[c][i]-[vii]. Petition, 12, 18. While Petitioner first asserts that the ECU alone is configured to perform the claimed functions (*id.*, 12), Petitioner never maps the ECU alone as performing the required functions in elements 1[c][i]-[vii], variously relying on isolated elements extracted from Minoshima, Canedy, and Yokota for this functionality. *Id.*, 18, 28, 33, 38, 43, 48, 52, 58. Based on the Petition alone, Izuno does not disclose the claimed controller. EX 2100 ¶ 52.

Further, Izuno's ECU does not control any charging-related functionality at all; these functions are controlled and determined by Izuno's service system server 100. The vehicle system's ECU controls the vehicle motor (during driving), and manages the battery by monitoring its status and transmits that information (voltage, remaining capacity, fault data) to the server. EX 1004 [0015]-[0018]. It is the server which controls charging operations—setting the charging schedule based on the transmitted battery information, and controlling the charging station 60 before and during charging. *Id.* [0018]; EX 2100 ¶ 53.

Petitioner's proposed modifications to the ECU add certain connections and functions to the ECU (to read it onto claims 1[b], 1[c][i]-1[c][vii]), but Petitioner never modifies the ECU to perform any of the functions of Izuno's system server. EX 2100

¶ 54. This means that the ECU itself does not perform all of the claimed functions, and therefore cannot satisfy the claim limitations as the claimed controller. EX 2100 ¶ 54; *see* Sections VI.C., VI.H.

**C. 1[b]: Izuno’s controller does not manage a communication device and is not coupled to the controller, and adding Canedy requires hindsight reconstruction.**

Petitioner asserts that Izuno’s communication terminal is the claimed display. Petition, 13-14. Petitioner argues that Izuno’s display is coupled to ECU 11 (the mapped controller), because both it and the display are part of the vehicle system, and the ECU transmits battery information to a service system server which in turn calculates charging variables and then transmits them to the user’s communication terminal. *Id.*, 14.

However, Izuno’s ECU 11 is not coupled to the display; although it transmits information to the service system server, it is the system server—not the ECU—that sets a charging schedule based on that information and controls charging by transmitting charging start/end signals to the charging station. EX 1004 [0018], [0022]. The server, not the ECU, then transmits that information to the communication terminal/display. *Id.*, [0022]. Izuno describes no information transferred from the ECU to the display without first being received and processed by the system server. EX 2100 ¶ 56.

Petitioner asserts that the ECU and display are coupled because the display

presents information “originally provided by ECU 11 via service system server 100.” Petition, 15. Even if this were true, Petitioner never provides any claim construction analysis to explain why the server transmitting to the display the same information received from the ECU comprises the claimed coupling. It is not apparent why this qualifies as coupled. EX 2100 ¶ 57. But even if it did, it is untrue—Petitioner’s own discussion of Izuno shows that the ECU provides battery status information to the server; the server does not merely transmit this same information to the display but uses that information to perform various charging operation calculations—and then transmits **the results** of those calculations to the display. Petition, 14-15. This is correct—Izuno does not disclose displaying the battery status information from the ECU, but the results of operations performed on that information. EX 1004 [0018], [0022]. Therefore, even applying Petitioner’s apparent construction of “coupled,” Izuno does not disclose the claimed display coupled to the controller. EX 2100 ¶ 58.

Petitioner recognizes this, and therefore asserts that Canedy’s “electronic circuitry” including microprocessor and displays, which are connected via buses, comprise the claimed display. Petition, 15-16. Petitioner asserts a motivation to combine to improve Izuno’s vehicle in the same way as Canedy’s vehicle, and that a POSITA would have modified Izuno’s display to couple it to ECU 11 for display to the user. *Id.*, 16. As motivation, Petitioner asserts that this would have allowed Izuno’s ECU to “advantageously allow[] the ECU to output information for viewing by the user

(e.g., related to charging, sensor data, proximity).” *Id.*, 16-17. Petitioner asserts that this would “have assisted the user in parking the vehicle, thereby improving accuracy and efficiency of parking in a predetermined position.” *Id.*, 17. Dr. Andrews asserts as an example that “providing information regarding amount of battery left would have benefited Izuno so the driver would know when the vehicle needs to be charged again.” EX 1003 ¶ 127.

Petitioner’s combination fails for at least the following reasons:

- In Izuno, the ECU does not possess the charging information, and therefore cannot transmit it to the display;
- Petitioner never explains why a POSITA would be motivated to add these functions to the ECU, as opposed to Izuno’s server;
- Petitioner never explains why a POSITA would be motivated to add Canedy’s system, nor why it would be expected to work in aligning charging couplers in Izuno.

**First**, in Izuno the server possesses the charging information and information about remaining battery capacity—not the ECU. In Izuno, the server—not the ECU—performs all charging analysis functions, including checking vehicle parking alignment. The ECU’s only function related to charging operations, including parking, was to transmit battery status information (remaining capacity, voltage, fault data) to system server 100, transmit the selected charge mode, and monitor the charging status at the

charging station. EX 1004 [0015]-[0018], [0027]. The server received the information from the ECU and based on that information, determined an optimal charging schedule and controlled charging of the battery via signal to charging station 60. *Id.* [0018], [0032]. Specifically, based on the information from the ECU, the server calculates the amount of charge required, the charging time and the estimated driving range before and after charging, and transmits that information to the vehicle display. *Id.* [0022], [0034], [0035]. The server also determines whether the vehicle is properly parked in the predetermined position that allows for charging. *Id.* [0030]. Thus, Izuno's server—not the ECU—conducted all calculations relating to charging before transmitting it to the display, including alignment evaluation. EX 2100 ¶ 63.

Accordingly, even if the ECU were coupled to the display per Canedy as proposed, the ECU could not output charging information to the display **because it did not have it**. EX 2100 ¶ 64. Nowhere in the Petition does Petitioner propose modifying the ECU so that it would have or determine information related to charging operations, or estimated range—these remain with the system server. *See* Petition, 13-15; *see also* Sections VI.H.; EX 2100 ¶ 64. Further, a POSITA would understand that merely adding these charging functions to the ECU (e.g., estimating the charge time) would require detailed information from the server or charger, such as the currents and voltages being applied. EX 2100 ¶ 64. Because the charging coil is remote from the vehicle, detailed planning and design are required to add such capabilities to the ECU. *Id.* Petitioner

presents no evidence supporting its implicit conclusion that the ECU had such information. Thus, a POSITA would not have recognized any advantage to the ECU outputting information to the display, because even if “allowed” to do so, it had no information to send. *Id.*

**Second**, even assuming that Petitioner proposed modifying the ECU so that it would actually have this information (which is not apparent), neither Petitioner nor Dr. Andrews ever explains **why** a POSITA would have modified Izuno’s system so that this information would be transmitted **directly from the ECU, and not the system server**. EX 2100 ¶ 65. Indeed, in Izuno, **all of the charging information** that Petitioner and Dr. Andrews identify **is already displayed**, but it is transmitted from the server (not the ECU). *Id.* ¶ 66. Because Izuno already displayed this information, there is no advantage to the driver in modifying Izuno’s ECU so that it, instead of the server, transmitted this information to the display. *Id.* The only reason to modify the system as Petitioner proposes is to map it to the challenged claims—i.e., hindsight bias.

Although Izuno does not similarly display its parking alignment determination, it does teach that the alignment evaluation processing resides at the system server, not the ECU. EX 1004 [0030]. While Petitioner asserts that displaying sensor and proximity data would assist the user in parking in the predetermined position, Petitioner again fails to explain **why** a POSITA would have modified Izuno’s system to transfer the alignment evaluation from the server to the ECU. EX 2100 ¶ 67. Because the server

was already doing that analysis, Petitioner has the burden to explain why that would be changed. If providing this information to the driver was advantageous, why would a POSITA modify Izuno so that alignment processing is transferred from the server to the ECU? The Petition does not provide any answer, making its asserted combination deficient. EX 2100 ¶ 67. Once again, the motivation appears to be hindsight bias to map to the challenged claim, not valid reasoning grounded in the prior art references and viewed from the time of the claimed invention.

**Third**, Petitioner never explains why importing Canedy’s circuitry and sensor system would be expected to work with the modified Izuno system. This is discussed in detail for claim 1[c][ii] below, but generally, Canedy’s basic “curb-feeler” system would not be expected to function (or assist in implementation of Minoshima’s system) for alignment of a vehicle with a pad-mounted inductive charging coupler, which Petitioner maintains is present in Izuno (Petition, 65). *See* Section VI.D.2.; EX 2100 ¶ 68.

Petitioner’s entire analysis is premised on hindsight reconstruction. Petitioner extracts Canedy’s circuitry because it teaches coupling a processor to a display, and then manufactures reasons why this would be desirable. But Petitioner’s reasoning is based on the benefits of displaying charging information that is already displayed in Izuno—from the server. Petitioner has not explained any benefit to having Izuno’s existing charging and alignment processing functions transferred from its server to the

ECU. Further, Petitioner has not and cannot show that Canedy’s system would actually function to assist alignment for charging system like Izuno’s. Petitioner’s motivations to combine fail to show why a POSITA would make these modifications, only addressing the feasibility of the proposed changes. This is insufficient to prove obviousness. EX 2100 ¶ 68 (explaining that the Petition’s discussion of connecting buses and off-the-shelf components does not address whether Canedy would be reasonably expected to provide the functionality required by the claim).

Thus, there is no viable motivation to modify Izuno’s ECU to couple it to the controller as required by the claim, nor any reasonable expectation that the combination would function to achieve any of Petitioner’s *ex post* benefits. EX 2100 ¶ 69. The combination only makes sense if one begins with the claim limitation as a frame, and then imports Canedy’s “electronic circuitry” for the express purpose of reading on it.

**D. 1[c][i]-[ii] The proposed combinations import only one aspect of Minoshima’s integrated alignment system, and Petitioner fails to show that the combined system would have reasonably been expected to succeed.**

**1. Izuno-Minoshima lacks implementation details required by the combination, and Canedy’s processor is not configured to control charging operations or oversee charging alignment.**

Petitioner first asserts that Izuno’s ECU “controls the charging of the battery.” Petition, 18. As discussed for claim 1[b], this is not so—Izuno’s server controls the charging of the battery, and Petitioner never proposes transferring that control to the ECU. *See* Section VI.C; *see also* Section VI.H.; EX 2100 ¶ 70.

Petitioner then asserts that Izuno's controller (ECU 11) is modified to "extend the ECU's wireless control to include Minoshima's proximity detection to allow the system to more effectively detect and confirm the required positional relationship (e.g., within the predetermined distance) is satisfied before issuing start charging signals." Petition, 25. Beyond a conclusory analysis that the modification would "simply be a matter of including proximity sensors and detected component ... and related programming instructions to provide positional relationship information to help the user properly align the couplers," Petitioner does not explain how a POSITA would actually modify Izuno's ECU to implement Minoshima's teachings. Petition, 27-28; EX 1003 ¶¶ 156-157 (asserting without support that the modification would be "straightforward and routine" and "a natural and logical consequence of utilizing proximity sensors"). EX 2100 ¶ 73.

Petitioner's reasonable expectation of success analysis generally asserts that connecting components in vehicles via buses, such as a controller and display, was well known in the prior art, and that implementing sensors and a processor in a vehicle would have required only straightforward and routine changes to programming instructions and known, off-the-shelf solutions. Petition, 27-28, 32-33. Given that Minoshima's own detailed disclosure does not describe how a vehicle-side controller would receive and process proximity-sensor signals originating from vehicle-mounted sensors (since, in Minoshima's detailed embodiment, the sensors are on the charging device and the

controller receiving their signals is likewise on the charging device), the assertion that this modification would have had a reasonable expectation of success rests on an unstated assumption that transplanting the sensing function to the opposite side of the system, together with an entirely different signal-processing architecture, would work exactly the same way. EX 2100 ¶ 75. This is an assumption the Petition does not test against Minoshima’s disclosed control logic, which is built around signals arriving at the ground-station controller 20 together with a “P range signal” and “ID identification signal” transmitted wirelessly from the vehicle. EX 1005 [0034]-[0035]; EX 2100 ¶ 75.

As discussed in detail below, a fundamental difference between Minoshima and Izuno is that Minoshima teaches a moveable charger—its support arm moves to align the charging station’s coupler with the coupler on the vehicle. Section VI.D.3; EX 2100 ¶ 72. Petitioner never explains why a POSITA would consider Minoshima’s moveable-charger system to improve Izuno’s stationary pad-based inductive charger. This is because Minoshima teaches a POSITA nothing about how to align a system in which the charging coupler is stationary. EX 2100 ¶ 72. This is an intrinsic incompatibility between the two systems that Petitioner never addresses, and reflects Petitioner’s failure to treat the references as a whole versus merely stitching together isolated disclosures to read on the claim elements.

Further, although Petitioner and Dr. Andrews assert here that Minoshima provides implementation details for utilizing proximity sensors in a vehicle, both later

admit the contrary. *Compare* Petition, 27 & EX 1003 ¶ 156 *with* Petition, 32 & EX 1003 ¶ 165 (“Minoshima simply lacks implementation details for how sensor data is processed when proximity sensors are located in/on the vehicle.” Given their acknowledgement that Minoshima lacks the necessary implementation details for the Izuno-Minoshima combination, it cannot have a reasonable expectation of success absent additional guidance on how to implement Minoshima’s vehicle-side proximity sensor embodiment. EX 2100 ¶ 75.

**2. Canedy’s processor is not configured to control charging operations or oversee charging alignment.**

It is for this reason that Petitioner immediately pivots to add Canedy. In this additional combination, Petitioner asserts that Canedy’s microprocessor teaches the claimed controller. Petition, 28, 30. Petitioner proposes adding “Canedy’s well-known circuitry arrangement where a vehicle microprocessor is coupled to vehicle proximity sensors and display via buses.” *Id.*, 31. Petitioner asserts a reasonable expectation of success because “a setup such as Canedy’s was known ... and would have been a straightforward, off-the-shelf solution.” *Id.*, 32. In the combination, Canedy purportedly provides Minoshima’s missing implementation details via “teaching a microprocessor and communication bus within a vehicle for processing sensor data.” *Id.* The modification is again described as requiring “merely straightforward and routine changes to programming instructions.” *Id.*, 32-33. This includes modifying Izuno’s

processor to utilize proximity sensors by swapping it for a processor such as Canedy's. EX 1003 ¶ 166.

Canedy is completely unrelated to battery charging and appropriate alignment of power cores for inductive charging. Rather, Canedy is simply a "curb feeler" system which addresses the problem of indicating the distance from a car's bumper or spoiler to an object such as a curb while parking. EX 1006, 2:15-34; EX 2100 ¶ 78. It teaches providing both audio and visual warnings along with a digital readout of exact distance. *Id.*, 1:10-16, 1:28-34. Canedy discloses spoiler-mounted optical sensors which detect the distance to a solid object, extending above the ground, in a single direction. *Id.*, 3:6-22, 5:33-36, Fig. 1. While its microprocessor controls the detection process, this involves lighting sensors on a displayed silhouette, and control of a display array indicating distance from the object to the vehicle. *Id.*, 3:58-4:23. Thus, Canedy's microprocessor and display merely shows parking-distance information on a single axis. EX 2100 ¶ 78.

This differs from Minoshima's system, which on two-dimensional alignment data (both lengthwise and widthwise). EX 2100 ¶ 78; EX 1005 [0021]-[0023], [0036]-[0038], Figs. 3(a)-3(c). As discussed below, Minoshima's system also relies on its moveable support arm to provide further fine-tuned alignment of the charging couplers along the vertical axis. EX 2100 ¶ 78; EX 1005 [0018], [0020]. Additionally, the motivation for Canedy's system is so to prevent running over or colliding with a solid

object. EX 2100 ¶ 78. A charging system requires accurate positioning in at least two axes, and being “too far” (having not pulled up far enough) is as useless as being “too close” (having pulled up too far). Thus, Canedy’s controller, sensors, and display are not configured to provide the three-dimensional alignment data required to position a vehicle for inductive charging using Minoshima’s system. EX 2100 ¶ 78.

Petitioner’s conclusory motivation and reasonable expectation of success analyses require using “Canedy’s known technique” to improve Izuno-Minoshima in the same way. Petition, 31. But Canedy’s technique involves the use of optical sensors to detect the single-axis distance to a solid object extending above ground, not proximity sensors that rely on a detected component as in Minoshima. There is no discussion in Canedy of any capability of guiding a driver to precisely align a vehicle with any object, much less an inductive power core, as required for inductive charging, using Canedy’s optical sensors. EX 2100 ¶ 79. This is because Canedy relies solely on a distance measurement from a solid object and alerting the driver when the distance reaches a predetermined limit. *Id.* A POSITA would not have considered Canedy, absent unexplained and significant modification, to be useful when used with proximity sensors detecting the distance from, and relative location to, a specific detected component such as in Minoshima. *Id.* Again, Petitioner’s selection of isolated components from Canedy to map to the claim elements overlooks how a POSITA would have viewed its overall disclosure.

3. **Izuno-Minoshima extracts a single part of Minoshima’s integrated positioning system, and Petitioner fails to provide any articulated reasoning explaining why the combination would be expected to function or achieve any of the purported benefits.**

**(a) Izuno’s system**

Izuno discloses a charging station 60 having a charging coupler 15b installed in the predetermined charging parking space and arranged, for example, beneath the vehicle body. EX 1004 [0015], [0020]. When a vehicle with a charging coupler 15a mounted thereon is parked in the predetermined space at the charging station, the two charging couplers will be “positioned opposite each other” enabling inductive charging. *Id.* [0020]. When a vehicle enters the charging parking space, the service system server checks whether the vehicle is parked at the predetermined position for charging. *Id.* [0030]. If the vehicle is not parked in the predetermined position, the server’s processing ends; if it is, processing continues to either complete charging or not based on other variables. *Id.* [0030]-[0034]. Thus, Izuno discloses that its system relies on the appropriate positioning of the vehicle charging coupler with the charging station’s stationary charging coupler, and is entirely dependent on the correct position of the vehicle in the predetermined parking space. EX 2100 ¶ 80.

**(b) Minoshima’s system**

Like Izuno, Minoshima discloses an automatic charging device for an electric vehicle, but also addresses the specific problem of notifying the driver, while still inside

the vehicle, whether the vehicle has been parked correctly for charging. EX 1005, [Abstract], [0007]. Minoshima's only detailed embodiment describes an automatic inductive charging system, where an electric vehicle has a power receiving coupler on its bottom surface, and a "ground-level charging device" in a garage has a power transmitting coupler. *Id.* [0017]-[0018]. The power transmitting coupler is mounted on the end of a support arm which rotates outward from the charging device, and which is moveable both side-to-side (across the width of the vehicle) and vertically. *Id.* A detected component is mounted on the vehicle, and two proximity sensors are provided on the charging device. *Id.* [0021]. When the vehicle is properly aligned, both sensors detect the detected component, and a vehicle-mounted wireless transceiver transmits a "P range signal" to a transceiver in the charging station, whereupon a display mounted either on the charging station or alternatively in the vehicle displays a "Parking Position OK" message and automatic charging may begin. *Id.* [0027]-[0028], [0033]-[0035], [0040], [0052]-[0053]. When the vehicle is not properly aligned, such that either sensor is not activated, the message "Parking Position NG" is displayed for the driver, indicating that the vehicle must be repositioned. *Id.* [0038]-[0039]. Additionally, the specific direction of misalignment may be indicated, thus notifying the driver of exactly how the vehicle must be repositioned. *Id.* [0056].

If the parking position allows for charging, the charging operation begins and the controller rotates the support arm to its extended state, whereupon the support arm

traverses width-wise and, and via an electromagnetic induction effect between the arm's power-transmitting coupler and the vehicle's power receiving coupler, the controller detects and determines the appropriate width-wise position for the support arm such that the two couplers are aligned for inductive charging. *Id.* [0041]-[0044]. The support arm is then positioned vertically near the power-receiving coupler and charging may begin. *Id.* [0044]. If no charging current is detected, a message is displayed to repeat parking. *Id.* [0045]. The moveability of the support arm provides Minoshima's system with a fine-positioning ability that accommodates limited vehicle misalignment. *Id.* [0020], [0024].

Minoshima states that an alternative embodiment may include using proximity sensors on the vehicle instead of the charging station, with the detected component on the charging station. *Id.* [0059]. This embodiment is not further described. *Id.* Thus, Minoshima provides implementation details for only the primary embodiment where the sensors are located on the charging station. Further, even this embodiment relies on a moveable charging coupler—no embodiment is described which does not include the support arm. EX 2100 ¶ 83.

**(c) Petitioner fails to explain why a POSITA would have expected the combined system to function absent inclusion of Minoshima's integrated positioning system.**

Petitioner's proposed Izuno-Minoshima combination asserts that "the power transfer core is stationary as in Izuno's native arrangement," but relies on Minoshima's

proximity sensors for alignment of the cores. Petition, 19. Petitioner’s justification for jettisoning Minoshima’s movable power-transmitting coupler (on the support arm) is that, “[w]hile Minoshima’s setup allows more flexibility in the allowable position for ‘correctly’ parking the vehicle ... Izuno’s setup is simpler, less expensive, and requires fewer moving parts to implement.” *Id.* Dr. Andrews’ supporting declaration further asserts that Izuno’s setup “avoids the use of complicated mechanical systems that require maintenance or are prone to error or breaking down and additionally are not susceptible to driver error,” i.e., “running into the charging stations.” EX 1003 ¶ 138. Petitioner characterizes this selection as “simply a design choice.” *Id.*, 19-20.

The fundamental problem with Petitioner’s analysis is that it breaks Minoshima’s positioning system into its component parts, and cherry picks only one aspect of that system to incorporate into Izuno—specifically, the suggested (but not detailed or enabled) vehicle-side sensor embodiment. EX 2100 ¶ 85. Even if the vehicle-side sensor embodiment was explained in Minoshima, it—as do all of Minoshima’s embodiments—still requires the support arm as part of an integrated and functioning alignment system. *Id.* ¶ 86.

Minoshima specifically explains that its system relies on a “permissible misalignment range for charging” and that its proximity sensors will detect the detected component when there is a misalignment only “as long as the misalignment is within the range that allows for charging.” EX 1005 [0033], [0035]. This permissible

misalignment range is derived from the integrated support arm, which Minoshima specifically states allows for widthwise parking offsets (300-400 mm) as well as angular parking misalignments ( $2^{\circ}$ - $3^{\circ}$ ) accommodated by the pivoting support arm plate. *Id.* [0020], [0024]-[0025], Abstract (“A charging parking space ... is configured so that a power receiving coupler 3 ... is positioned within the acceptable range of movement of a power transmitting coupler 10.”). The support arm is thus a critical structural element in Minoshima that directly defines and enables the permissible misalignment range which allow the entire positioning system to correctly function. EX 2100 ¶ 86. That is, Minoshima tolerates misalignment—an error in positioning—precisely because it has a moveable arm. *Id.* Minoshima’s alignment-detection scheme (proximity sensors and detected component) and its automated fine-positioning scheme (motorized support arm 11 that moves in the X and Z directions via an actuator, guided by current-detection circuitry) are two interlocking parts of an integrated positioning system. *Id.*

Simply extracting only the proximity sensors and detected component portion of Minoshima’s system, without also including the support arm, requires some showing as to why these isolated elements would still be expected to properly function absent the support arm. EX 2100 ¶ 87. This is because, while a POSITA would understand that Minoshima’s proximity sensors are one portion of its alignment system, and therefore provide some level of alignment, the moveable support arm was added to fine-tune the alignment with greater precision. *Id.* It would thus be clear to a POSITA that

Minoshima's sensors, divorced from the moveable support arm, would not offer a sufficient level of positioning accuracy. *Id.* Petitioner provides no explanation for how Minoshima's sensor setup (extracted from Minoshima's integrated system) will be modified to add the greater precision needed absent the support arm. *Id.*

Petitioner's proposal also requires some explanation of why a POSITA, in view of Izuno, would look to Minoshima to improve Izuno in the same way as the challenged claims. Petitioner does not provide that, nor can it. Because Izuno teaches a stationary power transmitting coupler, while Minoshima teaches a moveable power transmitting coupler, a POSITA would only consider exporting Minoshima's entire positioning system—including the moveable support arm—and not merely the proximity sensors. EX 2100 ¶ 88. This is because, as previously discussed, there is nothing suggesting that adding only the proximity sensors would achieve correct alignment in Izuno's stationary coupler system, without also adding the moveable support arm. *Id.*

Petitioner's design-choice rationales assert only reasons to use Izuno's system, having no support arm, instead of Minoshima's integrated system. Petitioner provides no technical reasoning explaining **how** these isolated components from Minoshima's integrated positioning system would correctly achieve appropriate core alignment without the fine positioning enabled by the integrated support arm. EX 2100 ¶ 89. Petitioner thus merely combines an isolated piece of Minoshima's architecture with a structurally different base reference without explaining why or how that architecture

would work when extracted from Minoshima’s system, using only a “design choice” label. Even if a POSITA was motivated to use only Minoshima’s sensor system with Izuno, Petitioner provides no reasoned technical explanation for why a POSITA would believe the combination, without the benefit of Minoshima’s support arm, would be able to successfully achieve the proper positioning required to enable inductive charging. EX 2100 ¶ 89. Thus, Petitioner has failed to provide articulated reasoning with rational underpinning to support a legal conclusion of obviousness.

This conclusion is further supported when reviewing Petitioner’s generalized motivations to combine the two references. Petitioner asserts that the combination is merely applying “Minoshima’s known method” for positioning to Izuno’s system to yield “predictable results.” Petition, 26; EX 1003 ¶ 153. But Petitioner is **not** using Minoshima’s known method, but instead breaks that method down into its component parts and extracts only one aspect of the method, without explaining why the resulting combination would be expected to achieve any of the benefits Petitioner claims, or even to actually work. EX 2100 ¶ 90. Petitioner asserts as motivations to combine Izuno with its modified version of Minoshima’s positioning system: [a] “to improve operational reliability and efficiency”; [b] “to more effectively detect and confirm the required positional relationship ... is satisfied before issuing start charging signals”; [c] to “prevent inefficient charging conditions”; [d] “while providing a centralized control system for the user”; [e] to ensure “the required positional condition is satisfied prior to

charging to improve the efficiency and reliability of the charging system”; [f] to “prevent a vehicle from being uncharged due to being improperly parked, as taught by Minoshima”, [g] “to allow for more reliable, efficient, and faster inductive charging; and [h] to avoid “the situation of being parked in a position in which it will not be charged.” Petition, 24-26 (citing EX 1003 ¶¶ 149-155). Notably, while Petitioner asserts these as separate motivations, it is apparent they are overlapping. EX 2100 ¶ 92 (explaining that motivations [a], [c], and [g] are the same, as are [b], [e], [f], and [h]).

More importantly, nowhere does Petitioner explain why a POSITA would expect Minoshima’s positioning system, without the integrated support arm, would be effective in Izuno’s system to actually achieve proper positioning for charging. *Id.* ¶ 93. Indeed, Petitioner’s expert merely assumes that it would do so. EX 1003 ¶ 153 (“[Minoshima’s positioning method] would have ensured the required positional condition is satisfied prior to charging ....”); EX 2100 ¶ 93. This is a critical defect in the Petition. Without evidence supporting this assumption, Petitioner has failed to carry its burden. Further, a POSITA would have understood that Minoshima’s positioning system would only effectively function within the permissible misalignment range allowed due to the support arm’s movement, and would not have expected it to enable proper charging positioning in Izuno absent that permissible misalignment range. EX 2100 ¶ 93.

Because Petitioner fails to provide sufficient articulated reasoning for how

Minoshima's positioning system would work in Izuno absent the integrated support arm, Petitioner has failed to show that the asserted combination would possess claim elements 1[c][i]-1[c][vi].

**4. The Izuno-Minoshima-Canedy does not remedy the identified defects in the combination, and Petitioner fails to show that Canedy's system would function for inductive charging alignment.**

As discussed above, Canedy's proximity sensors and related displays are devoted to its goal of assisting a user in knowing how far the vehicle is from a solid object (one extending above the surface of the ground), such as a curb. *See* EX 1006, Fig 1, 5:33-36; *see* Section VI.D.2. Even if Petitioner incorporated these features into Izuno, there is no analysis (or any reasoning) suggesting that Canedy's system would function with respect to aligning the vehicle's charging coupler (mounted on its underside) and Izuno's charging station charging coupler. EX 1004 [0020]; EX 2100 ¶ 95. And Petitioner maintains that Izuno relies on a charging pad that must be driven over to align the couplers. Petition, 65 ("Izuno's charging setup is a charging *pad* because a vehicle drives over the charger to perform inductive charging.") (italics in original). Therefore, without some reasonable expectation that Canedy's curb-feeler system would be able to detect Izuno's pad-mounted charging station coupler, a POSITA would have had no reason to add these features to Izuno. EX 2100 ¶ 95.

**E. 1[c][iii]: Petitioner’s motivation to combine is conclusory and defective.**

Petitioner combines Yokota with the previously combined Izuno-Minoshima-Canedy to target Claim 1[c][iii]. Petition, 38. Petitioner relies on Izuno’s disclosure that charging begins after a command to start charging is issued by the user after correct vehicle positioning. *Id.*, 39. Petitioner asserts that Izuno-Minoshima-Canedy teaches a controller configured to detect misalignment. *Id.* Petitioner adds Yokota to this three-way combination, specifically Yokota’s teaching of “determining whether a function corresponding to a menu item displayed on a screen can be executed,” and if not, “disabling the menu item corresponding to that function.” *Id.*, 40. In Izuno-Minoshima-Canedy-Yokota, the user-selectable control for initiating charging (the “start charging” command”) on the display is disabled when the vehicle-side core and the charging station core are misaligned per Minoshima’s detection determination. Petition, 42; EX 1003 ¶¶ 183-184.

Petitioner asserts the following motivations to modify Izuno-Minoshima-Canedy with Yokota: [a] to “prevent initiating charging while the coils are misaligned” because misaligned coils prevent or lessen charging efficiency; [b] to “allow the system to disable the user control for initiating charging when misalignment is detected”; [c] to provide “clear feedback and control to the user and prevent[] inefficient operation of the contactless charger”; and [d] to “prevent[] a user thinking it started charging, but did not because the coils are not properly aligned.” Petition, 41-42. Petitioner

summarizes the change as “a straightforward method for informing a user ... that misalignment ... has been detected and need [sic] to be correctly aligned before charging can be initiated.” *Id.*, 42. Petitioner’s overlapping listing breaks down to: (1) preventing failed charging or inefficient charging by disabling charging initiation during misalignment; (2) provide clear feedback and control to the user regarding a misalignment that impacted charging. EX 2100 ¶ 97.

Upon close inspection, Petitioner’s reasoning is defective. Incorporating Yokota as proposed would disable Izuno’s “start charging” command when there is a misalignment affecting charging. Petition, 41. But a POSITA would not have been motivated to make this change to Izuno-Minoshima-Canedy because those references already provided, to a greater degree than would be added by Yokota, the purported benefits of the combination. EX 2100 ¶¶ 98-101.

First, there is no need to disable a charging command to prevent failed charging due to a misalignment. EX 2100 ¶ 99. If a misalignment prevents charging in either Izuno or Minoshima, charging will not occur regardless of whether the command is disabled. EX 1004 [0030]; EX 1005 [0038]-[0039]. Thus, disabling the command does not prevent failed charging itself. EX 2100 ¶ 99. Similarly, there is nothing in Izuno or Minoshima allowing for inefficient charging when there is a misalignment. EX 2100 ¶ 100. Both references teach that charging occurs only when their cores are aligned opposite one another. EX 1004 [0020]; EX 1005 [0027]. If they are, charging proceeds;

if not, it cannot. EX 1004 [0020], [0030]; EX 1005 [0035], [0038]-[0039]. Because inefficient charging cannot happen, disabling Izuno's "start charging" command does not prevent it. EX 2100 ¶ 100.

Disabling the command thus serves only one of the purposes identified by Petitioner: notifying the user of a misalignment when charging cannot be initiated. EX 2100 ¶ 101. But merely disabling the charging command alone does not actually provide any information about misalignment; it merely disables an existing command. *Id.* But even if it did (or Petitioner's proposed modification contemplates also stating a reason, which is not explained), this is already present in Izuno-Minoshima-Canedy, which provides detailed messaging explaining the misalignment far beyond that contemplated in Yokota. EX 2100 ¶ 101. Minoshima's disclosure is about notifying a driver as to whether the vehicle is properly aligned for charging. EX 1005, Abstract, [0007]. Minoshima already displays the "Parking Position NG" message for the driver during misalignment, and teaches also providing the specific direction of misalignment via detailed messages indicating the precise reason for the misalignment and how to reposition the vehicle. *Id.* [0038]-[0039], [0056]. Petitioner explicitly includes this functionality in the combination. Petition, 28 ("Thus, when modifying Izuno [with Minoshima], positional information would also have been provided to the driver on a display to help correctly position the vehicle to enable inductive charging."). Canedy likewise discloses delivering precise distance information as well as visible indicators

on a displayed vehicle silhouette to inform the driver of how far the vehicle is away from an object. EX 1006, 2:15-22, 4:52-5:6, 5:24-30. All of these methods do more than disable a charging command, which at best provides a passive indication to the user that something is amiss—but not necessarily what. EX 2100 ¶ 101. They instead affirmatively notify the user that the vehicle is misaligned and requires repositioning, and/or provide detailed distance information. *Id.* A POSITA would therefore not consider merely disabling a menu command to be necessary or provide anything useful over the existing combination. *Id.* ¶¶ 101-102.

Thus, the only purpose of adding Yokota is simply to fulfill the claim requirements to disable a user command, using the claim as a roadmap to construct a combination Petitioner could assert for obviousness—in a word, hindsight. Petitioner provides no reasonable motivation for why a POSITA combining Izuno-Minoshima-Canedy would believe that Yokota provides any functionality more beneficial than already present in these references.

**F. 1[c][iv]-[v]: Petitioner fails to show that the combination would detect alignment between the cores based on the positional relationship between them.**

For the reasons discussed for claim 1[c][i]-[ii] above, Petitioner fails to show, with sufficient articulated reasoning, that the proposed combination would actually achieve the claimed functionality of detecting a second positional relationship or an alignment between the cores, within a threshold based on a positional relationship

between them as required by claims 1[c][iv]-[v]. *See* Section VI.D; EX 2100 ¶ 103.

**G. 1[c][vi]: Izuno-Minoshima-Canedy-Yokota does not disclose or render obvious enabling the user control in response to detecting alignment.**

Petitioner asserts that Izuno-Minoshima-Canedy-Yokota teaches claim 1[c][vi]. Petition, 52. Petitioner asserts, based on its analysis of claim 1[c][iii], that control for initiating charging would be disabled when the charging cores are misaligned, and that the combination’s user control would be enabled “per Yokota” after repositioning the vehicle and detecting proper alignment. *Id.*

Petitioner asserts that Yokota “performs a determination step that results in disabling **or enabling** a menu item.” *Id.*, 53. Specifically, Petitioner asserts that Yokota enables a function because Yokota’s menu item displaying method “includes the steps of determining whether a function corresponding to a menu item displayed on the screen can be executed.” *Id.* (quoting EX 1007 [0030]). But the cited passages of Yokota do not teach enabling a menu item; rather—as expressly stated in the Petition—Yokota teaches only executing a function corresponding to a selected menu item when the system initially determines that it can be executed. Petition 54 (citing EX 1007 [0030]-[0031], [0052], [0069], [0075]-[0076], [0083]); EX 2100 ¶ 105. This is confirmed by Petitioner’s analysis of Yokota Fig. 6, where the system initially evaluates whether a function is available (Step 205); once the system determines that it is not, the menu item is disabled preventing user selection (Step 207). Petition, 55; EX 1007

[0076]-[0077]; EX 2100 ¶ 105.

Nothing in Petitioner or Dr. Andrews’ analysis shows the claimed functionality, which requires disabling a user charging control on the display due to a misalignment (claim 1[c][iii]), then, **after** movement of the vehicle, detecting an appropriate alignment (claim 1[c][v]), and “**in response** to detecting the alignment, enable the user control on the display” (claim 1[c][vi]). EX 2100 ¶ 106. Petitioner’s element-by-element analysis obscures the fact that while Yokota teaches **initially** determining whether a function can be executed, and if so **leaving** that function in its default enabled state, it simply does not address re-enabling the function as the claim requires. That is, first disabling a user control after determining a condition is unsatisfied (misalignment), then detecting a change in that condition (proper alignment after vehicle movement that now permits charging), and then affirmatively enabling the previously-disabled user control to permit a user selection. EX 2100 ¶ 106. There is never any discussion in Yokota of re-evaluating a previously-disabled menu item and then re-enabling it once the corresponding functionality is restored. *Id.* Accordingly, Yokota does not teach or suggest this element, and the asserted combination does not teach Claim 1[c][vi]. *Id.* ¶¶ 106, 109.

Petitioner’s motivation to combine analysis is a mirror-image of its analysis for Claim 1[c][iii]. *Compare, e.g.,* Petition, 56-57 *with* Petition, 41-42 (changing “detecting misalignment” to “detecting alignment” and “disabling a menu item” to “enabling a

menu item”); EX 2100 ¶ 107.<sup>2</sup> Petitioner’s analysis is thus deficient for the same reasons discussed above for Claim 1[c][iii]. Section VI.E.

Petitioner’s reasonable expectation of success arguments reinforce the conclusion that Yokota never teaches enabling a disabled user control, explaining that “**if a menu item is not disabled**, it would have been enabled for user selection to execute the particular function associated with the menu item.” Petition, 57 (citing EX 1003 ¶ 235); EX 2100 ¶ 108 (explaining that the Petition’s analysis supports the conclusion that Yokota does not teach enabling a disabled user control, because they confirm that a menu item that is enabled has not yet been disabled, and do not suggest that a menu item that has been disabled will be reenabled). But if a menu item is disabled, as required by the claim, there is no teaching in Yokota about the process for reevaluating the functionality and then enabling the disabled menu item. EX 2100 ¶ 108. Neither Petitioner nor Dr. Andrews provide any explanation for how to do so, relying instead on general assertions of “straightforward and routine changes to programming instructions” and general references (“context based/context-aware menu

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<sup>2</sup> Confusingly, Petitioner asserts here as a motivation to combine the **disabling** of charge functionality, which is not required by Claim 1[c][vi] but is addressed by Claim 1[c][iii]. Petition, 56; EX 2100 ¶ 107. This further shows that the asserted motivations for claim 1[c][vi] are merely inverse restatements of those presented for claim 1[c][iii].

design) to prior art outside the combination. Petition, 57-58; EX 1003 ¶ 236; EX 2100 ¶ 108. Because this limitation is wholly missing from the combination, generalized, conclusory assertions amounting to little more than “common sense” from an expert, without any supporting technical reasoning, are entitled to little weight and are insufficient to carry Petitioner’s burden. *See Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, at 14-15 (PTAB Aug. 24, 2022) (precedential).

**H. 1[c][vii]: The asserted combination does not teach a controller configured to initiate inductive charging.**

Petitioner assert that Izuno-Minoshima-Canedy-Yokota teaches this element, citing user selection of a “charging start instruction” via the vehicle display, and Izuno’s step S28, where “the system<sup>3</sup> checks whether a charging start instruction has been received from the user.” Petition, 58 (citing EX 1004 [0027], [0034]). Petitioner traces the signal sent to the server 100, and the server’s subsequent charging schedule determination and signal to start charging sent to the charging station. *Id.* (citing EX 1004 [0018], [0022]). Based on this analysis, Petitioner concludes that the modified ECU of the combination is itself configured to initiate inductive charging via the first and second cores, as required by the claim limitation. *Id.*, 59. Dr. Andrews testifies that

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<sup>3</sup> As discussed below, the “system” here is the service system server 100, not the ECU. EX 2100 ¶ 111 (discussing EX 1004 [0023]-[0035]).

“[t]his is because ... when a user selects the [enabled] menu item for start charging, the inductive charging process occurs.” EX 1003 ¶ 238.

But, as previously discussed, Izuno’s ECU is not responsible for charging control—either in Izuno itself, or in any of Petitioner’s proposed modifications. *Supra* Section VI.C. The ECU sends battery status information to the server for the server’s use in planning and controlling charging operations. *Id.*; EX 2100 ¶ 113; EX 1004 [0016]-[0018]. The ECU is responsible, as Petitioner identifies, for checking the user’s selected charge mode (automatic or not) and transmitting that information to the system server. EX 1004 [0027]. When automatic charging is selected, “the processing proceeds from step S8 to step S9 [in Figure 3], in which a charging mode selection signal indicating automatic charging is sent to the service system server 100, **and the processing is then exited.**” *Id.* Thus, the ECU’s involvement in charging control is sending a signal to the system server noting that the user has selected the automatic charging mode. EX 2100 ¶ 113. But this signal does **not** initiate charging as required by the claim. *Id.*

Instead, Izuno explains that the system server, which receives the signal, checks “whether a charging start instruction has been received from the user.” EX 1004 [0034]. This is shown step S28 in Figure 4, and is the same signal sent by the ECU in S9. But even receipt of this signal does not result in initiating a charging signal; rather, the system first checks “whether the elapsed time since receiving the charging start

instruction was less than a threshold value.” *Id.*; EX 2100 ¶ 114. If the time since receiving the start charging instruction is over a threshold value, charging is not initiated and the unit goes into standby. EX 1004 [0034]. If the time is less than a threshold value, the sever transmits a charging signal to the charging station and initiates charging. *Id.*

Because the system server must perform a comparison with the threshold time after receiving the ECU’s charging signal, and only transmits its own charging initiation signal when the appropriate conditions are met, the ECU’s charging signal does not itself initiate charging. EX 2100 ¶ 115. That is, even if a user selects the enabled menu item to initiate charging, charging may not be initiated because the system server may not find all conditions allowing charging to begin have been met. *Id.* Thus, contrary to Dr. Andrews’ assertion, user selection of an enabled menu item does not necessarily result in starting the charging process. *See* EX 1003 ¶ 238; EX 2100 ¶ 115. Therefore, the ECU, the mapped controller in the asserted combination, is not “configured to ... in response to receiving a selection of the user control, initiate inductive charging via the first core and the second core.” EX 2100 ¶ 115.

Nor does Petitioner propose to change any of this functionality in the proposed modification. Indeed, its analysis of this limitation explicitly relies on Izuno’s identification of the server (not the ECU) as the ultimate control for initiating charging, explaining that “when the user presses the start control, a signal is transmitted to server

100, server 100 calculates a charging schedule, and server 100 transmits the charging start signal to charging station 60.” Petition, 58. Petitioner’s proposed modifications to Izuno consistently accept the server’s processing role for charging operations as-is, and never propose relocating them for performance at the ECU. *See* Petition, 14-15; EX 2100 ¶ 116.

Therefore, Izuno-Minoshima-Canedy-Yokota does not teach or suggest Claim 1[c][vii].

## **I. Ground 1 - Conclusion**

For the foregoing reasons, Ground 1 does not render claim 1 unpatentable. The proposed combination with Minoshima isolates and extracts only one part of Minoshima’s integrated positioning system, eliminating the moveable support arm that is critical to the system’s functionality, and Petitioner fails to provide any articulated reasoning explaining why the combination would be expected to achieve proper alignment without that support arm. Moreover, Petitioner’s element-by-element approach—providing separate motivations to combine for individual claim limitations rather than the claimed invention as a whole—constitutes impermissible hindsight reconstruction. This approach, uniformly condemned both before and after *KSR*, minimizes severe defects in Petitioner’s analysis, such as the four-way combination’s failure to teach or suggest an initial disabling of a user control due to misalignment and then reenabling it to allow charging once alignment is corrected. Because Petitioner has

failed to demonstrate that its various sub-combinations possessed all limitations of independent claim 1, or to provide sufficient articulated reasoning with rational underpinning to support a legal conclusion of obviousness, or a reasonable expectation of success, the Board should find that Petitioner has failed to show a reasonable likelihood that independent claim 1 is unpatentable. EX 2100 ¶ 118.

## **VII. GROUND 2 DOES NOT RENDER ANY CHALLENGED CLAIMS UNPATENTABLE.**

In Ground 2, Petitioner maps all elements of independent claim 7 to corresponding elements of Claim 1. Petition, 59-60. Likewise, Petitioner maps independent claim 15 to corresponding elements of Claim 1, but cites only to the combinations of Izuno, Minoshima, and/or Yokota (that is, excluding Canedy). *Id.*, 61-62. And Petitioner’s challenges to dependent claims 12-14 and 16-20 all incorporate Petitioner’s analysis of either claim 1, claim 7, or claim 15. *Id.*, 60-64. Because they all ultimately depend on Ground 1, the Ground 2 combinations fail for the same reasons discussed for Ground 1 above. *See* Section VI; EX 2100 ¶ 119.

Further, Petitioner acknowledges that Minoshima’s primary embodiment relies on charge station mounted proximity sensors, and relies on the alternative embodiment “where the proximity sensors are located within the electric vehicle.” *Id.*, 20. Petitioner asserts that Minoshima teaches “vehicle proximity sensors 17 detect the vehicle’s deviation in the width and longitudinal directions relative to a predetermined distance

from the ground-level charging device.” *Id.*, 21. In support, however, Petitioner cites only to Minoshima’s implementation of its charger-side sensor embodiment. *Id.* Petitioner constructs modified versions of Minoshima’s figures showing how it believes Minoshima’s vehicle-based sensor embodiment would be implemented. *Id.*, 22-23.

However, Petitioner and Dr. Andrews admit that Minoshima “simply lacks implementation details” for its vehicle-based sensor embodiment. *See* Section VI.D.1. This is an admission that, unless such details are provided elsewhere, there is no reasonable expectation of success in combining Minoshima with Izuno. EX 2100 ¶¶ 120-121. In Ground 1, Petitioner turns to Canedy to supply these details. *See* Section VI.D.2. However, for Ground 2, Petitioner does not include Canedy, reasoning that it is unnecessary because the claims do not recite a controller. *Petition*, 59. But even without a controller, the asserted combination still requires Izuno and Minoshima to be successfully combined to implement Minoshima’s vehicle-side proximity sensors. *See id.*, 60-62 (relying on combination of Izuno-Minoshima for independent claims 7 and 15). Petitioner’s candid admission that Minoshima lacks the necessary implementation details for its vehicle-side sensor embodiment, which is entirely correct, is also an admission that there is no reasonable expectation of success for the Ground 2 combination. EX 2100 ¶ 121. As such, the various asserted combinations cannot render any challenged claim obvious for this additional reason.

## **VIII. GROUNDS 3-7 DO NOT RENDER ANY CHALLENGED CLAIM UNPATENTABLE**

Grounds 3-5 are directed at dependent claims 2-6, all of which depend from Claim 1. Petition, 64-78. Grounds 6-7 are directed at claims 8-11, which depend from Claim 7. *Id.*, 78-79. In its analysis of these grounds, Petitioner does not separately address the limitations of the independent claims from which these claims depend. Petition, 64-79. This is problematic, given that Petitioner's challenges to the independent claims rely on various different combinations of the asserted references to map to the individual claim limitations. *See* Section VI. It is thus difficult to ascertain precisely what combinations Petitioner is advancing for the dependent claims. At best Petitioner intended to incorporate for Grounds 2-5 the same Ground 1 combinations (of Izuno, Minoshima, Canedy, and Yokota), and for Grounds 6-7 the same Ground 2 combinations (of Izuno, Minoshima, Yokota), while merely combining them with additional references targeting the specific limitations of the dependent claims. Petition, 59-79. Further, Petitioner does not contend that any of the additional cited references (Ross, Kuki, Shimizu) address the deficiencies identified for Grounds 1 or 2. *Id.*

Because, at best, these Grounds assert the same combinations asserted in either Ground 1 or Ground 2 directed to the independent claims, they all fail for at least the same reasons discussed for Ground 1 and Ground 2. *See* Sections VI.-VII.; EX 2100 ¶ 122.

## IX. PETITIONER'S VOLUMINOUS, REPETITIVE AND CONCLUSORY "MTC" AND "REOS" ARGUMENTS WARRANT DENIAL.

"[W]here a petition contains voluminous or excessive grounds, Office guidance indicates '[t]he panel will evaluate the challenges and determine whether, in the interests of efficient administration of the Office and integrity of the patent system (*see* 35 USC § 316(b)), the entire petition should be denied under 35 USC § 314(a).'" *Adaptics Ltd. v. Perfect Co.*, IPR2018-01596, Paper 20 at 17-18 (PTAB Mar. 6, 2019) (informative). To avoid this, the *Trial Practice Guide* advises that petitioners should "avoid submitting a repository of all the information that a judge could possibly consider, and instead focus on concise, well-organized, *easy-to-follow* arguments supported by readily identifiable evidence of record." *Id.* at 16.

Despite this admonishment, Petitioner proposes seven grounds and **twelve** different alleged "motivations to combine," each with a "reasonable expectation of success," which Petitioner refers to as "MTCs" and "REOS." Pet., ii-vii (Table of Contents); 7 n.1. These "MTCs" duplicate essentially the same high-level rationale in all twelve instances, and are spaced apart sporadically throughout the Petition, making Petitioner's obviousness theories anything but "easy-to-follow." Even worse, Petitioner's scattershot approach to its obviousness theories significantly prejudices Patent Owner, as it simply will not be plausible for Patent Owner to fully respond to twelve different "MTCs" within the confines of the word-count limitations in its Response, should trial be instituted.

**X. THE PETITION FAILS TO PRESENT A SUFFICIENT NUMBER OF GROUNDS THAT MEET THE INSTITUTION THRESHOLD.**

Petitioner fails to carry its burden of institution as to any proposed ground. But even if the threshold for some grounds could be met, “instituting a trial with respect to all ... claims based on evidence and arguments directed to [only a subset of challenged claims] is not an efficient use of the Board’s time and resources.” *Chevron Oronite Co. LLC v. Infineum USA L.P.*, IPR2018-00923, Paper 9 at 10-11 (PTAB Nov. 7, 2018) (informative). Institution should be denied.

**XI. THE PETITION VIOLATES THE WORD COUNT REQUIREMENTS.**

Petitioner’s Certificate of Word Count states that the Petition “contains 13,901 words.” Petition, 94. However, Petitioner improperly skirts the word-count system to undercount by at least 549 words by improperly omitting spaces, such as “EX1003-Dec, ¶¶28-30.” *See e.g.*, Petition, 2. This constitutes an improper “effort to circumvent [the Board’s] word count limits.” *See Life Spine, Inc. v. Globus Medical, Inc.*, IPR2022-01434, Paper 12 at 2 n.1 (PTAB Mar. 2023). Even if this alone does not justify denial, it is another factor to consider in deciding whether to institute. Indeed, the fact that Petitioner is incapable of demonstrating alleged invalidity using 14,000 words for 20 claims is further evidence of the weakness of the validity challenge.

## **XII. CONCLUSION**

Because the Petition fails to show a reasonable likelihood of proving any challenged claim unpatentable, Patent Owner respectfully requests the Board deny institution.

Dated: September 23, 2026

Respectfully submitted,

/James H. Hall/

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## **CERTIFICATE OF COMPLIANCE**

The undersigned certifies that this document complies with the type-volume limitations set forth in 37 C.F.R. § 42.24 *et seq.* This document, excluding those portions excluded under § 42.24(a)(1), contains 12,023 words as calculated by the program used in creating it.

/s/ *James H. Hall*

Counsel for Patent Owner  
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## **CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. §§ 42.6(e)(4), the undersigned certifies that on September 23, 2026, a copy of the foregoing document (*Patent Owner's Preliminary Response*, including all new exhibits), was served via electronic mail on all attorneys of record at the email addresses provided for electronic service listed in Petitioner's mandatory notices, as set forth below:

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