

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BROSE NORTH AMERICA, INC. AND BROSE FAHRZEUGTEILE
GMBH & CO. KG, HALLSTADT,
Petitioner,

v.

UUSI, LLC,
Patent Owner.

Case IPR2014-00416
Patent 8,217,612 B2

Before GLENN J. PERRY, HYUN J. JUNG, and JASON J. CHUNG,
Administrative Patent Judges.

PERRY, *Administrative Patent Judge.*

FINAL WRITTEN DECISION
Inter Partes Review
37 C.F.R. § 318(a) AND 37 C.F.R. § 42.73

I. INTRODUCTION

A. Procedural Background

Brose North America, Inc. and Brose Fahrzeugteile GmbH & Co. KG, Hallstadt (collectively, “Brose” or “Petitioner”), filed a Corrected Petition (Paper 5, “Pet.”) to institute an *inter partes* review of claims 1, 2, and 5–8 of U.S. Patent No. 8,217,612 B2 (Ex. 1005, “the ’612 patent”) pursuant to 35 U.S.C. §§ 311–319. UUSI, LLC (“UUSI” or “Patent Owner”) filed a Preliminary Response on May 6, 2014. Paper 11, “Prelim. Resp.” On August 1, 2014 we granted the Petition as to claims 1, 2, and 5–8 of the ’612 patent and instituted trial on the grounds of unpatentability as set forth in the following table. Paper 11, “Dec. on Inst.”

Claims	Grounds	Reference
1, 2, and 6–8	§ 102(b)	Itoh ¹
1, 2, and 5–8	§ 103(a)	Itoh
6–8	§ 102(b)	Kinzl ²
6–8	§ 103(a)	Kinzl
1, 2, and 5–8	§ 103(a)	Itoh and Kinzl
1, 2, and 5	§ 103(a)	Itoh and Zuckerman ³
1, 2, and 5	§ 103(a)	Itoh, Kinzl, and Zuckerman

UUSI filed a response on November 5, 2014. Paper 24, “Resp.” Brose replied on February 5, 2015. Paper 27, “Reply”.

UUSI filed a Motion to Exclude Petitioner’s Exhibits 1062, 1063, and pages 185–193 and 198 (lines 15–18) of the deposition transcript (Ex. 2004) of Petitioner’s expert, C. Art MacCarley, Ph.D. Paper 32, “Motion”. Brose

¹ U.S. Patent No. 4,870,333 issued Sept. 26, 1989 (Ex. 1007, “Itoh”).

² U.S. Patent No. 4,468,596 issued Aug. 28, 1984 (Ex. 1008, “Kinzl”).

³ U.S. Patent No. 5,069,000 issued Dec. 3, 1991 (Ex. 1009, “Zuckerman”).

opposed. Paper 35, “Opposition”. We heard oral argument on April 30, 2015. Paper 39, “Tr.”

B. Related Matters

Brose indicates that the ’612 patent is being asserted in: *UUSI, LLC v. Robert Bosch LLC*, No. 2:13-cv-10444, filed in the United States District Court for the Eastern District of Michigan, on February 4, 2013; and *UUSI, LLC v. Webasto Roof Sys., Inc.*, No. 2:13-cv-11704, filed in the United States District Court for the Eastern District of Michigan, on April 15, 2013.

The ’612 patent belongs to a family of patents involved in multiple *inter partes* reviews including IPR2014-00416, IPR2014-00417, IPR2014-00648, IPR2014-00649, and IPR2014-00650.

C. Summary of Conclusions

The Board has jurisdiction under 35 U.S.C. § 6(c). In this Final Written Decision, issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73, we determine Brose has demonstrated by a preponderance of the evidence that claims 1, 2, and 5–8 (all claims for which trial was instituted) are unpatentable.

II. THE ’612 PATENT

A. The Invention

The ’612 patent describes a system and method for sensing obstructions to a travel path of a moveable panel, such as a window or sunroof. *See* Ex. 1005, Abstract. UUSI explains that in the 1980s automobile manufacturers began using “express up” switches with electric motor driven window lift mechanisms so that a window would automatically continue to close after initial activation of the switch. However, these

mechanisms caused safety problems, e.g., fingers getting caught in a closing window. The '612 patent invention addresses those safety problems.

Ex. 2001, 19. Figure 1 of the '612 patent is reproduced below:

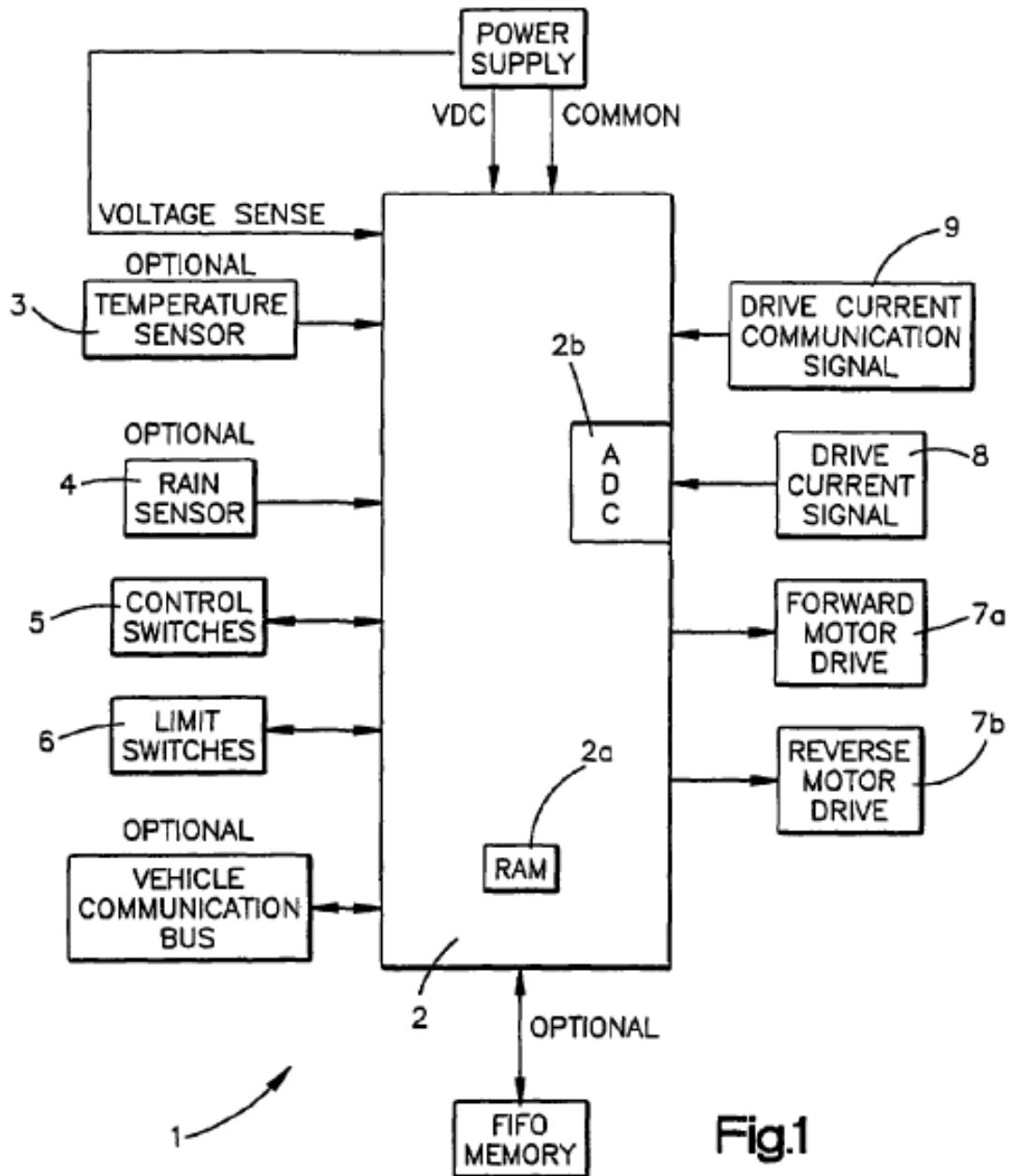


Fig.1

Figure 1 is a schematic diagram of an exemplary actuator safety feedback control system 1. Ex. 1005, 2:24–25, 2:63–65. Controller 2 monitors and

controls movement of a motor driven panel. *See id.* at 2:65–3:5. Forward and reverse motor drives 7a and 7b drive the motor (not shown in Figure 1) in forward and reverse directions, respectively. *See id.* at 3:36–41. Controller 2 senses obstacles in the panel’s path in various ways based on input from, e.g., a paired infrared emitter and detector disposed along the panel’s path (*see id.* at 3:60–4:64), a motor current monitor (*see id.* at 4:9–11, 7:20–8:3, 8:33–10:5), and other devices (*see id.* at 11:14–20).

B. Illustrative Claim

Of the challenged claims, claims 1 and 6 are independent. Claims 2–5 depend from claim 1 and claims 7–8 depend from claim 6. Independent claim 1, reproduced below, is illustrative of the claimed subject matter.

1. Apparatus for controlling activation of a motor coupled to a motor vehicle window or panel for moving said window or panel along a travel path and de-activating the motor if an obstacle is encountered by the window or panel, said apparatus comprising:
 - a) a sensor for sensing movement of the window or panel and providing a sensor output signal related to a speed of movement of the window or panel;
 - b) a switch for controllably actuating the motor by providing an energization signal;
 - c) one or more switches for use by the controller to determine window or panel position; and
 - d) a controller having an interface coupled to the sensor and the switch for controllably energizing the motor; said controller *sensing a collision* with an obstruction when power is applied to the controller by:
 - i) monitoring movement of the window or panel by monitoring a signal from the sensor related to the movement of the window or panel;
 - ii) adjusting an obstacle detection threshold in real time based on immediate past measurements of the signal

sensed by the sensor to adapt to varying conditions encountered during operation of the window or panel;

iii) *identifying a collision of the window or panel with an obstacle* due to a change in the signal from the sensor that is related to a change in movement of the window or panel by comparing a value based on a most recent signal from the sensor with the obstacle detection threshold; and

iv) outputting a control signal to said switch to *deactivate said motor in response to a sensing of a collision* between an obstacle and said window or panel.

Ex. 1005, 27:12–43 (disputed terms emphasized).

III. ANALYSIS

A. Claim Construction

1. Standard

As a step in our analysis, we determine the meaning of the claims for purposes of this decision. In an *inter partes* review, the proper claim construction standard in an expired⁴ patent is set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). We construe the terms below in accordance with that standard.

⁴ U.S. Application 12/360,942, from which the '612 patent issued, is a continuation of application No. 10/100,892, filed on Mar. 18, 2002, now Patent No. 7,548,037, which is a continuation-in-part of application No. 09/562,986, filed on May 1, 2000, now Patent No. 6,404,158, which is a continuation-in-part of application No. 08/736,786, filed on Oct. 25, 1996, now Patent No. 6,064,165, which is a continuation of application No. 08/275,107, filed on July 14, 1994, now abandoned, which is a continuation-in-part of application No. 07/872,190, filed on Apr. 22, 1992, now Patent No. 5,334,876.

2. *“identifying a collision of the window or panel with an obstacle” and “deactivate said motor in response to a sensing of a collision”*

UUSI urges that we distinguish *“identifying a collision of the window or panel with an obstacle”* and *“deactivate said motor in response to a sensing of a collision”* (both appearing in claim 1) as different activities requiring separate and distinct algorithms. Resp. 10–14, Ex. 2001, 50, 57. UUSI argues that if we adopt such a construction, Itoh alone or in combination with any and all of the secondary references, would fail to render claim 1 obvious.

In support of its proposed construction, UUSI makes several arguments. UUSI argues that each of the verbs “identifying” and “sensing” must be given weight, urging that if “sensing” and “identifying” corresponded to the same algorithm, claim 1 would have been written accordingly. Resp. 11. Relying on the “antecedent basis rules,” UUSI argues that the use of the indefinite article indicates that the “sensing” is being newly introduced. *Id.* UUSI further construes claim 1 as requiring that the “identifying” and “sensing” are concurrently performed, while remaining logically distinct. Resp. 12. UUSI indicates that these distinct algorithms correspond to “hard” and “soft” obstruction sensing algorithms described in the ’612 patent specification. Resp. 12 (citing Ex. 2001, 51–56). According to UUSI, these two features of claim 1 should be construed as: (i) identifying a collision using a first algorithm that is based on an obstacle detection threshold adjusted in real time, and (ii) sensing a collision using a second algorithm distinct from the first algorithm and deactivating the motor in response to the sensing based on the second algorithm. Resp. 13 (citing Ex. 2001, 50, 57).

We do not subscribe to UUSI's view. Looking at claim 1 as a whole, we do not adopt a construction requiring separate and distinct algorithms. Claim 1, written in outline format, includes a limitation "d" that requires a controller to sense a collision. Limitation "d" ends with the word "by" followed by a colon. What follows is a list of limitations that are enumerated "i," "ii," and "iii" and which are written so as to be further indented than limitations "a," "b," "c," and "d." A reading of the claim as a whole suggests that limitation "d" is telling us that the limitations following the colon explain how the sensing is accomplished. The "sensing a collision" (step "d") is accomplished by i) monitoring movement of the window, ii) adjusting a threshold, and iii) identifying a collision by comparing a signal value to the threshold. The final claim limitation ("iv") tells us that a control signal deactivates the motor in response to "a sensing of a collision." Even though "a sensing of a collision" is introduced by the pronoun "a" (rather than "the"), we do not view this limitation as requiring a separate and distinct "algorithm." Rather, we read limitations "i" through "iv" as explaining how limitation "d" is carried out.

The claim does not specify explicitly a temporal relation among its various recited activities. However, a temporal sequence is implied by the cause and effect relationships expressed by the individual actions described in the claim. The claim says nothing about how the various described activities are to be implemented in code.

B. Itoh

Itoh describes an automatic opening and closing device for a window. Ex. 1007, Title. A motor, operable in forward and reverse directions, opens and closes the window. Pulses generated with rotation of the motor are

Figure 7 is a schematic diagram of an opening and closing device for window 26. *Id.* at 7:50–52. The Itoh device monitors whether obstacle 48 is present as window 26 is closed and, in such an event, reverses window 26 to move downward. *Id.* at 8:49–52, 11:16–20.

C. Kinzl

Kinzl describes operating and monitoring electric windows and sliding roof panels. A speed sensor directly or indirectly measures the speed of a drive motor. A first obtained measured speed value is compared with subsequent measured values. The first measured value is used to baseline electrical and mechanical factors which change over time during operation of the window, such as heating of the drive motor, battery voltage change, and the state and condition of the window. A microcomputer processes and compares measured values. Output of the speed sensor is processed to determine the position of the window. Ex. 1008, Abstract. Figures 1 and 2 of Kinzl are shown below:

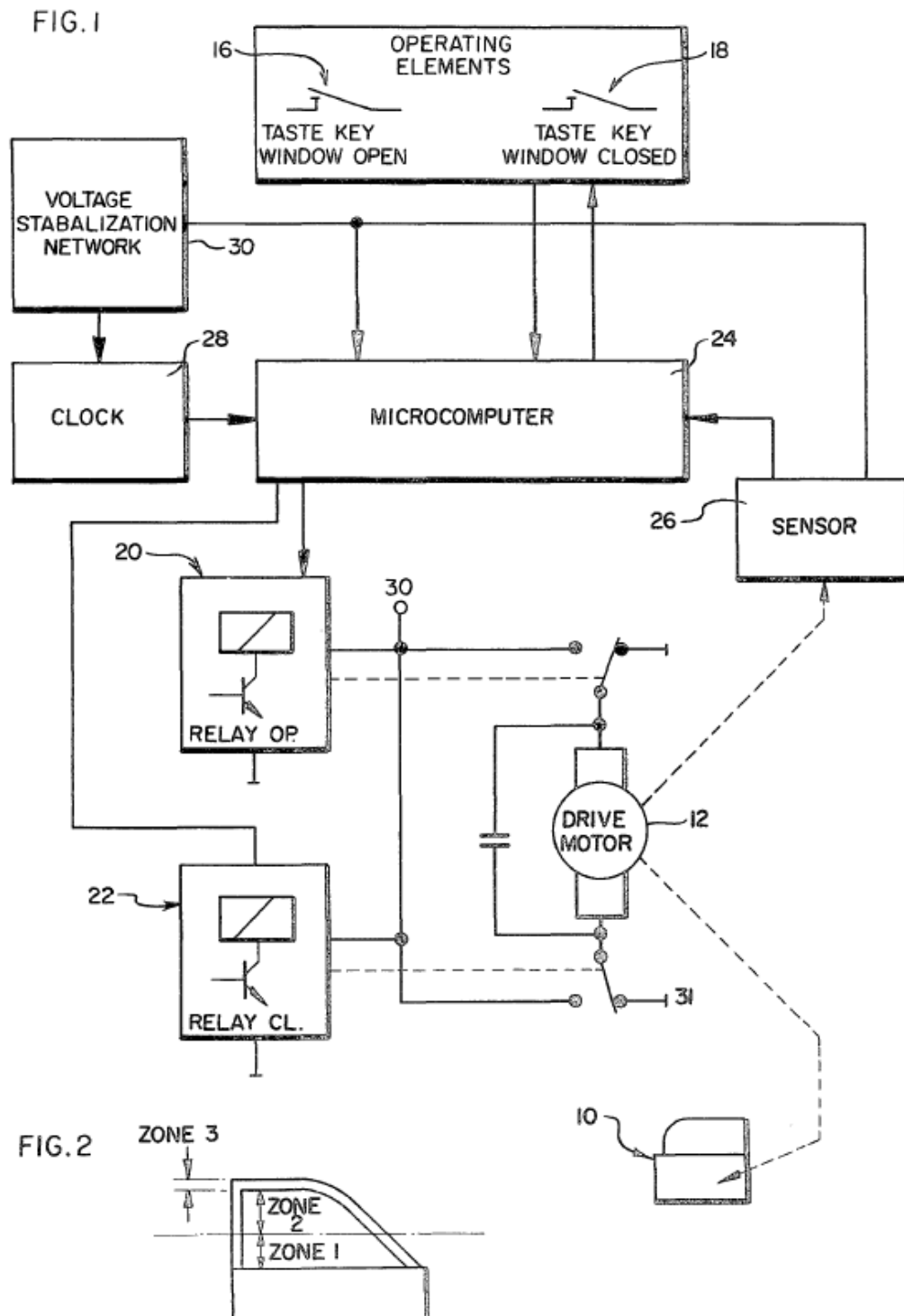


Figure 1 shows a diagram of a system for operating an electric window of an automotive vehicle, and Figure 2 shows three zones established for operation of the system. Ex. 1008, 1:7-13, 2:37-41. Microcomputer 24 uses sensor

26 to monitor the opening and closing of electric window 10, via drive motor 12. *Id.* at 2:44–57. It determines whether travel of window 10 has been blocked and, if so, responds in different manners dependent upon which of zones 1, 2, or 3 window 10 is in. *Id.* at 3:6–26.

D. Zuckerman

Zukerman describes obstruction detecting and reversing for a motor driven vehicle door or window system, wherein the device undergoes varying loads, and consequently varying current draws, during normal operation. Ex. 1009, Abstract. Zuckerman Figure 25 is reproduced below.

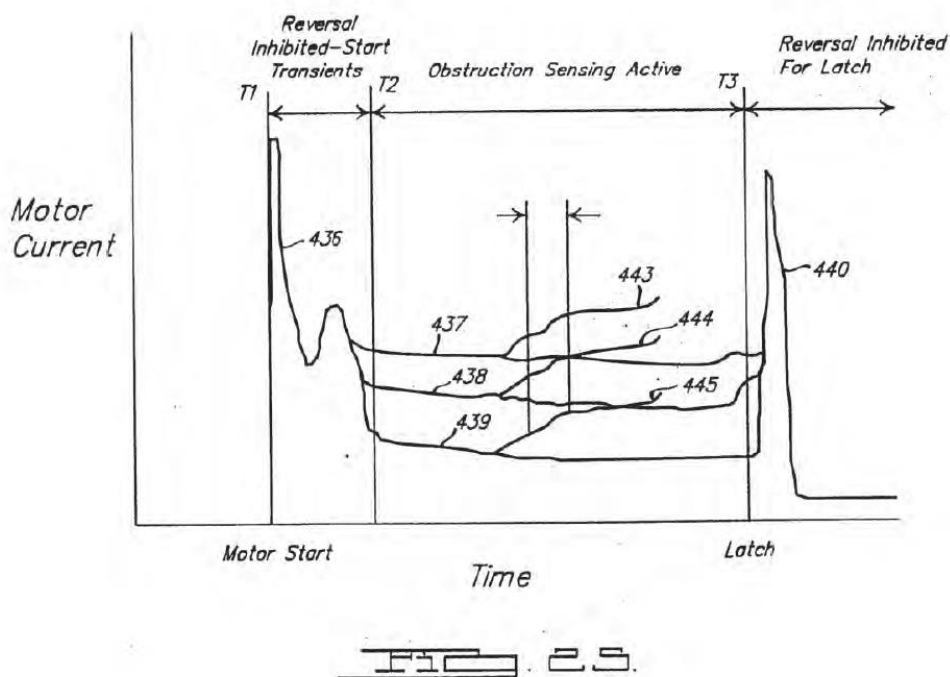


Figure 25 is a graphical representation of drive motor current versus time during a door closing operation. *Id.* at 6:54–55, 20:40–43. A portion, roughly in the center of the plot, demonstrates a rise in motor current, which is interpreted to have been caused by an obstruction. *Id.* at 20:63–66. In order to detect accurately the presence of an obstruction, in light of such

normally varying currents, the apparatus circuit logic monitors instantaneous motor current and compares it with a time average of motor current over a preceding time interval. *Id.* at 20:67–21:6. This averaging “tracks” normal current draw in order to allow sensing an obstruction that causes a rise in motor current at any stage of the door closing operation. *Id.* Thus, Zuckerman accommodates normal changes in current draw caused by different gravity effects when the device is oriented in different grade-caused orientations. Ex. 1009, Abstract.

E. Claim Challenges Based on Prior Art

1. Independent Claim 1

Brose provides a detailed read of claim 1 on Itoh. Pet. 27–31. Brose relies primarily on Itoh’s Embodiment 3, which reverses, rather than deactivates, a drive motor if a window’s travel has been obstructed, noting that elsewhere (Ex. 1007, 3:44–68) Itoh describes deactivating the motor rather than reversing it.

Brose points to Itoh’s “pulse detecting circuit 30” as corresponding to the claimed “sensor for sensing movement of the window.” Pet. 28. Itoh’s “pulse detecting circuit 30” indirectly senses window movement, in that it counts pulses associated with the motor driving the window. We do not regard the claimed “sensor” as requiring direct sensing. We conclude that even if we did, it would be obvious to direct sense based on the teaching of Itoh. Itoh describes a CPU 34 arrangement for controlling its associated motor as corresponding to the claimed “switch for controllably actuating the motor.” Pet. 28 (citing Ex. 1007, 7:67–8:9). Itoh further describes operation of CPU 34 that corresponds to the claimed “one or more switches . . . to determine window or panel position.” Pet. 29 (citing Ex. 1007, 7:67–7:9).

Itoh also describes operation of CPU 34 corresponding to the claimed “energizing the motor,” and “sensing a collision with an obstruction.” Pet. 30 (citing Ex. 1007, Figs. 5–11, and discussion beginning at 7:47). Itoh further describes how the “pulse-detecting circuit 30” detects window position as claimed. Pet. 30 (citing Ex. 1007, 8:10–21, 9:16–34).

Itoh describes establishing and adjusting an obstacle detection threshold in real time based on immediate past measurements. Brose points to Itoh’s equation $T_p/T_m > \alpha$, where T_p represents a current speed value, T_m represents an average of immediately prior (n) speed values, and α represents a constant. Pet. 31 (citing Ex. 1007, 10:33–11:15).

We are persuaded that Itoh’s disclosure at 3:28–60 indicates Itoh’s Embodiment 3 may operate to either reverse motor 20 or stop motor 20 under differing circumstances. Motor action is triggered based on comparison of T_p/T_m with α and satisfies the claim limitation requiring a control signal to “deactivate said motor in response to a sensing of a collision.” Itoh identifies a collision based on a comparison that is mathematically identical to comparing the most recent speed measurement (T_p) to a threshold that is adjusted in real time based on the average of the immediately prior speed values. Claim 1 requires that the collision be identified by “comparing a value based on a most recent signal from the sensor with the obstacle detection threshold” and “adjusting the obstacle detection threshold in real time based on immediate past measurements of the signal sensed by the sensor.” Thus, we are satisfied that Itoh discloses what is required by claim 1. Pet. 14–15, 31 (citing Ex. 1001 ¶¶ 113–122; Ex. 1007, 3:44–68, 10:33–11:15).

UUSI argues that Itoh discloses using only a single algorithm. Based on its proposed construction of claim 1 requiring two separate and distinct algorithms, UUSI argues Itoh would not alone or in combination render claim 1 unpatentable. Resp. 14. UUSI's expert, Dr. Mark Ehsani, states that Itoh's use of two different parameters (α and β) are mutually exclusive, and are simply used as a parameter of interest for a single algorithm. Resp. 14 (citing Ex. 2001, 39). However, based on our construction of claim 1, we do not find UUSI's argument regarding two algorithms to be persuasive.

Claim 1 requires (1) an obstacle detection threshold to be established and adjusted in real time based on measurements by a sensor that senses speed of movement of the window or panel; and (2) that a current measurement of window speed satisfies a predetermined relationship to that obstacle detection threshold. As described *supra* in section III.A.2, we see no requirement of two separate and distinct algorithms. A reference describing both of these claimed activities, such as Itoh, meets these limitations of claim 1. Itoh identifies a collision based on a threshold, which is $T_p/T_m > \alpha$. Itoh adjusts the threshold by effectively taking a moving average of n immediately prior speed values to be used for each comparison of a current window speed. This moving average constitutes the claimed "adjusting."

Kinzl also describes an adjustable obstacle detect threshold calculated in real time based on motor speed detected earlier during the present run, and then comparing a currently sensed motor speed to the threshold in order to detect an obstacle. Pet. 16 (citing Ex. 1008, 4:17–41).

Zuckerman explains that "the reversing apparatus of the present invention senses such obstruction-caused current changes by circuit logic

that effectively compares the instantaneous motor current with a time-averaged reference current that ‘tracks’ the normally varying motor current in order to accurately detect the presence of predetermined obstruction-caused resistance.” Pet. 16 (citing Ex. 1009, 20:67–21:6); *see also* Ex. 1001 ¶¶ 118, 284–292.

Based on the evidence and the record before us, we conclude that Brose has established by a preponderance of the evidence that Itoh anticipates claim 1. Brose has also established by a preponderance of evidence that claim 1 is obvious based on Itoh alone, in combination with either Kinzl or Zuckerman, and in combination with both Kinzl and Zuckerman.

2. Claim 2

Claim 2 depends from claim 1 and further requires a memory for storing multiple window or panel speed values based on sensor signals. Brose points to Itoh’s flow charts in Figures 5 and 6 and to a “FIFO-like memory” in the form of “speed data table” shown in Itoh’s Figure 9, reproduced below.

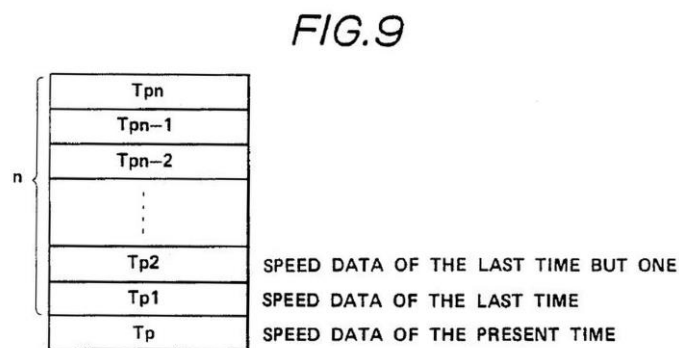


Figure 9 is a diagram explaining an example of the data table of speed of motor used to calculate the rate of speed change (acceleration) of motor. Pet. 32 (citing Ex. 1007, Figs. 5, 6, 9; Ex. 1001 ¶¶ 123–125).

We are persuaded that Itoh describes the limitation added by claim 2. Based on the evidence and the record before us, we conclude that Brose has established by a preponderance of the evidence that Itoh anticipates claim 2. Brose has also established by a preponderance of evidence that claim 2 is obvious based on Itoh alone, in combination with either Kinzl or Zuckerman, and in combination with both Kinzl and Zuckerman.

3. Claim 5

Claim 5 depends from claim 1 and further requires that the immediate past signal measurements are taken within a forty millisecond interval prior to the most recent signal from the sensor. UUSI argues that claim 5 should be construed to require that the immediate past measurements described in claim 1 must all be taken within the preceding 40 milliseconds (40 ms).

Resp. 19. Brose argues that claim 5 requires only that one or more of the immediate past measurements must be sensed during the 40 ms interval.

Resp. 20. Brose points to Itoh's statement suggesting that 4 or 5 past measurements can be used, but that the number of measurements is left as a design choice. Pet. 32 (citing Ex. 1007, 9:63–68; Ex. 1001 ¶¶ 126–127).

We agree with UUSI. Claim 5 refers to “the immediate past measurements” referring to the measurements in claim 1 used to determine the “threshold.” Thus, the claim requires that a threshold be adjusted based on measurements taken during a 40 ms interval before a current measurement that is compared with the threshold.

Further, we agree with UUSI (Resp. 21) that Itoh does not explicitly teach a 40 ms time window within which past measurements are taken to adjust Itoh's threshold.

UUSI argues that the 40 ms time window is not merely a matter of design choice and that Brose has not provided a basis upon which one could conclude that the 40 ms time window is a matter of design choice. Resp. 24. UUSI notes that a statement by Brose's expert, Dr. MacCarley, that "such options are routine design choices, as is the number of immediately preceding values that would be used in Itoh's calculation" is merely conclusory and establishes no basis for reaching that conclusion. Resp. 24 (citing Ex. 1001 ¶ 129).

According to UUSI, the Itoh specification describes a FIFO memory that is 20 values deep and is clocked every 2 milliseconds, thereby obtaining 40 ms. There is no explanation as to why the particular FIFO depth and clock rate were chosen.

UUSI also argues that Kinzl does not teach the 40 ms interval recited in claim 5. Resp. 29–30. UUSI points to the deposition of Petitioner's expert, Dr. MacCarley, who recognized this deficiency of Kinzl. Resp. 29.

UUSI further argues that Zuckerman does not teach the 40 ms interval. Resp. 30–32. Given that Zuckerman uses an analog system in which samples of speed are not taken, we agree.

However, UUSI does not point to any discussion in the '612 patent specification that supports the 40 ms time window as being significant. Support for the 40 ms time window is set forth in the original 1992 specification (see footnote 4), which is incorporated by reference. Tr. 12. Given no explanation in the '612 specification and its priority chain as to the significance of the 40 ms time window, we conclude that it is a matter of design choice and would have been obvious to one of ordinary skill in the

art. *Cf. KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”)

Therefore, based on the evidence and the record before us, we conclude that Brose has established by a preponderance of the evidence that claim 5 is obvious based on Itoh alone, in combination with either Kinzl or Zuckerman, and in combination with both Kinzl and Zuckerman.

4. *Independent Claim 6*

a. *Itoh as primary reference*

Independent claim 6 is reproduced below.

6. Apparatus for controlling activation of a motor coupled to a motor vehicle window or panel for moving said window or panel along a travel path and de-activating the motor when movement of the window or panel *is stopped* prior to reaching a predetermined position, said apparatus comprising:

a) a sensor for sensing movement of the window or panel and providing a sensor output signal related to a position of the window or panel;

b) a switch for controllably actuating the motor by providing an energization signal; and

c) a controller having an interface coupled to the sensor and the switch for controllably energizing the motor; said controller *programmed with multiple position limits* that define *an acceptable travel range* and further programmed for controlling movement of the window or panel when power is applied to the controller by:

i) monitoring the sensor output signal from the sensor related to the position of the window or panel;

ii) identifying the position of the window or panel based on the sensor output signal from the sensor; and

iii) outputting a control signal to said switch to deactivate said motor in response to a sensing said window or panel *has stopped moving* prior to reaching a position limit.

Ex. 1005, 25:7–30 (emphases added)

Brose provides a detailed “read” of claim 6 onto Itoh, Kinzl, and Zuckerman. Pet. 34–37. Claim 6 differs from claim 1 at least in that determination of when to de-activate a motor is based on the window being stopped prior to reaching a predetermined position (rather than being based on changing window travel speed). Claim 6, at (c)(iii), recites a controller programmed to “deactivate said motor in response to a sensing said window or panel *has stopped moving* prior to reaching a position limit.” Brose describes how Itoh keeps track of window position using a counter and argues that as long as the window is not fully closed, the CPU detects an obstacle by detecting a decrease in motor speed. Pet. 36–37.

UUSI would have us construe “has stopped moving” as requiring the controller to deactivate the motor in response to an *abrupt* stoppage of the panel (e.g., window) and not simply a deceleration of the panel or the encountering of an obstacle by the panel. Resp. 33.

We decline to read the limitation “abrupt” into the claim. The meaning of “has stopped moving” in the context of claim 6 simply describes the present state of window movement, namely that it is no longer moving. “Has stopped moving” tells us that the window at some time in the past was moving and now it is not moving. The term does not speak to how rapidly or slowly (rate of deceleration) the window’s velocity slowed to its stopped condition.

Claim 6 also recites a “controller programmed with multiple position limits that define *an acceptable travel range*.” UUSI would have us construe this limitation as requiring that position limits must be stored that define both a fully-opened position and a fully-closed position. Resp. 35. Its reasoning is that such interpretation would be consistent with the Detailed Description of the ’612 patent. Ex. 2001, 75.

In support, UUSI points to column 12, lines 5–11 of the ’612 patent. We have reviewed this portion of the specification. It describes calibration and is taken by UUSI out of context.

If the claim drafter had meant to describe “fully open” and “fully closed,” there were a number of different ways a claim drafter could have conveyed the desired meaning. For example, claim 6 could have simply stated “entire travel path” instead of “acceptable travel range” or it could have made reference to fully open and fully closed positions.

Based on its constructions, UUSI argues that Itoh does not detect a window *abruptly* stopping along a range of travel as required by claim 6. Resp. 36. According to UUSI, Itoh cannot detect the disappearance of a pulse train, which would result from an abrupt stoppage of the motor. Ex. 2001, 77–82. However, UUSI acknowledges that Itoh includes a counter that keeps track of window position and that pinch detecting causes a deactivation of the motor when the window is not in its fully open or closed position.

UUSI’s argument is based entirely on strained constructions that import the limitations “abrupt” in describing stopping and “entire travel range” in describing “acceptable travel range.” We, therefore, are unpersuaded by these arguments.

We conclude that on this record, Brose has established by a preponderance of the evidence that Itoh anticipates or renders obvious claim 6.

Kinzl also keeps track of window position and defines particular zones of window travel. This is not disputed. We therefore conclude that on this record, Brose has established by a preponderance of the evidence that Itoh and Kinzl together render obvious claim 6.

b. Kinzl as primary reference

Brose also argues that claim 6 (and claims 7 and 8) are anticipated and rendered obvious by Kinzl. Brose maps the Kinzl disclosure to claim 6 as follows. Kinzl's sensor 26 is a "sensor for sensing movement of the window or panel and providing a sensor output signal related to a position of the window or panel" as recited in claim 6. *See* Pet. 23–24, 41. As construed above, this limitation includes both direct and indirect sensing of the object's movement. *See supra* Part III.A.2. Sensor 26 monitors movement of window 10 either directly via the window itself, or indirectly via drive motor 12. *See* Ex. 1008, 2:1–2, 2:11–22, 2:53–57.

Kinzl discloses a "switch for controllably actuating the motor by providing an energization signal" as recited in claim 6. *See* Pet. 23, 41. In particular, open relay 20 and close relay 22 switch power to drive motor 12 to open and close window 10, respectively. *See* Ex. 1008, 2:47–53.

Kinzl's microcomputer 24 is a "controller having an interface coupled to the sensor and the switch for controllably energizing the motor," as recited in claim 6. *See* Pet. 41; Ex. 1008, Fig. 1, 3:66–4:16. Microcomputer 24 has an interface coupled to sensor 26 for monitoring signals from sensor

26. *See* Pet. 41–42; Ex. 1008, 2:53–57. In addition, Kinzl’s microcomputer 24 performs operations (i) through (iii) of claim 6. *See* Pet. 24–25, 42–44.

UUSI contends that Kinzl does not disclose storing a value for an opposite end (fully-opened position) of an acceptable range of travel, and thus, does not meet the claim 6 requirement that the multiple position limits “define an acceptable travel range.” Resp. 40–43. There is evidence, however, suggesting that Kinzl does disclose providing a count for a fully closed position. *See* Ex. 1008, 6:20–53. A difference between the count obtained during a close cycle and the count obtained during an open cycle tells where the window is positioned. There is an inherent max count when the window begins at a fully closed position (count = 0) and travels toward and reaches a fully open position. Pet. 22–24; Ex. 1001 ¶ 239; Ex. 1005, 28:19–20.

UUSI argues that Kinzl does not disclose storing a “fully-opened position.” Resp. 40 (citing Ex. 2001, 85–87). Based on our construction, Kinzl need not do so. We, therefore, are unpersuaded by this line of argument.

We conclude that on this record, Brose has established by a preponderance of the evidence that Kinzl anticipates or renders obvious claim 6.

5. Claim 7

Claim 7 depends from claim 6 and further requires memory for storing multiple window or panel positions. Brose argues that Kinzl’s microcomputer 24 is programmable and includes a processing unit for executing a control program and includes a memory for storing multiple

window position values corresponding to a signal received from the sensor. Pet. 53 (citing Ex. 1008, 2:9–11; Ex. 1001 ¶ 253).

UUSI does not separately argue claim 7, relying on its argument with respect to claim 6.

Based on the evidence and the record before us, we conclude that Brose has established by a preponderance of the evidence that Itoh or Kinzl anticipates claim 7. Brose has also established by a preponderance of evidence that claim 7 is obvious based on Itoh in combination with Kinzl.

6. Claim 8

Claim 8 depends from claim 6 and further requires that one or more position limits be programmed for use by the controller to determine window or panel position for use in identifying whether the window or panel is closed or open.

Brose argues that Kinzl discloses that microcomputer 24 is programmed with a closed position limit, which corresponds to counter value “0,” and which the controller uses to determine whether the window is closed. Pet. 54. Brose further argues that Kinzl also discloses that microcomputer 24 is programmed with other position values marking limits of Zone 2 and Zone 1, which are used to identify that the window is open some amount. Pet. 54 (citing Ex. 1001 ¶¶ 255–257).

UUSI does not separately argue claim 8.

Based on the evidence and the record before us, we conclude that Brose has established by a preponderance of the evidence that Itoh or Kinzl anticipates claim 8. Brose has also established by a preponderance of evidence that claim 8 is obvious based on Itoh in combination with Kinzl.

V. OTHER ARGUMENTS

A. *Expert not Familiar with the State of the Art*

UUSI contends that Petitioner's expert, Dr. MacCarley, is not familiar with the state of the art in 1992 and is not an expert in automotive vehicle window or sunroof movement mechanisms or their control systems. Resp. 4–10.

However, Dr. MacCarley is an expert in the field of electrical and computer engineering since before 1992. Ex. 1063 ¶ 7. Dr. MacCarley's specific expertise is in electro-mechanical control systems, computer-based control systems, microprocessor-based control systems, and indirect sensing methods, which are all in the field of automotive engineering. Ex. 1063 ¶ 7. Accordingly, we conclude that Dr. MacCarley is an expert familiar with the state of the art of automotive engineering in 1992.

B. *Enablement of References*

UUSI contends Itoh and Kinzl are non-enabling references that would require undue experimentation to make or use, because of an inordinate amount of false positives and false negatives that would occur with Itoh's and Kinzl's respective algorithms. Resp. 44–45. Moreover, UUSI contends Itoh and Kinzl do not overcome many real-world vehicle problems such as the varying loads caused by wind buffeting or booming caused by the pressure difference between the inside and the outside of the passenger compartment of a vehicle moving at high speeds. Resp 45.

However, UUSI does not contend Itoh and Kinzl are non-enabling as to any specific claim. Reply 14–15. Instead, UUSI merely argues Itoh and Kinzl are non-enabling references. *Id.* We conclude, however, that Itoh and Kinzl provide sufficient disclosure to allow a person having ordinary skill in

the art to make and use the inventions recited in each of the challenged claims. *See In re Antor Media Corp.*, 689 F.3d 1282, 1290 (Fed. Cir. 2012) (“[A] prior art reference need not enable its full disclosure; it only needs to enable the portions of its disclosure alleged to anticipate the claimed invention.”); *Symbol Techs., Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1578 (Fed. Cir. 1991) (“[A] non-enabling reference may qualify as prior art for the purpose of determining obviousness under § 103.”).

VI. MOTION TO EXCLUDE

UUSI moved (Paper 32) to exclude Exhibits 1062, 1063, and pages 185–193 and page 198 (lines 15–18) of Exhibit 2004. Motion 2. Brose opposed. Paper 35.

UUSI contends that Exhibits 1065 and 1066 and certain pages of Exhibit 2004 should be excluded because these exhibits are proffered in support of arguments Brose presents for the first time in the Reply. Motion 3, 5.

At the outset, “[m]otions to exclude are for evidentiary objections previously made on the record,” and are “not a proper vehicle for use by a party to raise the issue of a reply exceeding the proper scope.” *Honeywell Int’l Inc. v. Int’l Controls and Measurements Corp.*, Case IPR2014-00219, slip op. at 2 (PTAB Jan. 5, 2015) (Paper 38)

UUSI has not presented persuasive argument that there is a legal reason that the evidence should be excluded from the record. Its arguments go to scope and weight we attribute to the evidence. The motion is denied.

ORDER

Accordingly, it is

ORDERED that UUSI's Motion to Exclude is DENIED;

FURTHER ORDERED that claims 1, 2, and 5–8 of U.S. Patent 8,217,612 B2 have been shown to be unpatentable; and

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

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