

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNIFIED PATENTS, LLC
Petitioner,

v.

ROSEN TECHNOLOGIES LLC
Patent Owner.

U.S. Patent 7,156,318
Issue Date: January 2, 2007

Title: PROGRAMMABLE THERMOSTAT INCORPORATING A LIQUID
CRYSTAL DISPLAY SELECTIVELY PRESENTING ADAPTABLE SYSTEM
MENUS INCLUDING CHANGEABLE INTERACTIVE VIRTUAL BUTTONS

Inter Partes Review No.: IPR2022-01402

**PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT 7,156,318
UNDER 35 U.S.C. §§311-319 and 37 C.F.R. §§42.1-.80, 42.100-.107**

Mail Stop “PATENT BOARD”
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

TABLE OF CONTENTS

I.	OVERVIEW	1
II.	GROUND FOR STANDING.....	1
III.	REASONS FOR THE REQUESTED RELIEF	1
A.	The '318 Patent	1
B.	Prosecution History	3
C.	Claim Construction.....	6
D.	Priority of the Challenged Claims.....	6
E.	POSA.....	6
F.	State of the Art	7
1.	Liquid Crystal Displays (LCDs) Were Well Known.....	7
2.	Touch-Screen LCDs Were Well Known	8
3.	Programmable Thermostats and Touchscreens Were Well Known.....	10
IV.	THE CHALLENGED CLAIMS ARE UNPATENTABLE.....	12
A.	Ground 1: Claims 1, 3, 4, 14, and 16-20 Are Obvious Over <i>Geiwitz</i> in View of the General Knowledge of a POSA	13
1.	<i>Geiwitz</i>	13
2.	Detailed Application to the Challenged Claims	21
B.	Ground 2: Claims 19 and 20 Are Obvious Over <i>Geiwitz</i> in View of the Cardio Manual and the General Knowledge of a POSA.....	76
1.	The Cardio Manual Is Pertinent Analogous Prior Art.....	76

2. The Cardio Manual Was Not Considered by the Patent Office
in Combination with *Geiwitz* 77

3. Detailed Application to the Challenged Claims 79

V. THE BOARD SHOULD NOT EXERCISE ITS DISCRETION TO
DENY INSTITUTION UNDER §314 82

VI. MANDATORY NOTICES UNDER 37 C.F.R. §42.8.....83

A. Real Party-in-Interest (37 C.F.R. §42.8(b)(1)).....83

B. Related Matters (37 C.F.R. §42.8(b)(2)).....84

1. Judicial Matters 84

2. Administrative Matters: 84

C. Lead/Back-up Counsel (37 C.F.R. §42.8(b)(3)): 85

D. Notice of Service Information (37 C.F.R. §42.8(b)(4)): 85

VII. CONCLUSION.....86

Petitioner's Exhibit List

<i>Exhibit #</i>	<i>Description</i>
1001	U.S. Patent 7,156,318 (“the ’318 Patent”)
1002	Prosecution history of the ’318 Patent (“File History”)
1003	Declaration of Petitioner’s Expert, R. Betancourt
1004	WO 2003/040839 A1 to Geiwitz (“ <i>Geiwitz</i> ”)
1005	Geiwitz U.S. Provisional Application 60/339,511, filed Oct. 22, 2001
1006	Intel®386ex Data Sheet, May 1996 (“ <i>Intel Data Sheet</i> ”)
1007	Statutory Disclaimer, including copy of Cardio Manual, Domotique Secant Inc., 1995 and Accompanying Transmittal Letter, Statutory Disclaimer, and Declarations (“ <i>Statutory Disclaimer and Cardio Manual</i> ”)
1008	Disclaimed US Patent 6,824,069, to Howard Rosen, “Programmable Thermostat System Employing a Touchscreen Unit for Intuitive Interactive Interface with a User,” filed Jan. 30, 2002 (“ <i>Disclaimed Patent</i> ”).
1009	Excerpts of Computer & Internet Dictionary (6 th ed., 1995)
1010	Excerpts of Microsoft Computer Dictionary (4 th ed., 1999)
1011	M-Systems DiskOnChip® Software Utilities User Manual
1012	U.S. Pat. No. 7,302,642 to Smith (“ <i>Smith</i> ”)
1013	Touchscreen Controller Tips (2000)
1014	Median Time to Trial Statistics - Judicial Caseload Profile – Northern and Western District of Texas, <i>available at</i> : https://www.uscourts.gov/statistics/table/na/federal-court-management-statistics/2022/06/30-2
1015	Declaration of Mr. Jakel
1016	37 CFR 1.14 (Jan. 2002).

<i>Exhibit #</i>	<i>Description</i>
1017	ANSI/TIA/EIA-485-A-1998 Standard, Electrical Characteristics of Generators and Receivers for Use in Balanced Digital Multipoint Systems (Reaffirmed 2003) (“RS 485 Standard”).
1018	US 7,083,109 to Pouchak

I. OVERVIEW

This petition challenges Claims 1, 3, 4, 14, and 16-20 of U.S. 7,156,318 (Ex-1001) as obvious over *Geiwitz* (Ex-1004) in view of the general knowledge of a person of ordinary skill in the art (“POSA”) (“Ground 1”) and Claims 19 and 20 as obvious over *Geiwitz* in view of the Cardio Manual (Ex-1007) in view of the general knowledge of a POSA (“Ground 2”). Collectively, Claims 1, 3, 4, 14, and 16-20 are the “Challenged Claims.”

II. GROUNDS FOR STANDING

Petitioner certifies that the Challenged Patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting this review. 37 C.F.R. §42.104(a). This Petition is filed under 37 C.F.R. §42.106(a).

III. REASONS FOR THE REQUESTED RELIEF

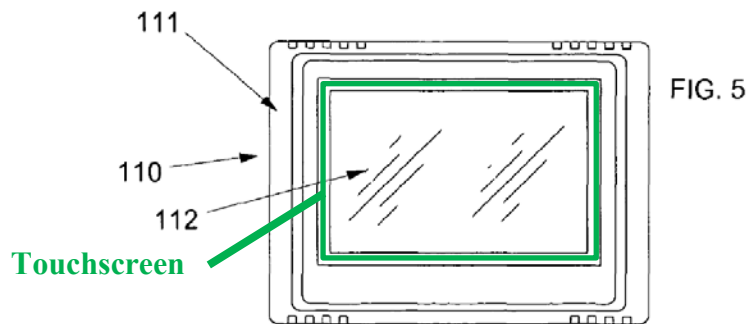
As explained in this Petition and the expert declaration of Rafael Betancourt, (Ex-1003), the Challenged Claims would have been obvious over the Grounds' prior art to a POSA at the time of the purported invention.

A. The '318 Patent

The '318 Patent is directed to a “programmable thermostat, with a touchscreen liquid crystal display having the capability to add to or remove virtual buttons to the display depending on the items of space conditioning equipment connected with and controlled by the thermostat.” Ex-1001 Abstract.

The patent purports to distinguish certain “typical” prior art programmable thermostats because those had physical buttons and a separate LCD screen. Ex-1001 1:66-2:6. The prior art allegedly did not have an intuitive user interface and instead was difficult to program. Ex-1001 2:10-25; Ex-1003 ¶27.

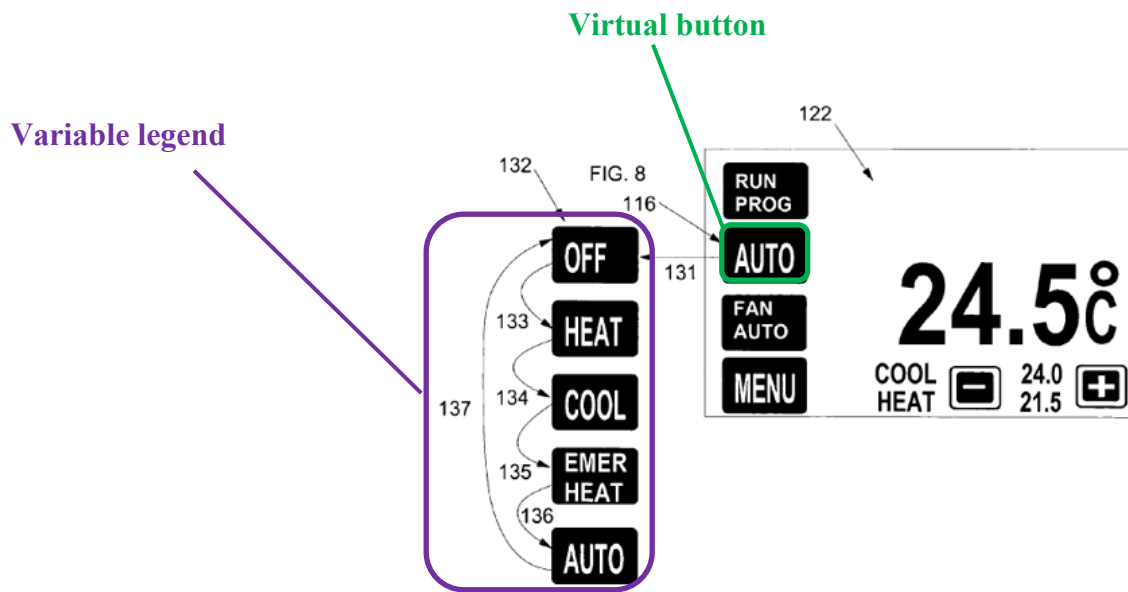
To improve user experience, the patent suggests using “adaptable menus” and “variable representations on the virtual buttons” of a touchscreen to “simplify user programming.” Ex-1001 1:25-31. The ’318 Patent discloses touchscreen 112 for its user interface:



Ex-1001 Figure 5, Ex-1001 7:36-38.

A variable, virtual button was the purported invention, corresponding to element D¹ of the Challenged Claims:

¹ This Petition, including the headings in the detailed claim analysis below, uses the reference numerals of the patent as published. *See, e.g.*, Ex-1001 Claim 1, 13:5-58.



Ex-1001 Figure 8 (annotated). The system changes the displayed legend and operating mode (*e.g.*, “HEAT,” “COOL,” etc.) with each touch of virtual button 116. *Id.*, 8:22-30. The ’318 Patent asserts that an interactive touch screen with virtual buttons purportedly distinguishes certain prior displays. *Id.*, 4:2-16, 6:44-55.

B. Prosecution History

The ’318 Patent issued from U.S. 10/654,235, filed on September 3, 2003. Ex-1001 (21, 22); Ex-1002 125-161. The Applicant amended the specification to remove its continuation-in-part priority claim to U.S. 10/060,768 (’768 Application), expressly disclaimed the priority benefit, and declared it “accepts as the filing date of this application that date on which the application was actually filed with the USPTO.” Ex-1002 043-045. Applicant further disclaimed all claims of the patent corresponding to the priority application (US Patent 6,824,069—Ex-1008, the

“Disclaimed Patent”) and simultaneously disclosed multiple prior art references, including the Cardio Manual (Ex-1007).² Ex-1002 037-039, 045. Describing the Cardio Manual, the Applicant stated:

The reference titled “Cardio manual” **discloses the broad idea of incorporating a dot-matrix liquid crystal display with touchscreen having virtual buttons responsive to a user’s touch.**³ Most relevant are pages 7, 16, 23, and 45 through 47.

...

10. Cardio Manual, available at <http://www.secant.ca/En/Documentation/Cardio2eManual.pdf>, Cardio Home Automation Inc., 55 pages, printed September 28, 2004. – discloses a dot-matrix touchscreen thermostat with multiple screens for a user interface that can accomplish, among other things, scheduling multiple setpoints in a seven day period. **Most important**, page 7 of this reference discloses that pressing a virtual button on the touchscreen interface can cause the **legends and functions to change only for virtual buttons other than the one pressed.**

Ex-1002 037; *see also* 041 (listing manual).

² Ex-1007 includes the “Cardio Manual” publication as well as the accompanying Statutory Disclaimer of U.S. 6,824,069.

³ Bolding indicates emphasis added unless otherwise stated.

The Applicant did not bring to the Examiner's attention that it was attempting to distinguish the Cardio Manual based on a feature that Applicant's specification admits was known, namely that modern thermostats presented virtual buttons on a touchscreen interface in which the displayed legend and operation of the system changed on each press of the virtual button. Ex-1002 generally; Ex-1001 2:6-9, 3:63-4:2; Ex-1003 ¶36.

Later, for the Disclaimed Patent, Applicant provided multiple submissions establishing the printed publication status of the Cardio Manual, admitting its claims were invalid over the manual and characterizing its disclosure. *See*, Statutory Disclaimer (including copy of Cardio Manual) Ex-1007 002-007 (attorney submission), 008-009 (inventor declaration), and 010-111 (declaration from supplier publisher). The Applicant disclaimed his claims and affirmatively stated:

The reason for entering this Disclaimer is that newly-discovered prior art, discussed in detail below, appears to **fully anticipate the invention disclosed and claimed** in the subject patent.... The patent owner has become aware that **the claims are** too broad or otherwise **invalid**.

Ex-1007 002-03.

The Applicant did not provide these submissions in prosecution of the '318 Patent. *See, generally*, Ex-1002. The Disclaimed Patent's claims are essentially identical to the independent Challenged Claims (Claims 1, 16 and 19), except for

elements D3 and D1b. *Compare* Claims 1, 16 and 19 with US 6,824,069 (Ex-1008), Claims 1 and 9; Ex-1003 ¶38.

The Examiner subsequently allowed the instant claims, stating that for issued Claims 1, 16, and 19, “the prior art does not teach the programmable thermostat system combinations as recited, and in particular the stored program **features recited in section D, subsection 3** [i.e., element D3] of each of these claims.” Ex-1002 023 (bracketed information added). However, the Applicant did not bring to the Examiner’s attention that Element D3 was admitted by the specification to be prior art. Ex-1002; Ex-1001 3:63-4:2, 2:6-9. Ex-1003 ¶41. Nonetheless, the Grounds of this Petition demonstrate that the Challenged Claims—including Element D3—were in the prior art. Ex-1003 ¶42.

C. Claim Construction

Each claim term in the Challenged Claims should be given its plain and ordinary meaning and no specific construction of any claim term is required because the prior art herein meets each of the claim terms under any reasonable construction.

D. Priority of the Challenged Claims

This Petition relies on prior art as of the earliest claimed priority date of the ’318 Patent (September 3, 2003), hereafter “Priority Date.” Ex-1001, cover page. Ex-1002 045; §III.B.

E. POSA

A POSA in September of 2003 was familiar with the circuitry and operation of programmable, touchscreen thermostats having liquid crystal displays. Ex-1003 ¶48. A POSA would have had at least a Bachelor's degree in Electrical Engineering or a similar degree and at least two years of professional experience. More experience can supplement less education and vice versa. *Id.* The level of skill in the art is further demonstrated by the references cited herein, including the Grounds' references and the background references discussed in the State of the Art section below. While this petition or accompanying expert testimony may occasionally use the present tense, the analysis is from the perspective of a POSA as of the time of the purported invention.

F. State of the Art

This section describes the state of the art, including the general knowledge, skill, common sense, and creativity possessed by a POSA as of September 2003. It explains the conventional purposes and structures of conventional components in the art, informing the motivations and reasonable expectations of success for the Grounds. Ex-1003 ¶¶50-60.

1. Liquid Crystal Displays (LCDs) Were Well Known

LCDs and their supporting components were well known in the prior art, forming part of the general knowledge of a POSA. Ex-1003 ¶51. LCDs were widely used in digital electronics, from laptops to digital watches to controllers such as

thermostats. *Id.* For example, the '318 Patent admits it was known in the prior art to use LCD screens for thermostat controllers. Ex-1001 1:66-2:6 (discussing prior art programmable thermostat having a display that was “**typically an LCD** with segmented text characters.”), 2:6-9 (“in some modern thermostats, ‘virtual’ buttons are presented on the **LCD**”); Ex-1003 ¶51.

2. Touch-Screen LCDs Were Well Known

It was likewise known in the art and formed part of the general knowledge of a POSA to provide a touch sensitive layer, called a touchpad, on an LCD to effect a touchscreen for a thermostat. Ex-1003 ¶¶52-55; Ex-1012 1:32-34, 7:12-15, 7:33-39, Figures 3, 4A. For example, the '318 Patent admits that element B of the Challenged Claims was known: “**In some modern thermostats, ‘virtual’ buttons are presented on the LCD itself which is juxtaposed with a touch pad to effect an interactive touchscreen.**” Ex-1001 2:6-9 (Applicant’s Admitted Prior Art, or AAPA). The patent goes on to admit that the functionality in Element D of Claim 1 was known in the art:

As an example, a first virtual button may be associated with the word ‘COOL’ to indicate to a user that the programmable thermostat will only operate in an air conditioning mode. In the prior art, touching the first virtual button will shift the programmable thermostat from the air conditioning mode to, for example, a

**heating mode such that the associated text would change to
'HEAT.'**

Ex-1001 3:63-4:2 (AAPA).

Likewise, during prosecution, the Applicant discussed exemplary prior art from some eight years prior to the '318 Patent:

Attached to this declaration is a true copy of a document titled "Cardio manual."... The "Cardio manual" has been proven to me to have been available to the public since 1995.... [Supplier] sold its "Cardio" product in the United States from early 1996.... The "Cardio" product is described in the "Cardio manual" The interface of the "Cardio" product has always included **a tactile surface integrated with a liquid crystal display (LCD) to constitute what we call in industry a "Touch Panel" or "Touchscreen"....**

Ex-1007 008; Ex-1003 ¶56.

Discussing a screen of the Cardio Manual discussed above, Applicant admitted:

The framed portion ... is a pictorial shown on a **dot-matrix liquid crystal display incorporating a touch sensitive layer...** The "Cardio" product uses **"a transparent touch pad juxtaposed over a liquid crystal display to constitute a touchscreen for interactive interface with a user"** that operates with input from a temperature sensor located in a conditioned space

Ex-1007 005; Ex-1003 ¶57.

3. Programmable Thermostats and Touchscreens Were Well Known

Programmable thermostats, including their functionality and circuitry in touchscreen embodiments, were well known in the prior art, forming part of the general knowledge of a POSA. Ex-1003 ¶¶58-60; *e.g.*, Ex-1012 1:32-34, 7:12-15, 7:33-39, Figures 3, 4A. For example, the '318 Patent admits thermostats had already “been used for many years,” and operated “in a well known manner” to control “heating and/or cooling equipment” to heat or cool a conditioned space when the temperature in the space reached a set point established by a user. Ex-1001 1:35-45.

The patent admits use of programmable thermostats, including structures recited in elements A and C of the Challenged Claims, was well-known:

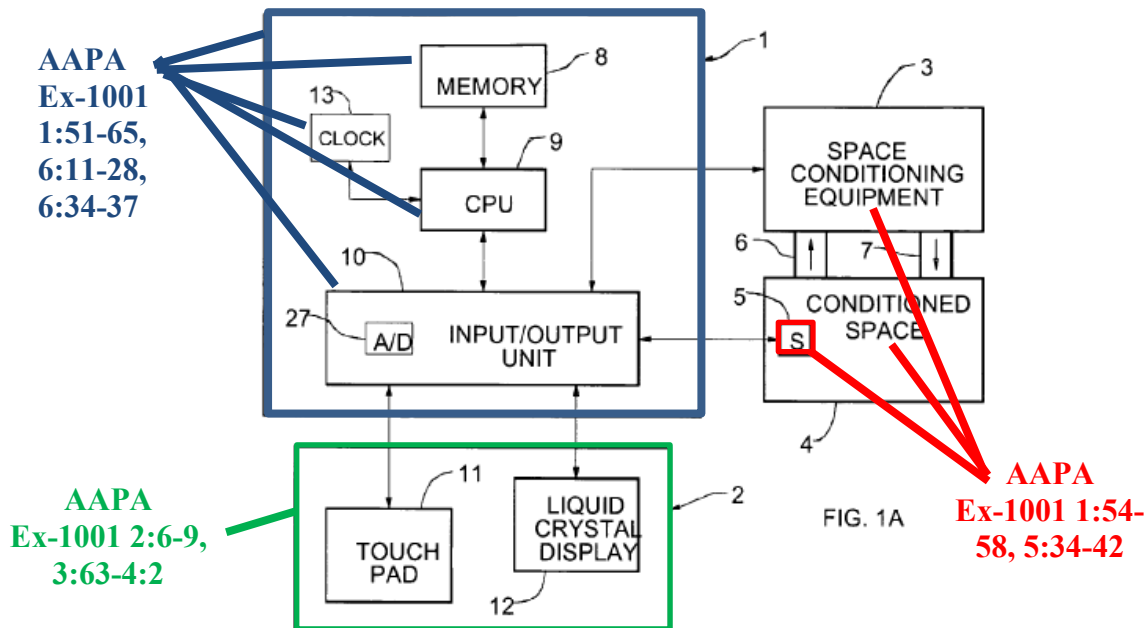
Many modern thermostat systems include a real time clock, a memory and a data processor to run a process control program stored in the memory. Such thermostats accurately measure the temperature of a temperature sensor disposed in the conditioned space and make decisions to send control signals to the heating and/or cooling equipment in order to closely control the temperature of the conditioned space. The use of programmed thermostat systems permits anticipating and minimizing hysteresis or overshoot of the temperature in the conditioned space. In addition, the program can specify different set points at different times of the day and week and may also include a “vacation” mode which employs different set

points when the conditioned space is not occupied for an extended period.

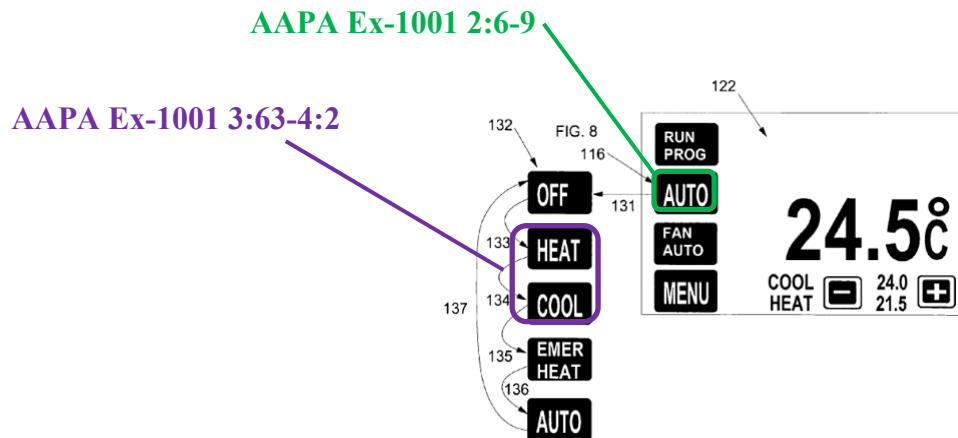
Ex-1001 1:51-65 (AAPA).

Thus, as it pertains to the key features of the Challenged Claims, the '318 Patent essentially concedes that the claims are drawn to the subject matter of Applicant's Admitted Prior Art ("AAPA"):

User-Programmable Thermostat System



Ex-1001 Figure 1A (annotated).



Ex-1001 Figure 8 (annotated).

IV. THE CHALLENGED CLAIMS ARE UNPATENTABLE

As a preliminary matter, for Claim 1, elements [Pre] through [D1a], and [D2], are virtually identical⁴ to limitations of U.S. Patent 6,824,069's Claim 1, which was disclaimed and admitted as being in the prior art. *See* Ex-1008 (last page), Ex-1007 002-03, 009; Ex-1003 ¶¶38, 61. These virtually identical limitations are also present

⁴ Aside from [D1b] and [D3], the following insubstantial variations exist between the '069 and '318 Patent claims, respectively: a "temperature sensor" versus an "environmental condition sensor," a "temperature" versus an "ambient temperature," a "program" versus a "control program," and a "representation" of a "button" versus a "representation of a first virtual button." *Compare, e.g.,* '318 Patent, claim 1, *with* claim 1 of disclaimed '069 Patent (Ex-1008), claim 1; Ex-1003 ¶¶38, 61.

in the '318 patent's independent Claims 16 and 19. The disclaimer was based on the same evidence presented here regarding knowledge of POSA. Thus, Patent Owner conceded that these virtually identical limitations of the '318 patent's Claims 1, 16, and 19 were known in the prior art, and Patent Owner should be estopped from arguing otherwise here.

A. Ground 1: Claims 1, 3, 4, 14, and 16-20 Are Obvious Over *Geiwitz* in View of the General Knowledge of a POSA

1. *Geiwitz*

a. *Geiwitz* Is Pertinent, Analogous Prior Art, Not Previously Considered During Examination

Geiwitz is a published international application titled “Programmable and Expandable Building Automation and Control System” filed October 22, 2002, designated the United States, and published in English on May 15, 2003.⁵ Ex-1004. *Geiwitz* thus qualifies as prior art under §102(e) and also under §102(a).

Geiwitz was in the same field of endeavor as the claimed invention, namely programmable, touchscreen thermostats and is thus analogous art to the '318 Patent. Ex-1003 ¶63. *Geiwitz* was not cited or discussed during the examination of the '318 Patent. *Id.*; Ex-1002 (generally).

⁵ *Geiwitz* entered the national stage as U.S. Application Serial 10/830,653, which was published as US 2005-0090915.

b. Geiwitz Is Entitled to the Filing Date of its Provisional Application

Geiwitz expressly claims the priority benefit of provisional application 60/339,511, filed on October 22, 2001 (“*Provisional*” Ex-1005). Ex-1004 1:8-10. Because the *Provisional* provides written description support for at least one claim of *Geiwitz* and the *Geiwitz* material relied upon was also in the *Provisional*, *Geiwitz* is entitled to the filing date of the *Provisional*. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1379-1381 (Fed. Cir. 2015); *In re Giacomini*, 612 F.3d 1380, 1383 (Fed. Cir. 2010). For example:

<i>Geiwitz Claim 1</i> (Ex-1004) 40:4-10	<i>Provisional Support</i> (Ex-1005)
<i>1. A building automation and control system comprising:</i>	Title, p. 0004
<i>an open architecture system platform in direct communication with a plurality of subsystems or devices located in proximity to a building;</i>	pp. 0004, 0010-13, 0413, Figure 383.
<i>A smart card in communication with said system platform for control of said system platform, subsystems or devices, said smart card comprising a programmable microprocessor; and</i>	pp. 0007, 0009, 0170-71, 413; Figures 383, 428, 450-455.

<i>A touchscreen for user-interface with said system platform.</i>	pp. 0008, 0014-16, 0020-22, 0056-58, 0413; Figures 1-3, 80-85, 125, 200-208, 249, 436-440.
--	--

Ex-1003 ¶65.

c. Geiwitz Incorporated the *Provisional* for All Purposes

Geiwitz also expressly incorporated by reference the entirety of the *Provisional*. Ex-1004 1:8-10. Thus, the disclosure of the *Provisional* forms part of *Geiwitz* for all purposes as if explicitly contained therein. MPEP (8th Ed) §2163.07(b) (“information incorporated is as much a part of the application as filed as if the text was repeated in the application, and should be treated as part of the text of the application as filed.”); *Ultradent Prods., Inc. v. Life-Like Cosmetics, Inc.*, 127 F.3d 1065, 1069 (Fed. Cir. 1997) (rejecting argument that anticipatory reference “sa[id] nothing” about pertinent portions of an incorporated reference because “the entire contents” were incorporated); *Apple Inc. v. Koss Corporation*, IPR2021-00255, Paper 54 (Final Written Decision) (May 31, 2022), at 25-30 (holding claims

obvious over host reference, relying on material from two provisional applications incorporated in their entirety).⁶

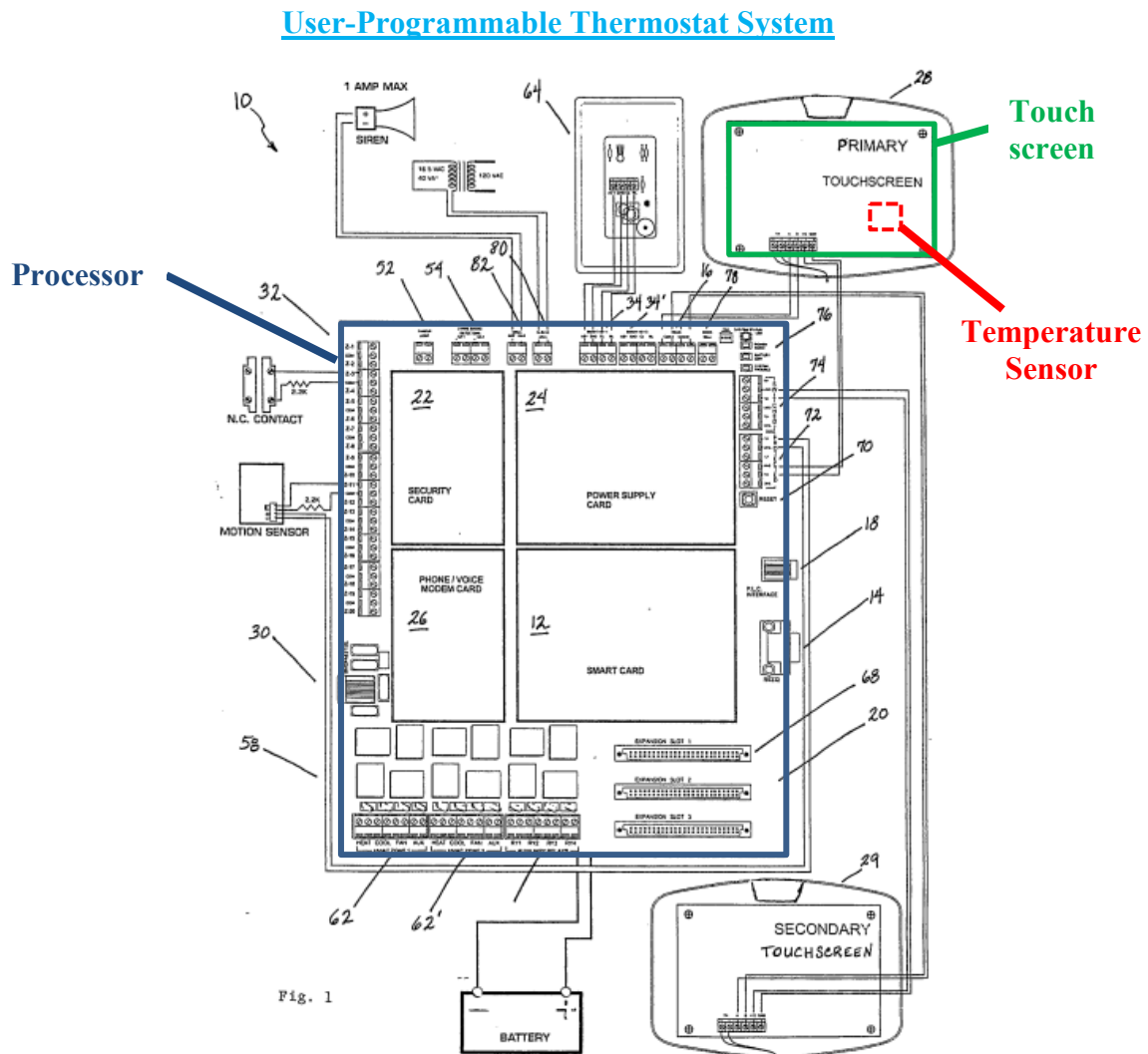
Additionally, the *Provisional* itself is prior art because *Geiwitz* designated the U.S., claimed priority to and incorporated the *Provisional*, and was published in English under PCT Article 21(2). *See* MPEP (8th Ed) §901.02; 37 CFR 1.14 (c)(ii) (Jan. 2002) (Ex-1016); *Flex Logix Techs Inc. v Venkat Konda*, PGR2019-00042, Paper 35 (Final Written Decision), (Mar. 16, 2021), at 17-18, 18 n.7, 29 (Board holding claims obvious over provisional application incorporated “in its entirety” by PCT, and finding provisional accorded “prior art status in its own right” as of publication date of incorporating PCT).

⁶ *Geiwitz* further incorporates the *Provisional* for its disclosure of “touchscreen screens and icons.” Ex-1004 19:15-17. This augments, not limits, the incorporation of the entirety of the *Provisional* for all purposes. *Harari v. Lee*, 656 F.3d 1331, 1335-36 (Fed. Cir. 2011).

d. Overview of *Geiwitz*⁷

Geiwitz disclosed a programmable building automation and control system 10 having a touch-screen user interface (touchscreen 28). Ex-1004 Title, Abstract, Figures 1, 14 and 15.

⁷ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0004, 0009, 0056-58, 0170-71, 0945 (Figure 383), 1017-21 (Figures 436-440), 1031-36 (Figures 450-455).

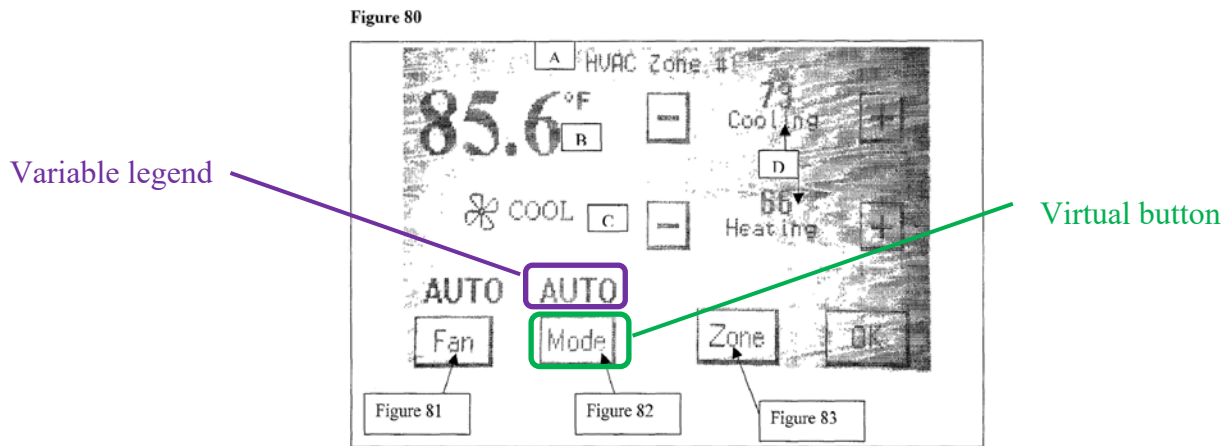


Ex-1004 Figure 1 (annotated).

Geiwitz's user-programmable thermostat had variable screens such as an “HVAC control screen” for controlling Heating Ventilation and Air Conditioning (“HVAC”) equipment, adjusting temperature set points, and selecting modes of operation, e.g., “cool,” “heat,” and “auto,” via a “Mode” icon, where repeatedly

pressing the “Mode” icon cycled through the options of cool, heat and auto. Ex-1004 25:1-13.

The *Provisional* illustrates *Geiwitz’s* disclosure, just as a POSA would have understood the text of the PCT:



Ex-1005 0056 Figure 80, *see also* 0057 Figure 84 (showing screen in COOL mode with COOL legend displayed, achieved by repeatedly pressing “Mode” button), 0058 Figure 85 (subsequent presses of “Mode” button giving HEAT mode with HEAT legend displayed). Ex-1003 ¶69.

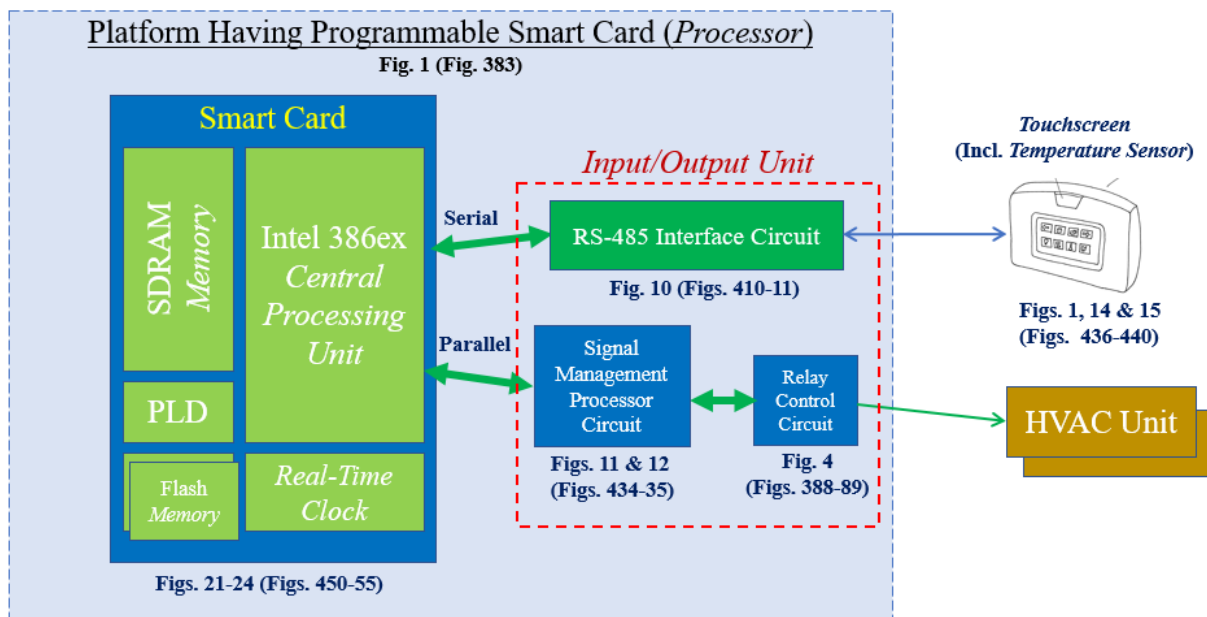
Geiwitz’s thermostat used a processor platform having a pluggable processor module called a “smart card,” which together had subcomponents of a central processing unit (CPU), memory, and input/output. For example, *Geiwitz* taught:

The system platform is controlled by ... programmable smart card 12
.... The processing power, memory capabilities, and input/output requirements of smart card 12 are determined by the particular application for the system.

Ex-1004 10:19-24, Figures 21-24.

Petitioner provides the following simplified block diagram to illustrate the functional components described by *Geiwitz*, with the italicized terms corresponding to limitations recited in the Challenged Claims. Ex-1003 ¶71.

Block Diagram Relating *Geiwitz* to Challenged Claims



Ex-1003 ¶71 (relating *Geiwitz* to Challenged Claims) (citations in parenthesis are to the *Provisional*).

2. Detailed Application to the Challenged Claims

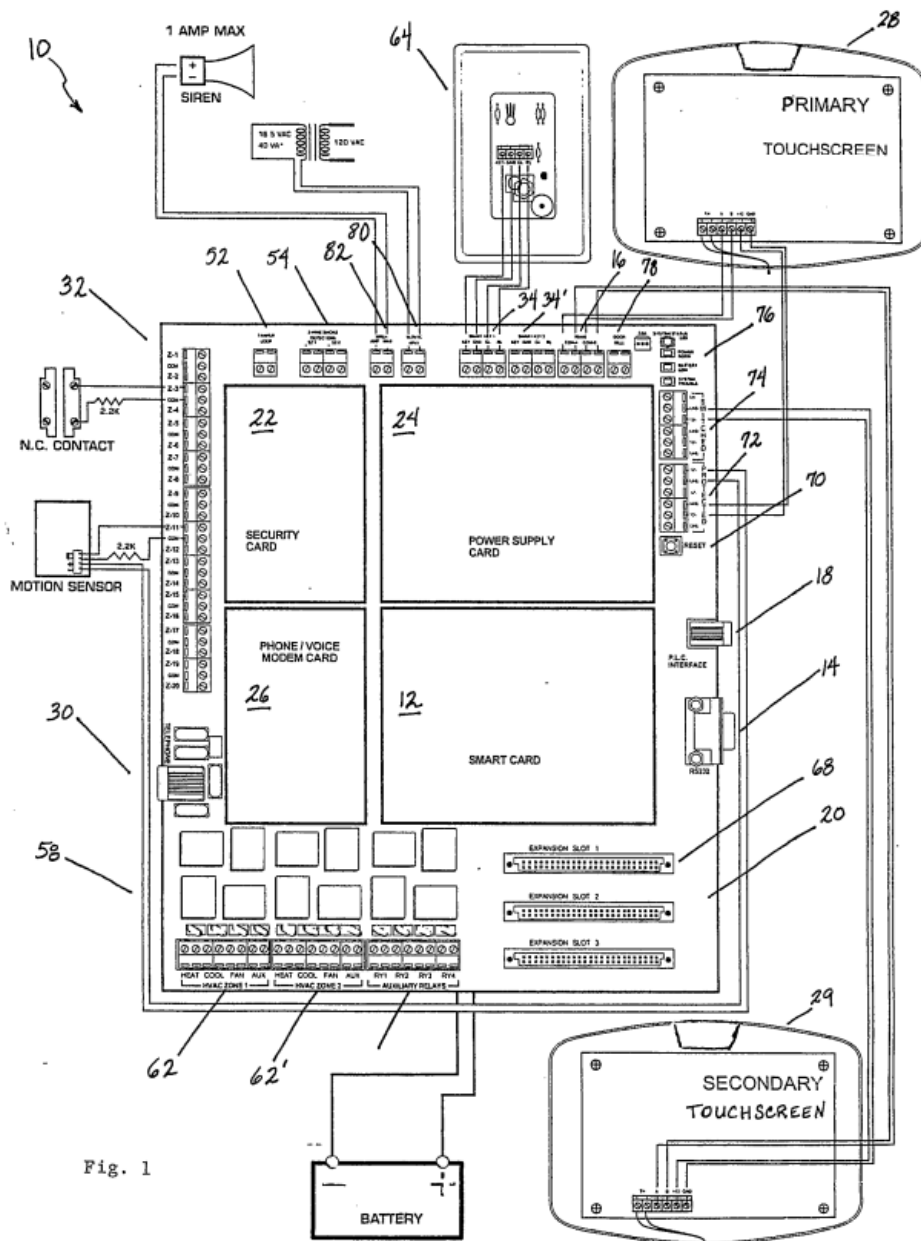
a. Claim 1

[Pre] A programmable thermostat system for controlling space conditioning equipment comprising:

To the extent limiting, *Geiwitz* disclosed or at least rendered obvious the preamble.⁸ Ex-1003 ¶¶72-81. *Geiwitz* taught a programmable building automation and control system 10 (*a programmable thermostat system*) that provided control of heating, ventilation, and air conditioning (HVAC) equipment (*for controlling space conditioning equipment*). Ex-1003 ¶72.

First, *Geiwitz* taught a *programmable thermostat system*. Ex-1003 ¶73. For example, *Geiwitz* taught “a building **automation and control system** that is **programmable**.” Ex-1004 4:26-27.

⁸ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0004, 0015-16, 0056-58, 0945 (Figure 383).



Id., Figure 1; Ex-1003 ¶73. The *Geiwitz* system had programmable thermostat set points and modes of operation, e.g., “cool,” “heat,” and “auto.” *Id.*, 25:1-13. A user programmed “HVAC scheduling events” at dates and times and could be programmed to control HVAC equipment according to occupancy and security

status. Ex-1004 30:12-17, 37:27-30; *see also* Ex-1005 0113-17 (showing programming screens Figures 200-208); Ex-1003 ¶74.

Second, *Geiwitz's* system controlled HVAC equipment (*for controlling space conditioning equipment*). Ex-1003 ¶75. A function of the *Geiwitz* system was to monitor temperature and provide “**control of ... heating, ventilation and air conditioning (HVAC)....**” Ex-1004 3:26-27. This is *space conditioning equipment* because HVAC is equipment that controls the environmental condition of a space. Ex-1004 3:26-27; Ex-1003 ¶75. For context, ’318 Patent’s specification uses “space conditioning equipment” interchangeably with “heating/cooling equipment unit,” identifying both terms with the same reference number (“3”). Ex-1001 5:63-6:28; Ex-1003 ¶75.

Finally, any alleged differences were in the general knowledge of a POSA. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-422 (2007); Ex-1003 ¶¶76-81; §III.F.3; Statutory Disclaimer (Ex-1007 002-011, 014, 034, 052-056); AAPA (Ex-1001 1:35-45, 1:51-65, 6:11-28).

A) at least one environmental condition sensor providing an electrical signal indicative of the ambient temperature of a conditioned space in which said environmental condition sensor is situated;

Disclosed or at least rendered obvious by *Geiwitz*.⁹ Ex-1003 ¶¶82-89. *Geiwitz* taught temperature sensors for monitoring building environments, including a thermistor in touchscreen 28 for reading ambient temperature (*at least one environmental condition sensor*), where the thermistor/touchscreen was disposed to measure the ambient temperature in the HVAC zone to be controlled (*providing an electrical signal indicative of the ambient temperature of a conditioned space in which said environmental condition sensor is situated*). Ex-1003 ¶82.

Geiwitz disclosed a “**thermistor . . . for a reading of ambient temperature**” of the “HVAC zone” in which it was situated. Ex-1004 14:9-10, 25:2-13. A POSA understood Geiwitz’s “thermistor” was a resistor that provided an electrical signal (e.g., voltage or current) that varied according to ambient temperature (and was therefore indicative of ambient temperature). Ex-1003 ¶83. *Geiwitz*’s disclosure is consistent with the ’318 Patent disclosing that the temperature sensor can be “a simple thermistor.” Ex-1001 6:11-15. Ex-1003 ¶83.

Finally, any alleged differences were in the general knowledge of a POSA. *KSR*, 550 U.S. 415-422; Ex-1003 ¶¶84-89; Statutory Disclaimer (Ex-1007 002-011, 014, 018, 052-056); AAPA (Ex-1001 1:35-45, 1:51-65, 5:34-42, 6:11-28).

⁹ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0056.

B) a transparent touch pad juxtaposed with a liquid crystal display to constitute a touchscreen for interactive interface with a user;

Disclosed, or at least rendered obvious, by *Geiwitz*.¹⁰ Ex-1003 ¶¶90-99. *Geiwitz* taught a touch-screen LCD for its user interface (*a liquid crystal display that constitute[d] a touchscreen for interactive interface with a user*), which a POSA understood or would have at least found obvious to include *a transparent touch pad juxtaposed with the LCD*. Ex-1003 ¶90.

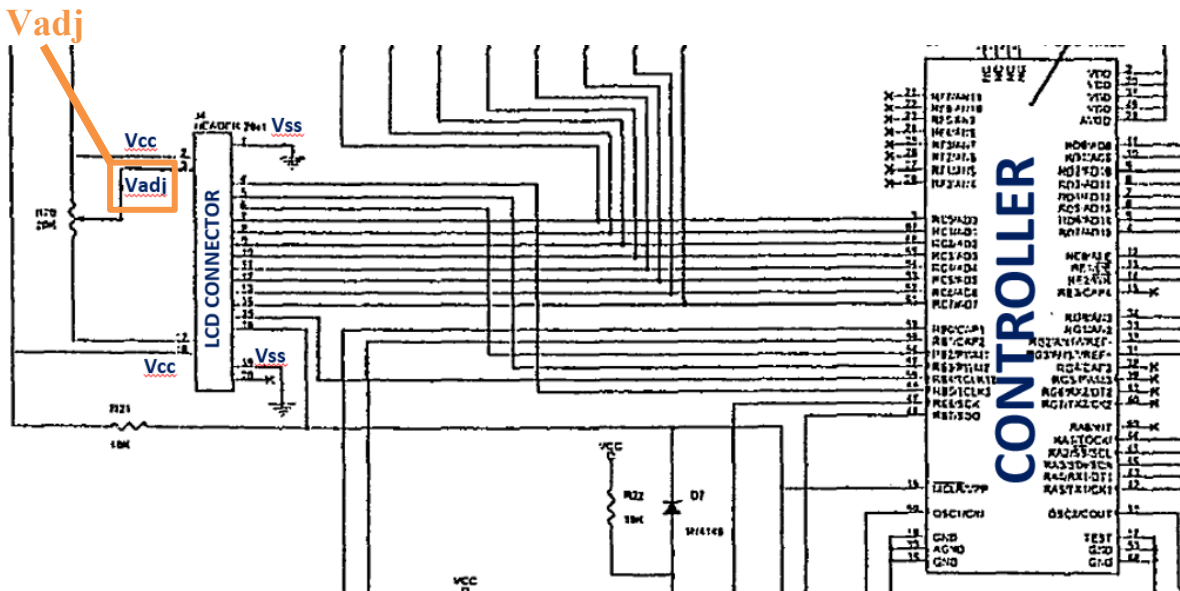
Geiwitz taught *a liquid crystal display that constitute[d] a touchscreen for interactive interface with a user*. Ex-1003 ¶91. Ex-1004 4:15, 9:15-17 (“**Touchscreen 28** ... interface employs familiar icon-based menus **so that the user can interface with and navigate through system 10 in an efficient and user-friendly manner.**”), Figure 14, 25:11. The incorporated *Provisional* taught the touchscreen used a backlit “LCD” (*liquid crystal display*):

¹⁰ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0008, 0056-58, 1017-21 (Figures 436-440).

System User Interface Devices

- (2) **Touch Screen** (figures 1 – 313 and 436-440)
 Embedded controller circuit
LCD and backlight circuit

¶91.



Ex-1004 Figure 15 (partially reproduced; annotated); Ex-1003 ¶91. Finally, the *Provisional* illustrated back-lit, dot-matrix pixelated screens that a POSA recognized

or would have found obvious to be LCDs. Ex-1005 Figures 80, 84, 85 and 436; Ex-1003 ¶91.

Second, a POSA understood or at least found obvious that *Geiwitz's* touchscreen included *a transparent touch pad juxtaposed with* the LCD because that was the conventional, well-known structure for a touchscreen like *Geiwitz's*. Ex-1003 ¶92; Ex-1004 Figure 14, 25:11; e.g., Ex-1001 2:6-9 (AAPA: “‘virtual buttons’ are presented on **the LCD** itself which is **juxtaposed with a touch pad to effect an interactive touchscreen.**”); Ex-1007 005 (AAPA: “**transparent touch pad juxtaposed over a liquid crystal display to constitute a touchscreen** for interactive interface with a user”); Ex-1007 008 (inventor declaration re lexicon applicable to prior art: “**a tactile surface integrated with a liquid crystal display (LCD) to constitute what we call in industry a ‘Touch Panel’ or ‘Touchscreen’.**”); Ex-1009 524 (prior art definition: “Touch-sensitive display A display designed with a pressure-sensitive **panel mounted in front of the screen; synonymous with touchscreen.** You select options by pressing the screen at the appropriate place.”). The touchpad was understood or at least obvious to be *transparent* because otherwise it would obscure the display. Ex-1003 ¶92. The touchpad was further known to be *juxtaposed* with the LCD because otherwise the touchpad would not register touches of *the screen*. Ex-1003 ¶92; e.g., Ex-1004 25:2-13.

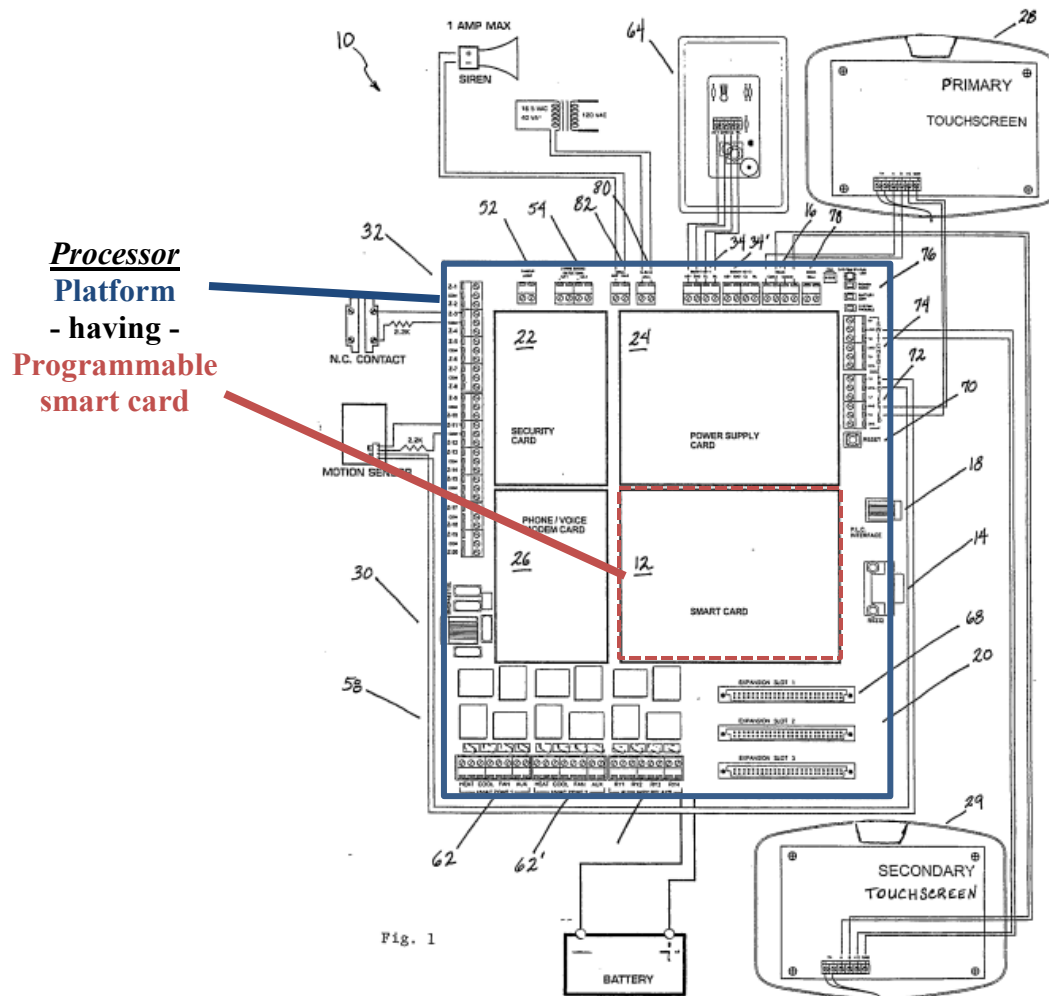
Third, for these same reasons, at minimum, element B would have been obvious to a POSA, as the element is directed to no more than a conventional touchscreen LCD used in a conventional way to achieve the purpose and functionality taught by *Geiwitz*, all with predictable results and well within the skill of a POSA. Ex-1003 ¶¶93-94. Touchscreen LCDs as claimed in Element B were virtually the only type of touchscreens used in thermostats like the *Geiwitz* thermostat at the time of the purported invention. Ex-1003 ¶93. Using conventional structures would have been obvious to achieve any of the advantages known to a POSA, including the versatility and low-power consumption of LCDs adapted for touchscreen functionality. Ex-1003 ¶93; *e.g.*, Ex-1009, 296. Indeed, any alleged differences were in the general knowledge of a POSA. *KSR*, 550 U.S. 415-422; Ex-1003 ¶¶94-99; Statutory Disclaimer (Ex-1007 002-011, 014, 018, 052-056); AAPA (Ex-1001 2:6-9, 1:35-45, 1:51-65, 5:34-42, 6:11-28).

C) a processor, said processor including:

Disclosed or at least rendered obvious by *Geiwitz*.¹¹ Ex-1003 ¶¶100-107. *Geiwitz* taught a platform having a programmable smart card (together, *a processor*) having the various components discussed for C1-C4. Ex-1003 ¶100.

¹¹ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0004, 0170-71, 1032 (Figure 451), 0999 (Figure 426).

User-Programmable Thermostat System



Ex-1004 Figure 1 (annotated).¹²

“The system platform” with its “programmable smart card 12” together constituted the *processor*. Ex-1004 10:19-21; Ex-1003 ¶101. The platform’s smart

¹² See also Ex-1005 0945 (Figure 383), 0007 (identifying “System Back Plane” as “Platform (figure 383)”).

card¹³ had the system's microprocessor: "[t]he smart card comprises an embedded high-speed programmable microprocessor for control of building subsystems and devices." Ex-1004 4:9-10, *see also* 4:1-2, 8:30-9:1. The smart card determined the operating characteristics of the platform, such as altering capabilities of the system and updating "icons and menus of touch screen 28 as appropriate." *Id.*, 10:23-27.

And any alleged differences were in the general knowledge of a POSA. *KSR*, 550 U.S. at 415-422; Ex-1003 ¶¶102-107; Statutory Disclaimer (Ex-1007 002-11, 013-14, 018, 052-56); AAPA (Ex-1001 1:51-65, 5:34-42, 6:11-28, 6:34-37).

[C1] 1) a central processing unit;

Disclosed or at least rendered obvious by *Geiwitz*.¹⁴ The platform having a programmable smart card (*the processor* as explained for element C) included a microprocessor, namely, an Intel®386ex microprocessor (*including...a central processing unit*). Ex-1004 10:21-23, Figure 21 (showing Intel®386ex chip); Ex-

¹³ The *Provisional* called the smart card a "processor module." Ex-1003 ¶101; Ex-1005 0999 Figure 426 (showing "Smart Card" mounting area of platform), 0170-71 (describing "processor module"), 0009 (identifying "processor module" circuitry of Figures 450-455, which correspond to Ex-1004 Figures 21-24.).

¹⁴ The cited *Geiwitz* material was also in the *Provisional*. *See* Ex-1005 1032 (Figure 451).

1003 ¶108. The microprocessor was a *central processing unit*. Ex-1003 ¶108; Ex-1010 290 (defining “microprocessor” as “a **central processing unit** on a single chip”); Ex-1006 Figure 1 and 005 (data sheet for Intel®386ex stating: “Intel 386 EX embedded processor is a ...**CPU**.”).

Finally, any alleged differences were in the general knowledge of a POSA. *KSR*, 550 U.S. 415-422; Ex-1003 ¶¶109-114; §III.F.3; Statutory Disclaimer (Ex-1007 002-11, 013-14, 018, 052-56); AAPA (Ex-1001 1:51-65, 6:11-28, 6:34-37).

[C2] 2) a real time clock;

Disclosed or at least rendered obvious by *Geiwitz*.¹⁵ *Geiwitz*’s platform having a programmable smart card (*processor*) included a “**real-time clock circuit**” (*processor including...a real time clock*). Ex-1003 ¶¶115-117; Ex-1004 16:5-6 (“Fig. 22c is a schematic of the **real-time clock circuit for system 10**.”).

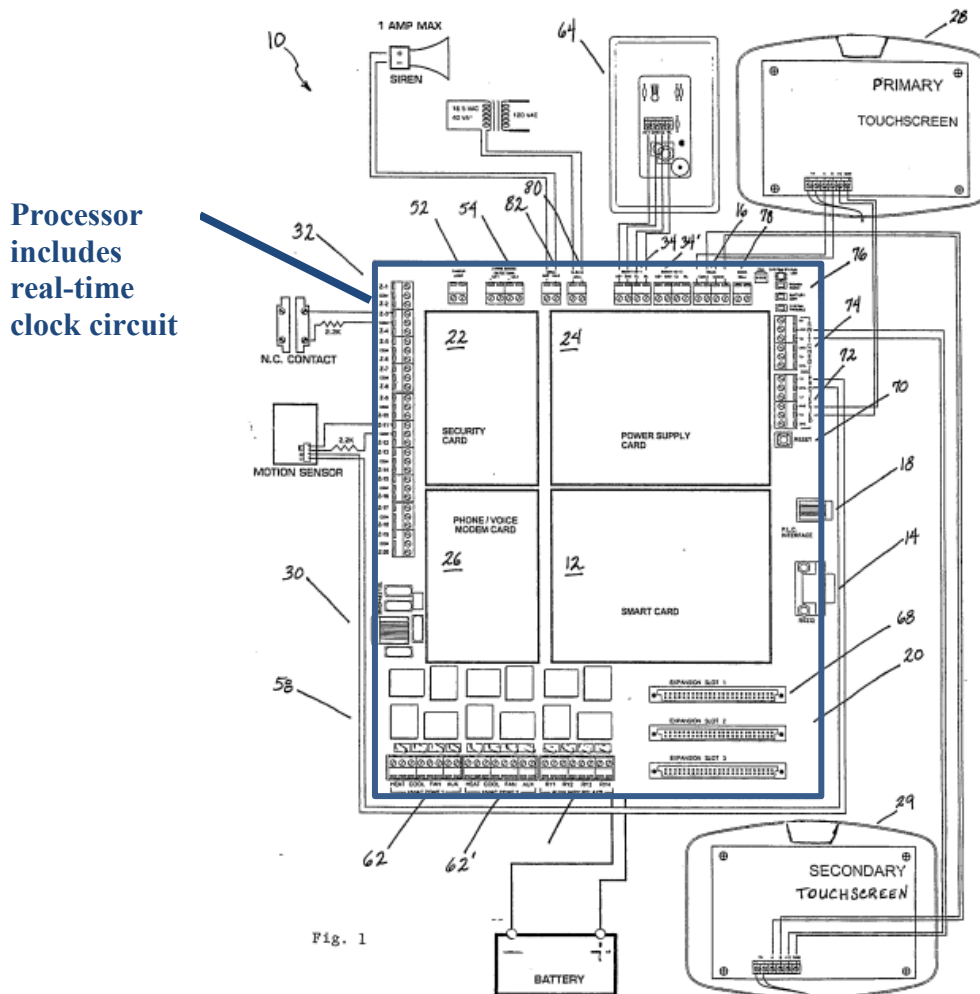
¹⁵ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0009, 0113-14, 0945 (Figure 383), 1033 (Figure 452).



Fig. 22c

Ex-1004 Figure 22c (annotated).

User-Programmable Thermostat System



Ex-1004 Figure 1 (annotated).

The “real-time clock circuit” was included on the platform having a programmable smart card (*processor*) because the clock circuit of Figure 22c has multiple simple connections adapted for the circuit board of the smart card itself or, alternatively, on the motherboard of the platform in Figure 1—either one is still part of the claimed *processor*. Ex-1003 ¶116; Ex-1004 Figures 1 and 22c. This is further

supported by the clock circuit of Figure 22 being the circuit supporting real-time operations. Ex-1003 ¶116; Ex-1004 8:29-9:1 (“**real-time** microprocessor controller, or ‘smart’ card, 12”). These real time operations include the conventional ability to operate HVAC equipment according to calendar dates and times of a programmed schedule, as was well known. Ex-1004 30:12-17; Ex-1003 ¶116.

Geiwitz’s incorporated *Provisional* further makes clear that the real time clock circuit was part of the “processor module”, *i.e.*, the smart card. Ex-1003 ¶117; Ex-1005 0009 (identifying “processor module” as including Figure 452 and “Real-Time clock circuit” which is numbered Figure 22c in the PCT).

And any alleged differences were in the general knowledge of a POSA. *KSR*, 550 U.S. 415-422; Ex-1003 ¶¶118-123; §III.F.3; Statutory Disclaimer (Ex-1007 002-11, 013-14, 018, 034, 052-56); AAPA (Ex-1001 1:51-65, 6:34-37).

[C3] 3) a memory coupled to said central processing unit for storing program and data information; and

Disclosed or at least rendered obvious by *Geiwitz*.¹⁶ Ex-1003 ¶¶124-136. *Geiwitz’s* platform having a programmable smart card (*processor*) included multiple

¹⁶ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0004, 0014, 0023, 0056-58, 0061, 0113-14, 0170-71, 1032-33 (Figures 451-452), 1035-36 (Figures 454-455).

pieces of memory, including a “flash memory” chip, a mass storage “flash memory socket chip,” and “SDRAM” memory for *Geiwitz*’s microprocessor to store program and data information, *i.e., memory coupled to said central processing unit for storing program and data information.* Ex-1003 ¶124.

Geiwitz disclosed *memory* that included flash memory (“M-Systems® disk-on-a-chip”¹⁷ and flash memory for “mass storage” for the system 10 (Ex-1004 16:4, 16:12-14, Figures 22b, 25c)), and SDRAM memory (Ex-1004 Figure 23b). Ex-1003 ¶125. The *Provisional* further makes clear the memory circuits were disposed on the smart card. Ex-1003 ¶125; Ex-1005 009 (identifying “processor module” as including Figures 452, 454, and 455, which correspond to Ex-1004 Figures 22b, 24c, 23b).

The *Geiwitz* memory (*memory*) was *coupled* to the smart card’s Intel®386ex microprocessor (*central processing unit*) via data and address buses and bus drivers, which a POSA understood or at least found obvious were used by the CPU to provide conventional read/write operations. Ex-1004 Figures 21, 22b, 23b, 24c; Ex-1003 ¶¶126-128.

¹⁷ Ex-1003 ¶125 (Ex-1011 001 003 (“**M-Systems’ DiskOnChip is a family of high-performance flash disks.**”))).

The *Geiwitz Intel*[®]386ex microprocessor (*central processing unit*) used the memory (*memory*) to store various *program and data information*. Ex-1003 ¶129. For example, the “icons and menus of touchscreen 28” constituted at least *program information* in the sense of being pre-existing data elements (*information*) used by system software (*i.e.* for a software *program*) to render the images displayed on *Geiwitz*’s touchscreen. Ex-1003 ¶129; Ex-1004 10:26-27, 19:13-17. Additionally, user programming such as the user’s desired schedule and configuration of HVAC operation (Ex-1004 19:7-8, 25:1-13, 30:12-17, 34:3-5) constituted *program information* at least in the sense of being the *information* of the *program[med]* HVAC schedule. Ex-1003 ¶129. Data such as the current temperature from *Geiwitz*’s thermistor (Ex-1004 14:9-10) and current system status (e.g., on, off, auto, cool) etc. (Ex-1004 25:1-13) was at least *data information* under any reasonable interpretation. Ex-1003 ¶129; e.g., Ex-1004 19:8-9 (“Touchscreen 28 also acquires and represents **system data** to the user.”). These examples, individually and collectively, constitute *program and data information* to the same extent as the ’318 Patent uses those terms. Ex-1001 5:45-52; Ex-1003 ¶129.

A POSA knew or would have found obvious that all of this *program and data information* was stored in the memory for the Intel[®]386ex microprocessor of the smart card because (a) that was the conventional operation for a CPU like the Intel[®]386ex microprocessor (Ex-1006) used with the type of memory discussed; and

because (b) *Geiwitz* taught that its smart card is what determined its touchscreen system operation. Ex-1003 ¶130; Ex-1004 10:26-27 (“The system platform is controlled by ... programmable smart card 12 [S]mart card 12 automatically updates the icons and menus of touchscreen 28 as appropriate.”), 9:1-2 (“Smart card 12 is driven by software and firmware.”).

And any alleged differences were in the general knowledge of a POSA. *KSR*, 550 U.S. 415-422; Ex-1003 ¶¶131-136; Statutory Disclaimer (Ex-1007 002-11, 013-14, 018, 034, 052-56); AAPA (Ex-1001 1:51-65, 6:34-37).

[C4] 4) an input/output unit coupled between said processor and said touchscreen for carrying out information transfer therebetween,

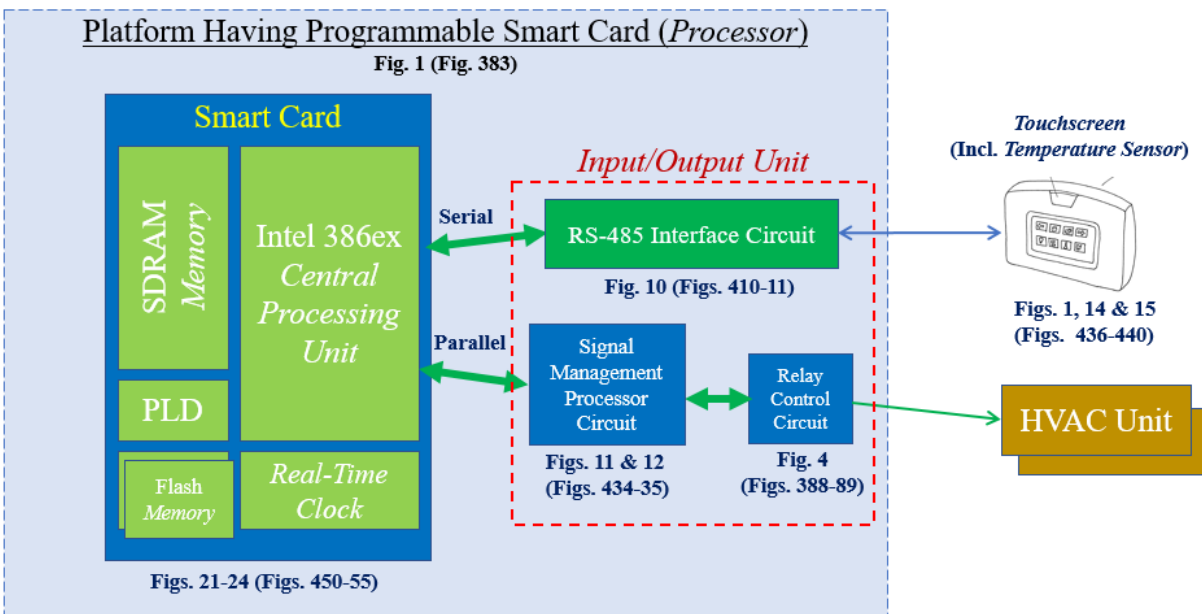
Disclosed or at least rendered obvious by *Geiwitz*.¹⁸ Ex-1003 ¶¶137-147. *Geiwitz*’s platform having a programmable smart card (*the processor*) included input/output circuitry (*input/output unit*) providing communication of signals between *the processor* and the touchscreen (*coupled between said processor and said touchscreen for carrying out information transfer therebetween*). Ex-1003 ¶137.

¹⁸ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0004, 0007, 0011, 0170-71, 0413, 0945 (Figure 383), 0983-84 (Figures 410-411), 1017-21 (Figures 436-440), 1032 (Figure 451).

Although the input/output unit is internal to the processor, it provides the interface for communications between processor components and the touchscreen. Ex-1001 Figure 1, 5:26-28, 5:45-48; Ex-1003 ¶¶138-139. Any reasonable construction of element C4 includes the '318 Patent's preferred embodiment. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996). As such, an input/output unit internal to a processor and providing the interface for communication between processor components and the touchscreen is a *processor including an input/output unit coupled between said processor and said touchscreen*. As described below, *Geiwitz's* input/output circuitry (*input/output unit*) is internal to *Geiwitz's* platform having a programmable smart card (*processor*) and provides the input/output interface for communication between the components of that *processor* and *Geiwitz's* touchscreen 28 (*touchscreen*), satisfying element C4 in the same manner as the preferred embodiment. Ex-1003 ¶139.

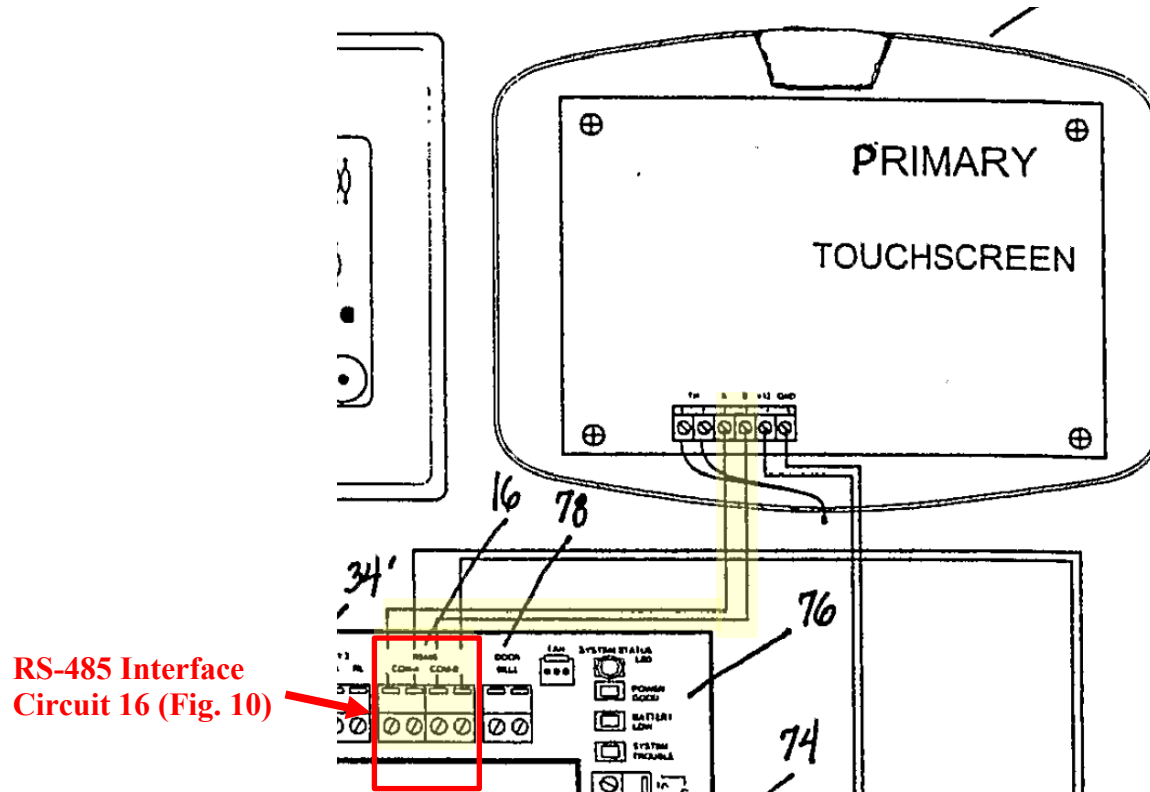
As a summary, Petitioner provides the following Block Diagram to illustrate how a POSA would relate components of *Geiwitz* to element C4. Ex-1003 ¶140. *Geiwitz's* input/output circuitry identified in the red box—namely an RS-485 interface circuit, signal management processor circuit, and relay control circuit—forms the claimed *input/output unit* of element C4. Ex-1003 ¶140.

Block Diagram Relating *Geiwitz* to Element C4



Ex-1003 ¶140 (Relating *Geiwitz* to Challenged Claims).

Geiwitz taught an **RS-485 interface circuit** (part of the *input/output unit*) that provided the interface for communication between the programmable smart card (a component of *Geiwitz's processor*) and touchscreen 28 (*touchscreen*), the RS-485 interface circuit being part of *an input/output unit coupled between said processor and said touchscreen for carrying out information transfer therebetween*. Ex-1003 ¶141. For example, the *Geiwitz processor* had a smart card microprocessor circuit (Ex-1004 Figure 21) with serial interfaces connected to the RS-485 interface circuit (Ex-1004 Figure 10) for communicating with touchscreen 28 (Ex-1004 Figures 15, 14, 1). Ex-1003 ¶141.



Ex-1004 Figure 1 (partially reproduced, annotated), 14:6-7 (embedded controller on touchscreen 28 “in communication with ... RS 485 bus”).

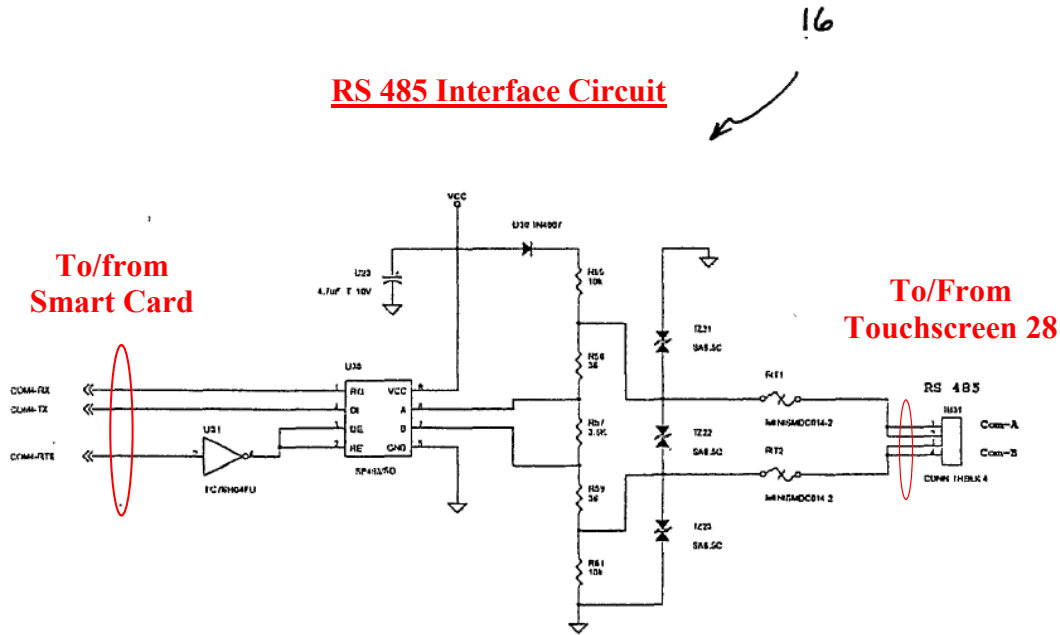


Fig. 10

Ex-1004 Figure 10 (annotated), 9:5-6, 13:10-12; Ex-1003 ¶141. The RS 485 interface circuit was part of the *input/output unit*, and was *coupled between*, and *carried out information transfer between*, Geiwitz’s platform having programmable smart card (*processor*) and touchscreen 28 (*touchscreen*). Ex-1003 ¶141; e.g., Ex-1004 13:10-12 (“RS 485 circuit 16 allows **high-speed communication to and from** system 10 on the system ‘smart’ bus” including transfer of “graphics.”), 9:11-13, 14:7-10. The information transfer included information necessary for the smart card to control the touchscreen 28 user interface so the smart card could thereby control the HVAC units, as discussed below. Ex-1003 ¶141; Ex-1004 13:10-12, 10:19-27.

Finally, any alleged differences were in the general knowledge of a POSA.

KSR, 550 U.S. at 415-422; Ex-1003 ¶¶142-147; Statutory Disclaimer (Ex-1007 002-11, 013-14, 018, 052-56); AAPA (Ex-1001 1:51-65, 2:6-9, 3:63-4:2, 6:11-28, 6:34-37).

[C4a] said input/output unit further including: a) a sensor input coupled to each said environmental condition sensors for receiving said electrical signal therefrom; and...

Disclosed, or at least rendered obvious, by *Geiwitz*.¹⁹ The RS 485 interface circuit (part of the *input/output unit* (see element C4)) circuit also received the ambient temperature data from one or more temperature sensors and thus constituted a *sensor input coupled to each said environmental condition sensors for receiving said electrical signal therefrom*. Ex-1003 ¶¶148-156.

Geiwitz's input/output unit included an RS 485 interface circuit (circuit 16, Figure 10) that was coupled to and transferred information back and forth to touchscreen 28. See Claim 1[C4] (§IV.A.2.a.C4). Touchscreen 28 sent its electrical signal indicating temperature measured at its temperature sensor (Ex-1004 14:9-10) back to the programmable smart card via the RS-485 interface circuit (Ex-1004 13:10-2). Ex-1003 ¶149. The RS-485 interface provided a *sensor input* for the

¹⁹ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0004, 0007, 0011, 0056, 0413, 0983-84 (Figures 410-411), 1021 (Figure 440).

temperature signal along with the other digital information carried by the interface. Ex-1003 ¶149; Ex-1017 011 (RS-485 a digital interface); Ex-1004 13:10-12. The *Provisional* further disclosed that “temperature sensors built into each touchscreen deliver the temperature reading from each zone back to the platform for processing and determining if heat o[r] cool air is called for.” Ex-1005 0413. Thus, *Geiwitz’s* RS 485 interface circuit (part of the *input/output unit*) provided the switching circuit for receiving and directing the temperature data to *Geiwitz’s* microprocessor, constituting a *sensor input coupled to each said environmental condition sensors for receiving said electrical signal therefrom* in the same way as the ’318 Patent’s digital embodiment of the *sensor input* for this element (Ex-1001 5:63-6:6). Ex-1003 ¶149.

To the extent Patent Owner argues *Geiwitz* does not sufficiently disclose this element, it would have at least been obvious to a POSA. Ex-1003 ¶150. For example, *Geiwitz* taught “analog inputs 32 are provided to the system platform for input from devices such as ... internal and external temperature sensors.” Ex-1004 Figure 1, 10:28-30. While *Geiwitz* does not expressly describe using such inputs as part of the I/O unit for HVAC purposes, it would have been obvious to modify *Geiwitz* as such for any number of practical reasons readily apparent to a POSA. Ex-1003 ¶150. For example, one reason to use analog inputs 32 as the *sensor input* would be to take advantage of a temperature sensor that was **not** embedded in the touchscreen, allowing heating and cooling to be based on temperature as measured

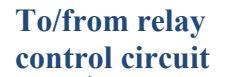
at one or more particularly important locations in addition to, or instead of, the touchscreen location. Ex-1003 ¶150. A POSA understood that would be useful, for example, in a large conditioned space where temperature could vary depending on location within the space. *Id.* As another example, a POSA would be motivated to use an external temperature whenever the space contained particularly important temperature-sensitive areas, such as the temperature(s) near one or more computer servers being cooled. *Id.* Doing so would involve no more than using prior art techniques for their known purposes with predictable results, all well within the skill of a POSA. *Id.* Indeed, the '318 Patent does not purport to disclose any new coupling or other new sensor input for a temperature sensor; the preferred embodiment used remotely connected temperature sensors as “very well known in the art” (Ex-1001 5:38-40) and operating “in the usual manner.” *Id.*; Ex-1001 6:11-18; 1:35-58. Indeed, any alleged differences were in the general knowledge of a POSA. *KSR*, 550 U.S. at 415-422; Ex-1003 ¶¶151-156; Statutory Disclaimer (Ex-1007 002-11, 013-14, 018, 052-56); AAPA (Ex-1001 1:51-65, 5:34-42, 6:11-28, 6:34-37).

[C4b] b) a control output coupled to the space conditioning equipment for issuing control signals thereto; and

Disclosed or at least rendered obvious by Geiwitz.²⁰ Ex-1003 ¶¶157-168. *Geiwitz's* input/output circuitry (*input/output unit*) further included the **signal management processor circuit** (Figures 11 and 12) and **relay control circuit** (Figure 4) having relays that provided an output (*a control output*) connected to control HVAC equipment (*coupled to the space conditioning equipment for issuing control signals thereto*). Ex-1003 ¶157.

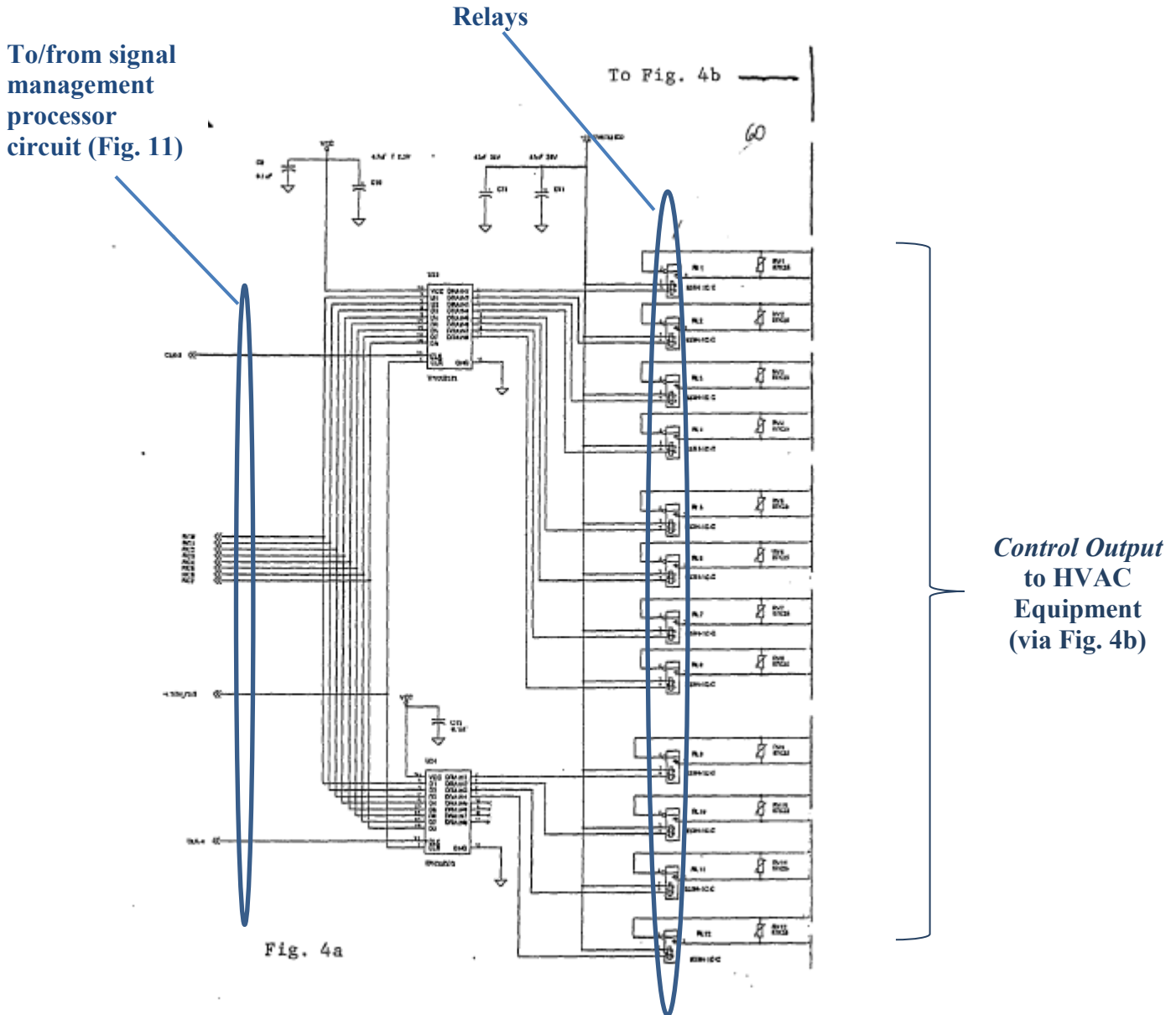
For example, a POSA understood from *Geiwitz's* circuit diagrams and description that the “signal management processor” circuit (Ex-1004 Figures 11, 12) connected *Geiwitz's* Intel[®]386ex microprocessor (Ex-1004 Figure 21) to the relay control circuit (Ex-1004 Figure 4) used to control the HVAC equipment:

²⁰ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0004, 0007, 0010, 0413, 0957-60 (Figures 388, 389a, 389b), 1007-16 (Figures 434-435), 1032 (Figure 451).



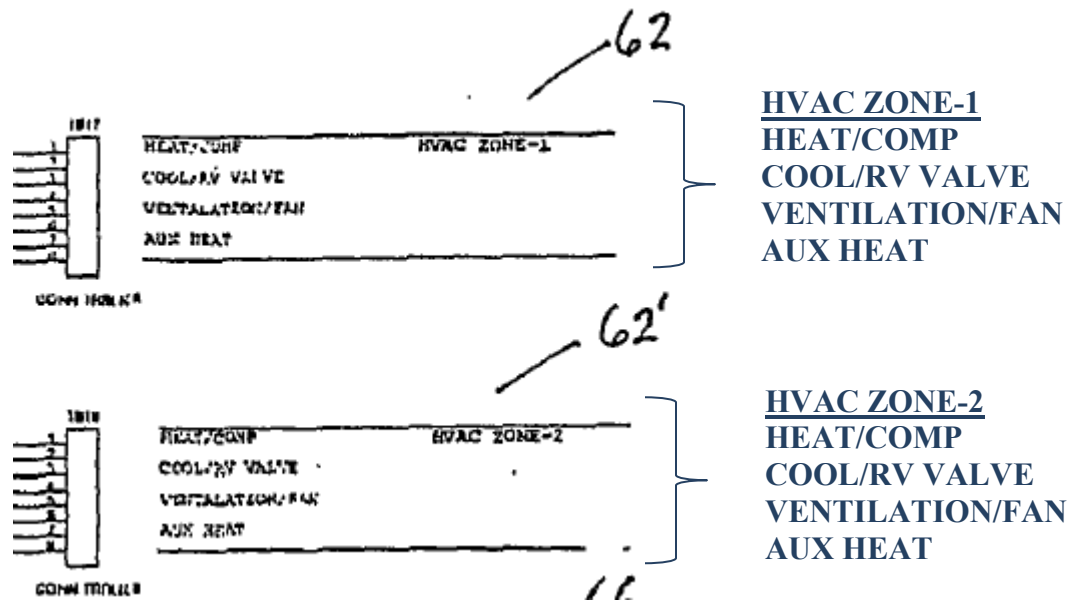
Ex-1004 Figure 11 (annotated), Figure 12, 13:13-23; Ex-1003 ¶158.

The signals identified on the right-hand side of Figure 11 above connect to the left-hand side of the relay control circuit of Figure 4 shown below:



Ex-1004 Figure 4a (annotated).

The relays identified above provide control output to the HVAC equipment as shown in Figure 4b:



Ex-1004 Figure 4b (partially reproduced, annotated); Ex-1003 ¶160.

Geiwitz described that “HVAC inputs” provided to the HVAC equipment “interface with the system through relays shown generally at 60.” Ex-1004 11:23-24. The Figure 4b connections 62 and 62’ “interface with two separate zones of HVAC equipment.” Ex-1004 11:26-27. By opening or closing a relay, an electrical circuit is opened or closed with a corresponding piece of HVAC equipment (e.g., the “HEAT/COMP” in HVAC Zone 1) to provide either heating or cooling. Ex-1003 ¶161. In this way, the input/output circuitry (*input/output unit*) of Geiwitz further included control relays for controlling the HVAC equipment (*a control output coupled to the space conditioning equipment for issuing control signals thereto*). Ex-1003 ¶161.

Alternatively, *Geiwitz* disclosed that I/O with the HVAC equipment could be via an RS 485 digital communication. Ex-1004 18:17-18 (“system 10 can be used to **interface with HVAC devices via ... RS 485** protocols”); Ex-1017. Thus, in this alternative embodiment, the *input/output unit* would provide RS 485 digital communications with the HVAC equipment using the same type of circuitry used to communicate with the touchscreen and temperature sensor. Ex-1003 ¶162. Thus, an RS 485 interface circuit like Figure 10 would be provided for the HVAC units, providing an RS 485 based *input/output unit*, satisfying [C4] in this additional, alternative context. Ex-1003 ¶162.

Finally, any alleged differences were in the general knowledge of a POSA. *KSR*, 550 U.S. at 415-422; Ex-1003 ¶¶163-168; Statutory Disclaimer (Ex-1007 002-11, 013-14, 018, 052-56); AAPA (Ex-1001 1:51-65, 6:11-28, 6:34-37).

D) a control program stored in said memory for causing said central processing unit to communicate through said input/output unit to selectively:

Disclosed or at least rendered obvious by *Geiwitz*.²¹ *Geiwitz* taught software and firmware stored in the memory discussed for element C3 (*a control program stored in said memory (see Claim 1[C3] (§IV.A.2.a.C3))* to cause the Intel®386ex

²¹ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0004, 0021-0058 (Figures 2-85), 0140, 0170-71, 176, 0413.

microprocessor (*causing said central processing unit (see Claim 1[C1] (§IV.A.2.a.C1)) to communicate via the input/output circuitry (to communicate through said input/output unit (see Claim 1[C4] (§IV.A.2.a.C4)) to selectively:*) effect the operations claimed in elements D1-D3. Ex-1003 ¶¶169-179.

First, Geiwitz taught “software and firmware” (a *control program*) to program its smart card microprocessor (*central processing unit*). Ex-1003 ¶170. “The core of the system is a purpose-built, real-time microprocessor controller, or ‘smart’ card, 12 **that is programmable....** Smart card 12 is driven by **software and firmware.**” Ex-1004 8:30-9:2.

Geiwitz taught that the smart card microprocessor (*central processing unit*) controlled the HVAC equipment and touchscreen 28 pursuant to its “software and firmware” programming (a *control program*). Ex-1004 4:9-10; 10:26-27.

Second, programmed with this “software and firmware” (*control program*), the smart card’s Intel®386ex microprocessor (*central processing unit*) carried out the HVAC and touchscreen control by communicating via the input/output circuitry (*input/output unit*) as explained for element C1 and C4. Ex-1003 ¶172; Claim 1[C1, C4] (§§IV.A.2.a.C1, C4). Thus, the *Geiwitz control program caus[ed] said central processing unit to communicate through said input/output unit to selectively carry out the operations of D1-D3*. Ex-1003 ¶172.

Third, the “software and firmware” (*control program*) was stored in the smart card memory discussed for [C4] because a microprocessor like the Intel®386ex microprocessor operates by executing programming stored in memory, as was well-known and conventional. Ex-1003 ¶173 (Ex-1010 173).

Finally, any alleged differences were in the general knowledge of a POSA. *KSR*, 550 U.S. at 415-422; Ex-1003 ¶¶174-179; Statutory Disclaimer (Ex-1007 002-11, 013-14, 018, 052-56); AAPA (Ex-1001 1:51-65, 2:6-9, 3:63-4:2, 6:11-28, 6:34-37).

[D1] 1) establish on said liquid crystal display: a) a representation of a first virtual button at a first predetermined position on the liquid crystal display; and b) a first legend indicative of a first control function of said thermostat, which first control function is for controlling a first space conditioning equipment component, which first control function is active when the first legend is viewable;

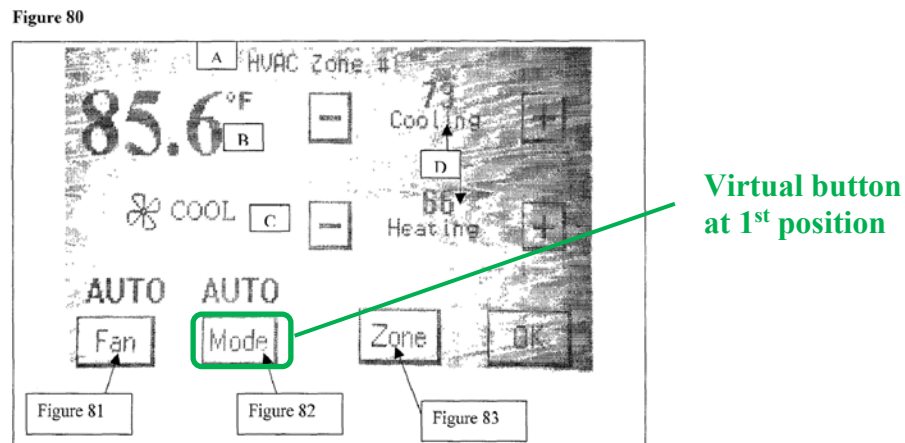
Disclosed or at least rendered obvious by *Geiwitz*.²² Ex-1003 ¶¶180-193. *Geiwitz* taught a “MODE” icon on its touchscreen (*establish on said liquid crystal display ... a representation of a first virtual button at a first predetermined position on the liquid crystal display*) and a legend such as “COOL” (*a first legend*) indicating that the currently active mode of operation was a cooling mode (*indicative of a first*

²² The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0056-58.

control function of said thermostat, ...which first control function is active when the first legend is viewable), which cooling mode is for controlling cooling components of HVAC equipment (which first control function is for controlling a first space conditioning equipment component). Ex-1003 ¶180.

First, Geiwitz taught a representation of a first virtual button at a first predetermined position on the liquid crystal display. Geiwitz taught a “HVAC control screen” having a “‘Mode’ icon” that the user “repeatedly pressed” to cycle through the available modes. Ex-1004 25:2-13. The “Mode icon” was a virtual button presented at a first location on the screen such that it could be “repeatedly pressed.” Ex-1004 25:2-13; Ex-1003 ¶181.

The *Provisional* further disclosed this in Figure 80:



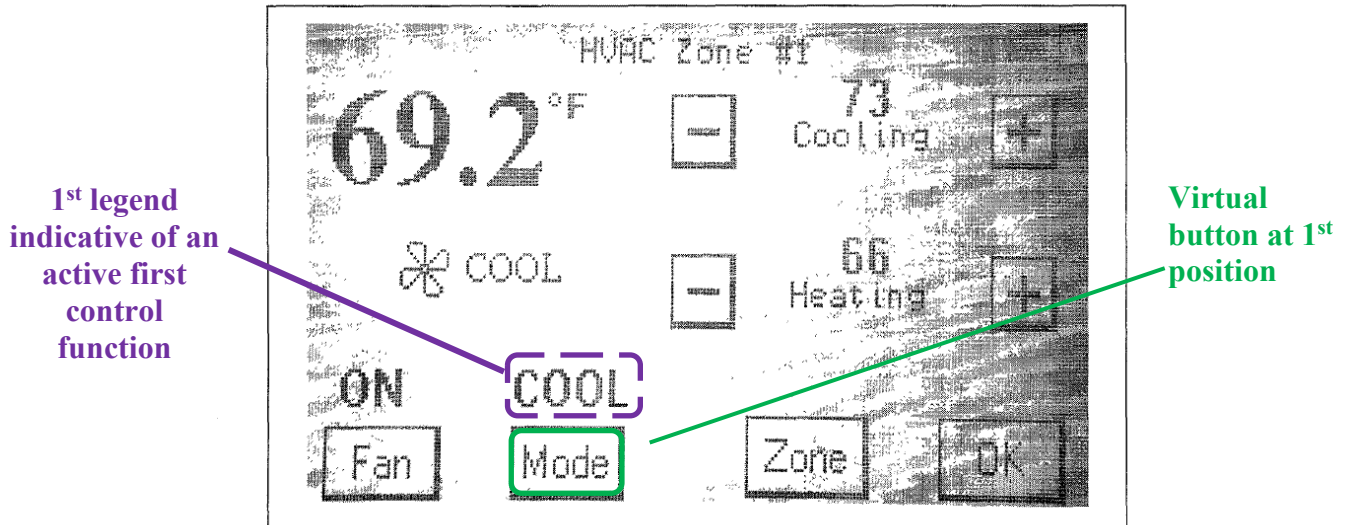
Ex-1005 0056 Figure 80 (annotated).

Second, Geiwitz taught using a variable legend for its virtual button displaying a “COOL” label (*a first legend indicative of a first control function of*

said thermostat...which first control function is active when the first legend is viewable). Geiwitz taught that repeatedly pressing the “**Mode**’ icon” “**cycles** it through the options of **cool, heat and auto.**” Ex-1004 25:2-13. A POSA understood or would have at least found obvious that as the Mode icon was pressed, the cycled option (e.g., “COOL”) was displayed on Geiwitz’s touchscreen because if the legend (e.g., “COOL”) was not displayed, the user would be left guessing as to the meaning of their latest press of the “Mode icon.” Ex-1003 ¶183; Ex-1004 25:11-12. Relatedly, a POSA understood or would have at least found obvious that as the Mode icon was pressed and the mode displayed, that Mode became active (*which first control function is active when the first legend is viewable*). Ex-1004 25:2-12 (“Selecting the **Mode**’ icon **adjusts the operational mode** of the controlled HVAC unit. Repeatedly pressing the **Mode**’ icon **cycles** it through the **options of cool, heat and auto.**”). Ex-1003 ¶183.

The *Provisional* further disclosed this in Figures 80 and 84:

Figure 84



Ex-1005 Figure 84 (annotated), 0057-58; Ex-1003 ¶184.

Third, during the cooling mode of operation (*a first control function of said thermostat*), a POSA understood or would have at least found obvious that the cooling subcomponents of the HVAC unit would be used, *i.e.*, air conditioning equipment (*which first control function is for controlling a first space conditioning component*). Ex-1004 25:5-6 (the system runs “the air conditioning to cool the controlled zone.”). A POSA understood or would have at least found obvious that typical HVAC equipment included components used for cooling (e.g., evaporator coil, compressor/air conditioner, etc.) and other components used for heating (e.g., heater, furnace, heat exchanger). Ex-1003 ¶185; Ex-1004 Figure 4b (showing relay controls connected to “COOL” equipment, and other relay connections to “HEAT” and “AUX HEAT” equipment); *see also* Ex-1005 0176 (listing common HVAC

equipment including, e.g., central cooling, evaporative cooling, central heating, baseboard heat, radiant heat, electric heat strip, etc.). A POSA understood or would have at least found obvious that when in a “cooling” mode, cooling components are controlled. Ex-1003 ¶185. For example, the ’318 Patent describes these cooling/heating functions as in a “usual manner” and “very well known in the art” (Ex-1001 6:11-30) and admits that “for many years” in a “well known manner,” thermostats have been interacting with “heating and/or **cooling equipment** to take suitable action to heat or **cool**” (Ex-1001 1:35-45.) Ex-1003 ¶185.

Fourth, the software and firmware (*control program*) selectively displayed the Mode icon (*first virtual button*) and the corresponding legend such as COOL (*first legend*), i.e., *selectively establish[ed] on the liquid crystal display*. Ex-1003 ¶186; element D. The system presented the Mode icon and COOL legend when the user navigated to the “HVAC control screen” of touchscreen 28 (Ex-1004 25:1-13; *see also* Ex-1005 0056-58, Figures 80, 84), which touchscreen had *the liquid crystal display* as explained for element B. Ex-1003 ¶186; Claim 1[B] (§IV.A.2.a.B).

Finally, any alleged differences were in the general knowledge of a POSA. *KSR*, 550 U.S. at 415-422; Ex-1003 ¶¶187-193; *as to element [D1a]*, *see* Statutory Disclaimer (Ex-1007 002-11, 013-14, 018, 052-56); *as to all of element [D1]*, *see* AAPA (Ex-1001 1:51-65, 2:6-9, 3:63-4:2, 6:34-37).

[D2] 2) read the position on the touch pad juxtaposed with said first predetermined position on said liquid crystal display to determine if the representation of said first virtual button has been touched;

Disclosed or at least rendered obvious by *Geiwitz*.²³ Ex-1003 ¶¶194-203. As detailed for [D1], *Geiwitz* taught that pressing the “Mode” icon on its LCD touchscreen adjusted the operational mode of the controlled HVAC unit. Ex-1004 25:11-12; *see also* Claim 1[D1] (§IV.A.2.a.D1) (discussing *Geiwitz* (Ex-1004) 25:10-12 and corresponding screens), Claim 1[B] (§IV.A.2.a.B) (discussing *Geiwitz*’s LCD display and its *juxtaposed touch pad*); Ex-1003 ¶194. A POSA understood that the operation of the Mode Icon as described in *Geiwitz* disclosed this claim element because otherwise the touchscreen in *Geiwitz* would not be able to tell whether a user’s touch of the screen was in a position corresponding to the displayed Mode Icon and the system would not function as disclosed. Ex-1003 ¶194.

A POSA understood, or at least found obvious, that the way in which touchscreens like *Geiwitz*’s provide the user experience of a virtual button like the “Mode” icon is by *read[ing]the position on the touch pad juxtaposed with said first predetermined position on said liquid crystal display to determine if the representation of said first virtual button has been touched* wherein the location of

²³ The cited *Geiwitz* material was also in the *Provisional*. *See* Ex-1005 0058.

the virtual button is monitored for changes in pressure, resistance or capacitance indicative of a press in the location of the virtual button. Ex-1003 ¶195 (e.g., Ex-1009 524 (definition of touch-sensitive display, including “You select options by pressing the screen at the appropriate place”); Ex-1013 001 Figures 1 and 2 (discussing how touches are read by monitoring changes in resistance); Ex-1001 2:6-9, 3:63-4:2 (AAPA)); §III.F; Claim 1[B] (§IV.A.2.a.B). *Geiwitz*’s touchscreen teachings readily disclosed this conventional functionality to a POSA. Ex-1003 ¶195.

To the extent that Patent Owner asserts that this claimed functionality is not expressly disclosed in *Geiwitz*, a POSA would be motivated to add this functionality to the LCD of *Geiwitz* because it provides well-known features that users have expected, it enhances the user experience, and it is an implementation that a POSA knew would be successful because otherwise a touchscreen would not be able to have the basic functionality of associating the position of a detected touch to the position of corresponding information displayed, i.e., associating the touch to the position of the displayed virtual button (here, the position of the Mode Icon). Ex-1003 ¶196.

And any alleged differences were in the general knowledge of a POSA. *KSR*, 550 U.S. at 415-422; Ex-1003 ¶¶197-203; Statutory Disclaimer (Ex-1007 002-11, 013-14, 018, 052-56); AAPA (Ex-1001 1:51-65, 2:6-9, 3:63-4:2, 6:34-37).

[D3] 3) if the first virtual button has been touched: a) determining that the thermostat has been directed to control a second space conditioning equipment component; b) activating a second control function for controlling the second space conditioning equipment component; and c) displaying on said liquid crystal display a second legend indicative of said second control function of said thermostat, which second control function is for controlling the second space conditioning equipment component, which second control function is active when the second legend is viewable.

Disclosed or at least rendered obvious by *Geiwitz*.²⁴ Ex-1003 ¶¶204-211. As detailed below, this element is satisfied when, in the COOL mode (*a first control function*), the user presses the “Mode” icon (*first virtual button*) once more, causing the system to enter the HEAT mode (*a second control function*). Ex-1003 ¶204.

First, *Geiwitz* taught that, from the COOL mode, an additional press of the Mode icon (*if the first virtual button has been touched*) would cause the system to enter the HEAT mode (*a second control function*). Ex-1004 25:4-13; *see* Claim 1[D1] (§IV.A.2.a.D1). A POSA understood or would have at least found obvious that the *Geiwitz* system controlled heating equipment such as a furnace (*second*

²⁴ The cited *Geiwitz* material was also in the *Provisional*. *See* Ex-1005 0056-58, 0957-60 (Figures 388, 389a, and 389b).

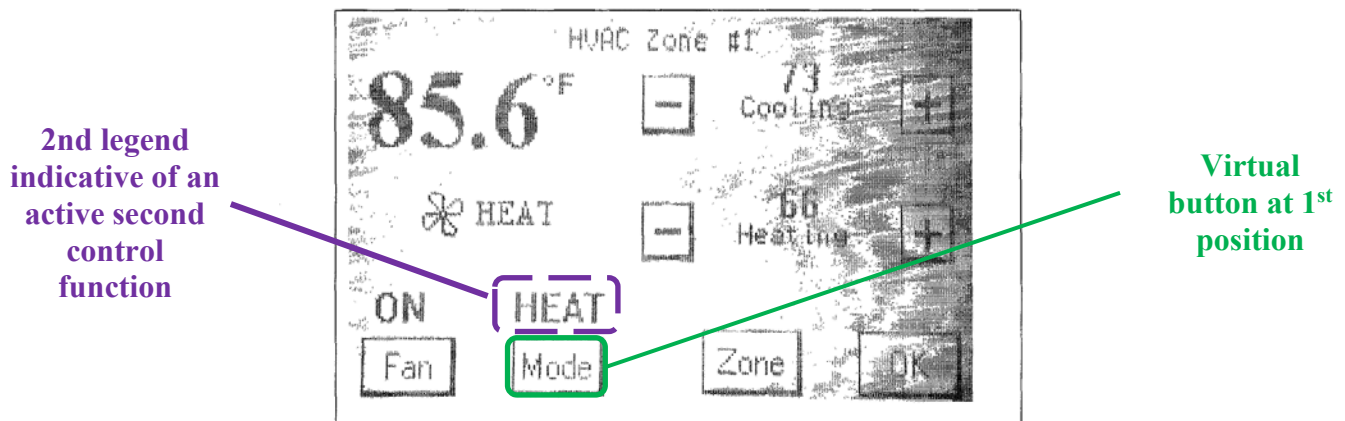
space conditioning equipment) to add heat to the relevant HVAC zone as necessary when in the Heat mode (*which second control function is for controlling the second space conditioning equipment component*). See Claim 1[D1] (§IV.A.2.a.D1), Ex-1003 ¶205, Ex-1004 25:1-13, Figure 4 (showing relay connection to “HEAT/COMP” equipment). Likewise, *Geiwitz* activated the Heat mode in response to the user’s selection of the HEAT mode using the Mode icon (a) *determining that the thermostat has been directed to control a second space conditioning equipment component; b) activating a second control function for controlling the second space conditioning equipment component*). See Claim 1[D1] (§IV.A.2.a.D1); Ex-1004 25:4-13; Ex-1003 ¶205.

Second, for the same reasons discussed for [D1], when the system shifted to HEAT mode (*activating the second control function*), a POSA understood or would have at least found obvious that the display provided an indication to the user (e.g., HEAT) on the touchscreen 28 (c) *displaying on said liquid crystal display a second legend indicative of said second control function of said thermostat... which second control function is active when the second legend is viewable*). Ex-1004 25:11-12; see Claim 1[D1] (§IV.A.2.a.D1); Ex-1003 ¶206. A POSA understood or would have at least found obvious the HEAT legend to be displayed when the Mode Icon was pressed the requisite number of times, as that would be the ordinary interpretation of the language in the PCT, and otherwise the user would be left guessing as to which

mode had been selected using the Mode icon. *See* Claim 1[D1] (§IV.A.2.a.D1); Ex-1004 25:1-12. Ex-1003 ¶206.

The *Provisional* further disclosed this limitation with reference to Figures 82 and 85:

Figure 85



Ex-1005 Figure 85, 0058 (“Figure 85 is a sample screen where Figure 82 has been pressed to change the system status to 'HEAT'.”).

And any alleged differences were in the general knowledge of a POSA.

KSR, 550 U.S. at 415-422; Ex-1003 ¶¶208-211; *AAPA* (Ex-1001 1:51-65, 2:6-9, 3:63-4:2, 6:34-37).

b. **Claim 3**

The programmable thermostat system of claim 1 in which the space conditioning equipment components include at least one of: a heater, a compressor type air conditioner and a heat pump.

Disclosed, or at least rendered obvious, by *Geiwitz*.²⁵ Ex-1003 ¶212. *Geiwitz* was intended to control all manner of conventional HVAC equipment, including a *heater, a compressor type air conditioner and a heat pump*. Ex-1003 ¶212. Furthermore, *Geiwitz* expressly disclosed control signals in Figure 4b for an “RV Valve”, which disclosed the Reversing Valve of a heat pump. Ex-1004 Figure 4b; Ex-1003 ¶212 (a reversing valve is what determines whether a heat pump heats or cools). The *Provisional* further disclosed exemplary HVAC equipment that a POSA understood to be the type of equipment that was controllable by the Figure 4 relays. Ex-1005 0176 (e.g., “Heat Pumps” (*heat pump*), “Baseboard Heat” and “Radiant Heat” (*heaters*), “Central Cooling”, “Multi-Stage Compressors” and “Heat Pumps” (which a POSA understood to rely on a compressor for air conditioning, Ex-1003 ¶212) (*compressor type air conditioners*); Ex-1003 ¶212. At minimum, it would have been obvious to connect any of the space conditioning equipment listed in the *Provisional* to *Geiwitz*’s control relays (*see* Figure 4) because doing so would

²⁵ The cited *Geiwitz* material was also in the *Provisional*. *See* Ex-1005 0960 (Figure 389b).

involve no more than using conventional equipment for its intended purpose with predictable results. Ex-1003 ¶212.

c. **Claim 4**

The programmable thermostat system of claim 3 in which if the first virtual button is been touched again after step D)3), determining that the thermostat controls a third space conditioning equipment component, activating a third control function for controlling the third space conditioning equipment component, and changing the second legend to a third legend indicative of the third control function of the thermostat.

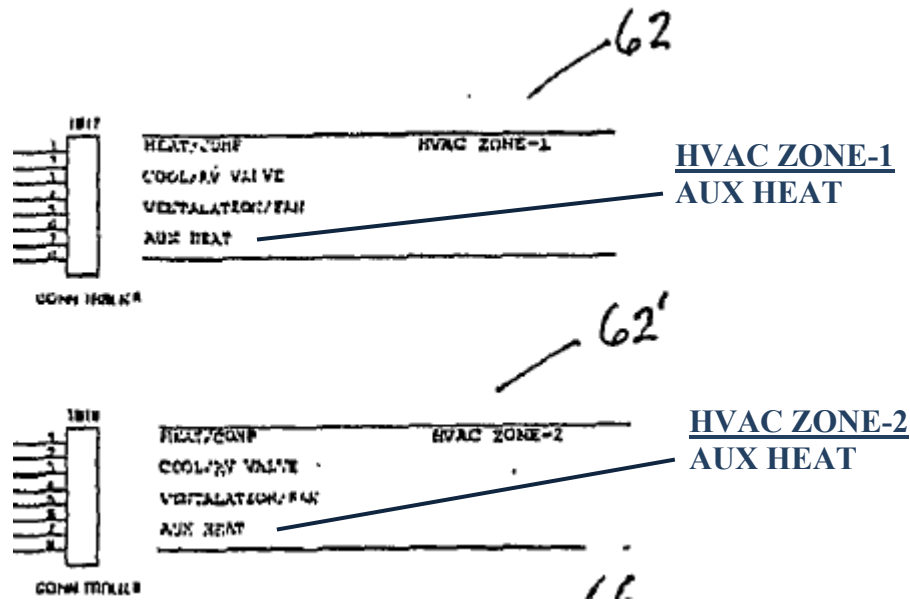
Obvious over *Geiwitz*.²⁶ Ex-1003 ¶¶213-217.

First, for context, a POSA recognizes that the “third control function” of this claim corresponds to the “emergency heat” mode connected to auxiliary heat equipment such as “a backup electric heater.” Ex-1001 8:42-46; Figure 8 (legend “EMER HEAT”). A POSA understood or would have at least found obvious that a conventional Emergency Heat mode is also called an Auxiliary Heat mode. Ex-1003 ¶214.

Second, while *Geiwitz* does not discuss using its Mode Icon to enter an Auxiliary Heat mode, *Geiwitz* disclosed controlling “Aux Heat” equipment

²⁶ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0058, 0960 (Figure 389b).

understood to be used in an Auxiliary Heat mode of operation. Ex-1003 ¶215; Figure 4. For example, the relay control circuit of *Geiwitz* Figure 4 was connected to “AUX HEAT” equipment:



Ex-1004 Figure 4b (partially reproduced, annotated); Ex-1003 ¶215. A POSA knows that one common type of such Auxiliary Heat equipment is provided by electric heat strips because the electric nature of the strips may provide additional heating in circumstances where the normal heating may not be able to do so, for example, where the normal heating equipment has malfunctioned. Ex-1003 ¶215. *Geiwitz's Provisional* further identifies heating equipment known to a POSA to be suitable for such Auxiliary Heat, e.g., “Electric Heat Strip.” Ex-1005 0176.

Third, it would have been obvious to modify the “Mode” Icon (*first virtual button*) of *Geiwitz* to add an AUX HEAT mode of operation (*a third control*

function) for controlling Auxiliary Heat heating equipment (*a third space conditioning equipment component*) when the AUX HEAT relay control connection shown in Figure 4 is connected to Auxiliary Heat equipment, such as an electric heat strip. Indeed, it was part of the general knowledge of a POSA that conventional thermostat controls included an Emergency/Auxiliary Heat mode, together with the three modes explicitly taught by *Geiwitz* for its Mode icon. Ex-1003 ¶216; Ex-1004 25:11-13; *e.g.*, *Pouchak* (Ex-1018) at Table 2 (referencing a System Switch having modes: **Auto**, **Cool**, **Heat**, **Emergency Heat**, Off). This is further corroborated by the lack of detail in the '318 Patent concerning the Emergency Heat mode. Ex-1001 (generally); Ex-1003 ¶216. A POSA understands that the '318 Patent does not purport to have invented a new mode of operation or new emergency/auxiliary heating equipment. Ex-1003 ¶216. A POSA would have readily modified the modes available under the Mode icon virtual button of *Geiwitz* to provide this additional AUX HEAT mode of operation. Ex-1003 ¶216. Doing so would have been conventional, with the predictable results of adding the benefit of giving the user control via touchscreen 28 of the AUX HEAT equipment expressly disclosed by *Geiwitz* in Figure 4. Ex-1003 ¶216.

As modified, the *Geiwitz* Mode icon would operate and satisfy Claim 4 in the same manner described for Claim 1[D]. *See* Claim 1[D] (§IV.A.2.a.D); Ex-1003 ¶217. More specifically, the Mode icon (*the first virtual button*) would be pressed

again to cycle to the AUX HEAT mode (*is been touched again after step D*)3). Ex-1003 ¶217; Claim 1[D3] (§IV.A.2.a.D3). The processor would need to check that AUX HEAT connection of Figure 4 was present (*determining that the thermostat controls a third space conditioning equipment component*). Ex-1003 ¶217. If so, repeatedly pressing the mode icon would allow the user the ability to select (*activate*) the additional AUX HEAT mode and display an AUX HEAT legend consistent with *Geiwitz*'s teachings for the HEAT, COOL, and AUTO modes of operation. Ex-1003 ¶217; Claim 1[D3] (§IV.A.2.a.D3). Thus, as modified, the Mode icon would be cycled to activate an AUX HEAT mode (*activating a third control function for controlling the third space conditioning equipment component*) and displaying, e.g., “AUX HEAT” for the legend displayed (*changing the second legend to a third legend indicative of the third control function of the thermostat*). Ex-1003 ¶217.

d. Claim 14

14. The programmable thermostat system of claim 1 in which said liquid crystal display is a dot matrix type.

Disclosed and rendered obvious by *Geiwitz*.²⁷ Ex-1003 ¶218-219. See Claim 1[A] (§IV.A.2.a.A). A POSA understood that *Geiwitz*'s screen would use a dot-

²⁷ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0012-13, 0022-0143.

matrix, as opposed to segmented, type of LCD because *Geiwitz* described a highly versatile screen, that displayed touchscreen menus for not just HVAC, but “security, lighting, electrical outlets, energy management, and entertainment.” Ex-1004 1:16, 19:13-20:20. A POSA would understand that this type of versatility would be provided by a dot-matrix type of LCD, which had the ability to create various shapes, layouts, and alphanumeric sequences to the granularity of the dot matrix. Ex-1003 ¶218; §III.F.1.

Moreover, as discussed for Claim 1, the incorporated *Provisional* figures in *Geiwitz* show the pixilated, black dots that are characteristic of a dot-matrix LCD. See Claim 1[A] (§IV.A.2.a.A); Ex-1005 1017 Figure 436; Ex-1003 ¶219.

e. Claim 16

Independent Claim 16 is identical to Claim 1 except for the changes shown below (where strikethrough elements indicate Claim 1 limitations that are not recited in Claim 16, and underlined elements indicate Claim 16 limitations that are not recited in Claim 1). For the identical claim limitations, they are disclosed or obvious over *Geiwitz* for the same reasons set forth for Claim 1. See IV.A.2.a. For brevity, Petitioner augments that analysis by addressing the differences in the claims below.

[16D] D) a ~~control~~ program stored in said memory . . .

Disclosed or at least rendered obvious by *Geiwitz* for the same reasons described for the *control program* of Claim 1. See Claim 1[D] (§IV.A.2.a.D); Ex-1003 ¶221.

[D3] 3) if the first virtual button has been touched a predetermined number of times:

a) determining that the thermostat has been directed to control a ~~second~~plurality of space conditioning equipment ~~component~~components;

b) activating a second control function for controlling the ~~second~~plurality of space conditioning equipment ~~component~~components; and

c) displaying on said liquid crystal display a second legend indicative of said second control function of said thermostat, which second control function is for controlling in coordination the ~~second~~plurality of space conditioning equipment component, which second control function is active when the second legend is viewable.

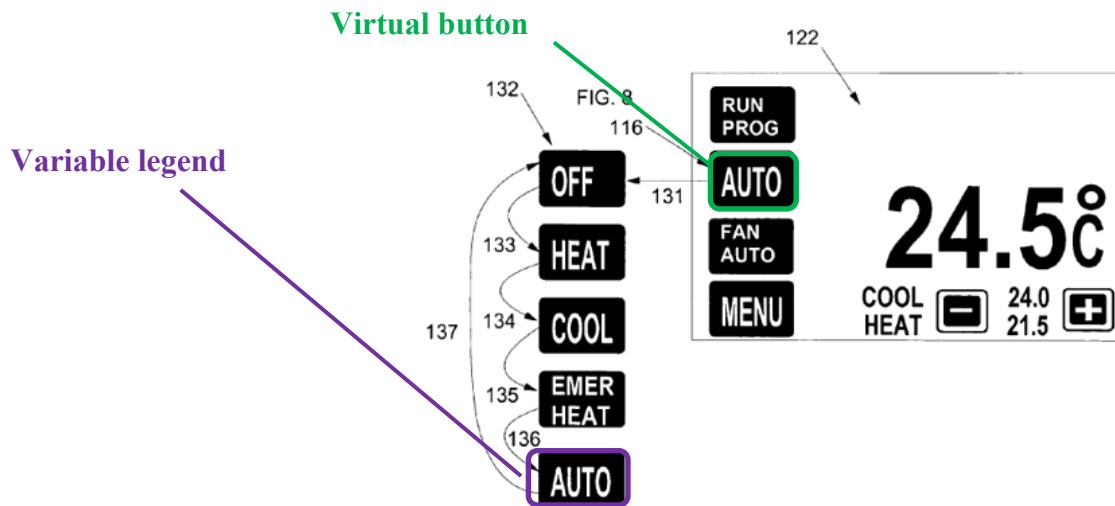
Disclosed or at least rendered obvious by *Geiwitz*.²⁸ Ex-1003 ¶¶222-227.

This element differs from Claim 1 in that the mode controls a *plurality* of equipment.

For context, Claim 16 corresponds to embodiments directed to a conventional

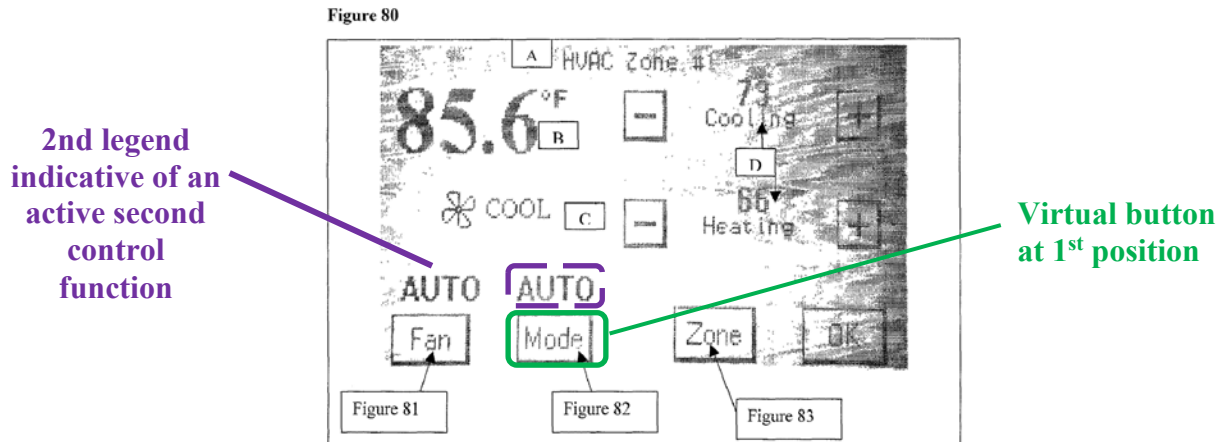
²⁸ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0056-58, 0176, 0960 (Figure 389b).

AUTO mode, in which both heating and cooling equipment (*a plurality*) are automatically controlled. Ex-1001 8:47-50; Ex-1003 ¶222.



Ex-1001 Figure 8 (annotated), 7:50-54.

First, *Geiwitz* monitored the presses of its MODE icon (*a virtual button*) to determine whether the number of presses indicated that the user had selected the AUTO mode (*if the first virtual button has been touched a predetermined number of times: a) determining that the thermostat has been directed*). Ex-1003 ¶223. Starting from the COOL mode, for example, *Geiwitz* cycled to the automatic mode in two presses (*a predetermined number of times*) of the Mode icon (*virtual mode button*): “**Repeatedly pressing** the 'Mode' icon cycles it **through** the options of **cool**, heat and **auto**.” Ex-1004 25:4-13. *Geiwitz* further disclosed this in the *Provisional* at Figure 80:



Ex-1005 0056 Figure 80 (annotated), 0058. Ex-1003 ¶223.

Second, a POSA understood the AUTO mode controlled two types of HVAC equipment: heating and cooling (*to control a plurality of space conditioning equipment components*). Ex-1003 ¶224. In *Geiwitz*'s AUTO mode, a POSA understood or would have at least found obvious that the processor would activate heating equipment if temperature dropped too much, but activate cooling equipment if temperature increased too much (e.g., exceeded a set point), as was conventional. Ex-1003 ¶224; Ex-1005 0056 (“current high and low set point at which the heating or cooling system will activate.”); *accord* Ex-1005 (Figure 80 showing heating set point of 66° F and cooling set point of 73° F). *Geiwitz* disclosed a variety of heating and cooling equipment to achieve this. *See* Claim 1[D1, D3] (§§IV.A.2.a.D1, D3). As discussed for [D1], *Geiwitz* taught using various cooling equipment for cooling. *Id.* Likewise, *Geiwitz* taught heating equipment for heating. Ex-1004 Figure 4b

(showing relay controls to “HEAT” and “AUX HEAT” equipment); *see also* Ex-1005 0176 (Central Heating, Baseboard Heat, Radiant Heat, Electric Heat Strip).

Geiwitz was consistent with the general knowledge of thermostat operation, as it was well-known that conventional HVAC equipment coordinated to control both cooling components and heating components depending on whether heating or cooling was required (*a plurality that are controlled in coordination*). Ex-1003 ¶225; §III.F.3 (discussing AAPA, Cardio Manual).

Third, *Geiwitz* activated the AUTO mode selected by the user (*activating a second control function for controlling the plurality of space conditioning equipment components*) because it described going into the AUTO mode on the appropriate press of the Mode icon. Ex-1004 25:4-13; Ex-1003 ¶226.

Fourth, *Geiwitz* taught displaying the AUTO legend when the AUTO mode was active (*displaying on said liquid crystal display a second legend indicative of said second control function of said thermostat, which second control function is for controlling in coordination the plurality of space conditioning equipment component, which second control function is active when the second legend is viewable.*). This was understood by a POSA and, at minimum, obvious for the same reasons discussed for Claim 1[D1-D3] from the teaching in the *Geiwitz* PCT—otherwise the user would be left guessing which mode of operation had been selected. (§§IV.A.2.a.D1-D3); Ex-1004 25:4-13; Ex-1003 ¶227.

f. **Claim 17**

17. The programmable thermostat system of claim 16 in which the plurality of space conditioning equipment components comprise a heating component and a cooling component.

Disclosed or at least rendered obvious by *Geiwitz*. Ex-1003 ¶228. As discussed for Claim 16[D], the *plurality* included a heating component and a cooling component. §IV.A.2.e.D.

g. **Claim 18**

18. The programmable thermostat system of claim 16 in which said liquid crystal display is a dot matrix type.

Disclosed or at least rendered obvious by *Geiwitz*. See Claim 14; Ex-1003 ¶229.

h. **Claim 19**

Claim 19 is obvious over *Geiwitz* in view of the general knowledge of a POSA. Ex-1003 ¶230. Independent Claim 19 is identical to Claim 1 except for the changes shown below (where strikethrough elements indicate Claim 1 limitations that are not recited in Claim 19, and underlined elements indicate Claim 19 limitations that are not recited in Claim 1). For the identical claim limitations, they are disclosed or obvious over *Geiwitz* for the same reasons set forth for Claim 1. See §IV.A.2.a. For brevity, Petitioner augments that analysis by addressing the differences in the claims below.

[19D] D) a ~~control~~ program stored in said memory . . .

Disclosed or at least rendered obvious by *Geiwitz* for the same reasons described for the *control program* of Claim 1. See Claim 1[D] (§IV.A.2.a.D); Ex-1003 ¶231.

[D3] if the first virtual button has been touched a predetermined number of times:

a) determining that the thermostat has been directed to ~~control a second~~ refrain from controlling any space conditioning equipment ~~component~~ components;

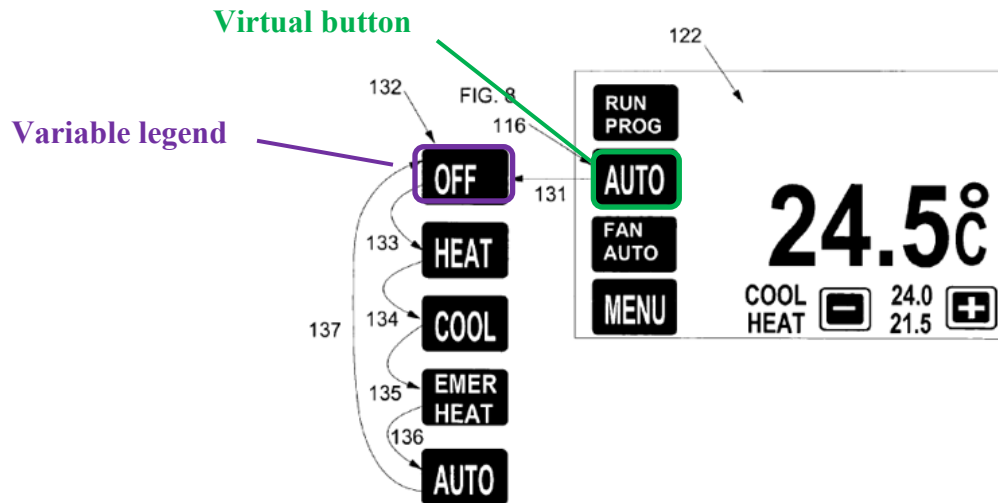
b) activating a second control function ~~for~~ which prevents controlling ~~the second~~ any space conditioning equipment ~~component~~ components; and

c) displaying on said liquid crystal display a second legend indicative of said second control function of said thermostat, which second control function is ~~for controlling the second space conditioning equipment component, which second control function is~~ active when the second legend is viewable.

Obvious over *Geiwitz*.²⁹ Ex-1003 ¶¶232-236. This element differs from Claim 1 in that the mode requires *refraining* from the control of the space conditioning equipment. For context, Claim 19 corresponds to embodiments

²⁹ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0058.

directed to a conventional OFF mode, in which no heating or cooling functions are operative. Ex-1001 8:26-38, Figure 8; Ex-1003 ¶232.



Ex-1001 Figure 8 (annotated)

To the extent *Geiwitz* is not found to explicitly describe an “off mode” in connection with its Mode Icon, such a feature would have been within the general knowledge of a POSA. Ex-1003 ¶233. As Mr. Betancourt confirms, it was well known in the prior art for thermostats to have a NONE mode, commonly called OFF, to provide the self-evident ability to prevent the thermostat from signaling the HVAC equipment to turn on. Ex-1003 ¶233; *e.g.*, *Pouchak* (Ex-1018) at Table 2 “System Switch, 0: Auto 1: Cool 2: Heat 3: Emergency Heat 7: **Off**); Cardio Manual (Ex-1007) 055 (“Four modes of operation (**none**, heating only, cooling only and automatic)...”). As was apparent to even a layperson, such a mode has the obvious benefit of preventing the thermostat from calling for heating or cooling when none is desired. Ex-1003 ¶233. This would have been helpful and an

improvement to *Geiwitz's system*, for example, (i) when shutting down the equipment to perform maintenance, such as cleaning or part replacement, (ii) to prevent exacerbating damage to malfunctioning equipment, such as when a fault causes the equipment to run continuously without providing effective heating or cooling, potentially overheating, burning components, or even causing a fire, (iii) to save on energy costs, for example, during periods when the relevant space will be unoccupied, (iv) for safety reasons that call for shutting down equipment. *Id.*

A POSA would have had a high degree of expected success when considering the combination due to the simple and conventional nature of simply providing *Geiwitz's* thermostat system with the ability to stop equipment from running. Ex-1003 ¶234. Given the conventional nature of the “NONE” mode, the combination would have been well within the level of skill of a POSA. *Id.* Likewise, the improvement to *Geiwitz*, discussed above, from the addition of the NONE mode would have been entirely predictable for the reasons discussed above. *Id.*

Thus, *Geiwitz* in view of the general knowledge of a POSA taught that *if the first virtual button has been touched a predetermined number of times: a) determining that the thermostat has been directed to refrain from controlling any space conditioning equipment components; b) activating a second control function which prevents controlling any space conditioning equipment components.* Ex-1003 ¶235. As explained for Claim 16[D3], *Geiwitz* already taught determining a selected

mode of operation depending on the number of times that the Mode icon (*first virtual button*) has been pressed. Ex-1004 25:11-13; *see* Claim 16[D3] (§IV.A.2.e.D3). *Geiwitz* in view of the general knowledge of a POSA further teaches that repeatedly pressing the Mode Icon would select and activate the NONE mode. Ex-1003 ¶235. As understood by a POSA, a NONE mode (*second control function*) is one in which the thermostat does not call for heating or cooling, even if the temperature setpoints of the thermostat would otherwise require heating or cooling. Ex-1003 ¶235. Thus, *Geiwitz* in view of the general knowledge of a POSA teaches that when a NONE mode is selected, the thermostat will determine that it is prevented from calling for heating or cooling and will be prevented from calling for heating or cooling (*determining that the thermostat has been directed to refrain from controlling any space conditioning equipment components*) and (*activating a second control function which prevents controlling any space conditioning equipment components*). Ex-1007 005; Ex-1003 ¶235.

Furthermore, following *Geiwitz*'s teachings of displaying an appropriate legend associated with the active mode, *Geiwitz* in view of the general knowledge of a POSA would have rendered obvious to display a "NONE" (or "OFF") legend when that mode had been selected and was active. Ex-1003 ¶236. Otherwise, the user would be left guessing as to what mode of operation was selected and active. Ex-1003 ¶236. Thus, *Geiwitz* in view of the general knowledge of a POSA teaches

“NONE” (or “OFF”) would be displayed when the None mode was active (*displaying on said liquid crystal display a second legend indicative of said second control function of said thermostat, which second which second control function is active when the second legend is viewable*”). Ex-1003 ¶236; *see also* Claim 16[D3] (§IV.A.2.e.D3).

a. Claim 20

20. The programmable thermostat system of claim 19 in which said liquid crystal display is a dot matrix type.

Disclosed or at least rendered obvious by *Geiwitz*. *See* Claim 14 above (§IV.A.2.b); Ex-1003 ¶237.

B. Ground 2: Claims 19 and 20 Are Obvious Over *Geiwitz* in View of the Cardio Manual and the General Knowledge of a POSA

Claims 19 and 20 are obvious over *Geiwitz* in view of the Cardio Manual (Ex-1007) and the general knowledge of a POSA.

1. The Cardio Manual Is Pertinent Analogous Prior Art

As set forward in §III.B, the Patent Owner disclaimed a parent patent (Ex-1008) over the Cardio Manual (Ex-1007). In doing so the Patent Owner established the printed publication status of the Cardio Manual, making it available under Pre-AIA 35 U.S.C. §102(b):

Pursuant to the attached declaration of Jean Francois Boileau, the ...
operating manual ha[s] been publicly available in the United States

since 1995 for the purpose of [its] application as prior art under 35 USC §§102 and 103.

Ex-1007 003 (PO submission to USPTO).

Attached to this declaration is a true copy of a document titled "Cardio manual". It has been proven to me as having been produced and publicly distributed since 1995 by Domotique Secant Inc. in the United States and other countries. The "Cardio manual" has been proven to me to have been available to the public since 1995.

Ex-1007 008 (declaration of inventor of '318 Patent).

I am and have been since before 1995 an authorized officer of Domotique Secant Inc.... Attached to this declaration is a true copy of a document titled "Cardio manual". The "Cardio manual" as in the attachment has been distributed without restriction to the public by Domotique Secant Inc. from early 1996 to 2000 in the United States and in other countries since 1995.

Ex-1007 010 (declaration from product maker/manual publisher).

The Cardio Manual was in the same field of endeavor as the claimed invention, namely programmable, touch-screen thermostats and is thus analogous art to the '318 Patent. Ex-1003 ¶241.

2. The Cardio Manual Was Not Considered by the Patent Office in Combination with *Geiwitz*

While the Cardio Manual was submitted to the examiner during prosecution, it was not considered for the same purpose of this ground, nor in combination with *Geiwitz*.

During prosecution, the applicant identified the Cardio Manual, but distinguished it by saying:

Most important, page 7 of this reference discloses that pressing a virtual button on the touchscreen interface can cause the legends and functions to change **only for virtual buttons other than the one pressed**.

Ex-1002 037 (emphasis added). The Applicant, however, did not bring to the Examiner's attention that the purported distinguishing feature was admitted by the specification to be known in the art. Ex-1001 2:6-9, 3:63-4:2 (AAPA). Moreover, the purportedly distinguishing feature was taught by *Geiwitz* (see Claim 1, Element D1-D3). As explained above (§IV.A.1.a), *Geiwitz* was not considered during examination, and thus, the combination of *Geiwitz* and the Cardio Manual was also not considered.

In particular, during prosecution of the '318 Patent, the Examiner erred by failing to consider the Cardio Manual combined with *Geiwitz* even though *Geiwitz* cures the purported deficiency of the Cardio Manual stated by the Applicant (Ex-1002 037) and obviates the Examiner's stated reasons for allowance of the Challenged Claims (Ex-1002 023). See §III.B. Hence, it is respectfully submitted that there is no basis for the Board to exercise its discretion under 35 U.S.C. §325(d) to deny this Petition based on the Cardio Manual based Ground 2. See *Oticon Med.*

AB v. Cochlear Ltd., IPR2019-00975, Paper 15, 9-20 (PTAB Oct. 16, 2019)
(precedential).

3. Detailed Application to the Challenged Claims

a. Claim 19

Claim 19 is obvious over *Geiwitz* in view of the Cardio Manual. Ex-1003 ¶245. For the claim limitations that are identical, they are taught or obvious over *Geiwitz* for the same reasons set forth for Claim 1. See §IV.A.2.a. For brevity, Petitioner augments that analysis by addressing the differences in the claims below.

[19D] D) a ~~control~~ program stored in said memory . . .

Disclosed or at least rendered obvious by *Geiwitz* for the same reasons described for the *control program* of Claim 1. See Claim 1[D] (§IV.A.2.a.D); Ex-1003 ¶246.

[D3] if the first virtual button has been touched a predetermined number of times:

a) determining that the thermostat has been directed to ~~control a second~~ refrain from controlling any space conditioning equipment ~~component~~ components;

b) activating a second control function ~~for~~ which prevents controlling ~~the second~~ any space conditioning equipment ~~component~~ components; and

c) displaying on said liquid crystal display a second legend indicative of said second control function of said thermostat, which second control

function is ~~for controlling the second space conditioning equipment component, which second control function is active when the second legend is viewable.~~

Obvious over *Geiwitz* in view of the *Cardio Manual*.³⁰ Ex-1003 ¶¶247-251.

First, it would have been **obvious to combine** the teachings of *Geiwitz* and the *Cardio Manual*. Ex-1003 ¶248. To the extent *Geiwitz* is not found to teach explicitly an “off mode” in connection with its Mode Icon, the *Cardio Manual* (Ex-1007) teaches adding a “none” mode of operation to the other modes taught by *Geiwitz*. Ex-1007 055 (“Four modes of operation (none, heating only, cooling only and automatic)...”). A POSA would recognize the *Cardio Manual*’s “none” mode of operation to be a conventional mode in which the thermostat would not call for heating or cooling. In the resulting combination, the *Geiwitz*/*Cardio Manual* would have the Mode Icon with displayed legends as taught by *Geiwitz*, with the additional NONE mode taught by the *Cardio Manual*, with a suitable legend used (e.g., “NONE”); Ex-1003 ¶248.

A POSA would have been motivated to combine the Mode icon teachings of *Geiwitz* with the “none” mode teaching of the *Cardio Manual* with a reasonable expectation of success for the same reasons identified in §IV.A.2.h (Ground 1, Claim 19). Further, the *Cardio Manual* is merely an example of conventional functionality

³⁰ The cited *Geiwitz* material was also in the *Provisional*. See Ex-1005 0058.

generally known in the art. Ex-1003 ¶249. Combining the teachings would involve improving *Geiwitz* by adding the extra control of a NONE mode in the same way and for the same purpose as the NONE mode improved the Cardio Manual, with both references describing similar building automation and control systems being improved in the same way. *Id.*

Second, *Geiwitz/Cardio Manual* taught that *if the first virtual button has been touched a predetermined number of times: a) determining that the thermostat has been directed to refrain from controlling any space conditioning equipment components; b) activating a second control function which prevents controlling any space conditioning equipment components.* Ex-1003 ¶250. As explained for Claim 16[D3], *Geiwitz* already taught determining a selected mode of operation depending on the number of times that the Mode icon (*first virtual button*) has been pressed. Ex-1004 25:11-13; *see* Claim 16[D3] (§IV.A.2.e.D3). In the *Geiwitz/Cardio Manual* combination, repeatedly pressing the Mode Icon would select and activate the NONE mode of the Cardio Manual. Ex-1007 055. As understood by a POSA, the NONE mode (*second control function*) is one in which the thermostat does not call for heating or cooling, even if the temperature setpoints of the thermostat would otherwise require heating or cooling. Ex-1003 ¶250. In this way, when the Cardio Manual's NONE mode is selected, the thermostat **will determine** that it is prevented from calling for heating or cooling and **implement functionality that prevents**

calling for heating or cooling, similar to the disclosed embodiment in the '318 patent. Ex-1007 005; Ex-1001 8:31-34; Ex-1003 ¶250.

Third, following *Geiwitz*'s teachings of displaying an appropriate legend associated with the active mode, it would have been obvious in *Geiwitz/Cardio Manual* to display a "NONE" (or "OFF") legend when that mode had been selected and was active. Ex-1003 ¶251. Otherwise, the user would be left guessing as to what mode of operation was selected and active. Ex-1003 ¶251. Thus, in *Geiwitz/Cardio Manual*, "NONE" (or "OFF") would be displayed when the NONE mode was active. Ex-1003 ¶251; *see also* Claim 16[D3] (§IV.A.2.e.D3).

b. Claim 20

Disclosed or at least rendered obvious by *Geiwitz* in view of the Cardio Manual and the general knowledge of a POSA for the same reasons as discussed with respect to Claim 3. *See* Claim 3 (§IV.A.2.b); Ex-1003 ¶252.

V. THE BOARD SHOULD NOT EXERCISE ITS DISCRETION TO DENY INSTITUTION UNDER §314

Since Unified is not a defendant in a related case, an analysis under §314 that considers the factors of *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB March 20, 2020) and *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018- 00752, Paper 8 (PTAB Sept. 12, 2018) (precedential) is unnecessary. Moreover, this Petition presents a "compelling unpatentability challenge" as the Grounds show 1) that not just the Challenged Claims, but the preferred embodiments of the '318

Patent, are taught, 2) the very limitation that the Examiner thought to be missing in the art is taught, 3) the subject matter the Examiner thought to be missing was admitted prior art in the '318 patent's specification, and 4) the Applicant disclaimed and admitted as invalid the subject matter of remaining claim limitations. This alone demonstrates that the Board should not discretionarily deny institution. *USPTO Interim Procedure For Discretionary Denials In AIA Post-Grant Proceedings With Parallel District Court Litigation*, June 21, 2022, 4-5.

To the extent the Board considers applying *Fintiv* and *NHK Spring Co.* beyond their holdings, the factors do not weigh in favor of denial under §314. The district court cases involving the '318 Patent are still at early stages and, according to average trial times, trials are not projected until May or June of 2024, which is at or after the projected statutory deadline for a final written decision here. Case 3:22-cv-732, Dkt. 21; Ex-1014. Further, due to their early stages, there appears to have been little investment in these cases by the court and parties, and there appears to be little overlap between the issues raised in this Petition and in the cases.

VI. MANDATORY NOTICES UNDER 37 C.F.R. §42.8

A. Real Party-in-Interest (37 C.F.R. §42.8(b)(1))

Petitioner certifies that Unified Patents, LLC ("Unified" or "Petitioner") is the real party-in-interest. Petitioner further certifies that no other party exercised control or could exercise control over Unified's participation in this proceeding, the filing

of this petition, or the conduct of any ensuing trial. In view of *Worlds Inc. v. Bungie, Inc.*, 903 F.3d 1237, 1242-44 (Fed. Cir. 2018), Unified voluntarily submits the Declaration of Mr. Jakel (Ex-1015) to support its certification.

B. Related Matters (37 C.F.R. §42.8(b)(2))

1. Judicial Matters

As of the filing date of this Petition and to the best knowledge of Petitioner, the '318 Patent has been involved in the following litigation(s):

Rosen Technologies LLC, v. Lennox Industries Inc., N.D. Tex. Case No. 3:22-cv-732 (ongoing).

Rosen Technologies LLC, v. Resideo Technologies, Inc., W.D. Tex. Case No. 6:22-cv-131 (ongoing).

Based on public records, the defendants in the above litigations are not time-barred or estopped from seeking an *inter partes* review of the '318 Patent.

2. Administrative Matters:

As of the filing date of this Petition and to the best knowledge of Petitioner, the '318 Patent has not been the subject of any *inter partes* reviews, reissues, or reexaminations.

C. Lead/Back-up Counsel (37 C.F.R. §42.8(b)(3)):

Lead Counsel:

John M. Baird, USPTO Reg. 57,585
DUANE MORRIS LLP, 901 New York Ave. NW, Suite 700 East
Washington, D.C. 20001-4795
P: (202) 776-7819; F: (202) 379-9850; JMBaird@duanemorris.com

Back-Up Counsel:

Ellyar Y. Barazesh, USPTO Reg. 74,096
Unified Patents, LLC, 4445 Willard Avenue, Suite 600, Chevy Chase, MD
20815
P: (925) 434-8754; ellyar@unifiedpatents.com

Roshan Mansinghani, USPTO Reg. 62,429
Unified Patents, LLC, 4445 Willard Avenue, Suite 600, Chevy Chase, MD
20815
P: (214) 945-0200; roshan@unifiedpatents.com

Patrick McPherson, USPTO Reg. 46,255
DUANE MORRIS LLP, 901 New York Ave. NW, Suite 700 East
Washington, D.C. 20001-4795
P: (202) 776-5214; F: (202) 776-7801; PDMcPherson@duanemorris.com

Nicole Candelori, USPTO Reg. 77,218
DUANE MORRIS LLP, 901 New York Ave. NW, Suite 700 East
Washington, D.C. 20001-4795
P: (202) 776-5284; F: (202) 330-5702; NCandelori@duanemorris.com

D. Notice of Service Information (37 C.F.R. §42.8(b)(4)):

Please direct all correspondence to lead and back-up counsel at the above addresses. Petitioner consents to electronic service at the email addresses above.

VII. CONCLUSION

For the reasons set forth above, Petitioner has shown a reasonable likelihood of prevailing on all Challenged Claims of the '318 Patent and requests that the Board institute *inter partes* review and cancel all claims as unpatentable.

Dated: August 29, 2022

Respectfully submitted,

DUANE MORRIS LLP

BY: /John M. Baird/

John M. Baird

ATTORNEY FOR PETITIONER

CERTIFICATION OF SERVICE ON PATENT OWNER

Pursuant to 37 C.F.R. §§42.6(e), 42.8(b)(4) and 42.105, the undersigned certifies that on the 29th of August, 2022, a complete and entire copy of this Petition for *Inter Partes* Review of U.S. Patent 7,156,318 and all supporting exhibits were served via Federal Express, postage prepaid, to ROSEN TECHNOLOGIES LLC by serving the correspondence address of record for the '318 Patent:

Hankin Patent Law, APC
12400 Wilshire Boulevard
Suite 1265
Los Angeles, CA 90025

Dated: August 29, 2022

Respectfully submitted,

DUANE MORRIS LLP

BY: /John M. Baird/
John M. Baird
USPTO Reg. No. 57,585
DUANE MORRIS LLP
505 9th St. NW, Suite 1000,
Washington, D.C. 20004
P: (202) 776-7819
F: (202) 379-9850
JMBaird@duanemorris.com

ATTORNEY FOR PETITIONER

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. §42.24 *et seq.*, the undersigned certifies that this document complies with the type-volume limitations. This document contains 13,950 words as calculated by the “Word Count” feature of Microsoft Word 2010, the word processing program used to create it.

Dated: August 29, 2022

Respectfully submitted,

DUANE MORRIS LLP

BY: /John M. Baird/

John M. Baird

USPTO Reg. No. 57,585

DUANE MORRIS LLP

505 9th St. NW, Suite 1000,

Washington, D.C. 20004

P: (202) 776-7819

F: (202) 379-9850

JMBaird@duanemorris.com

ATTORNEY FOR PETITIONER