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4   UNITED STATES DISTRICT COURT

5   NORTHERN DISTRICT OF CALIFORNIA

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7   GOOGLE LLC,   Case No. 21-cv-03220-HSG

8   Plaintiff,   **ORDER DENYING MOTION FOR
                                                   JUDGMENT ON THE PLEADINGS**
9   v.
                                                   Re: Dkt. No. 41
10 ECOFACTOR, INC.,

11   Defendant.

12

13   Plaintiff Google LLC seeks judgment on the pleadings that Defendant EcoFactor, Inc.'s

14 patents-in-suit are invalid under 35 U.S.C. § 101. For the reasons explained below, the Court

15 denies the motion.

16 **I.   BACKGROUND**

17   Google is a technology company based in Mountain View, California. Its stated mission is

18 to organize the world's information to make it universally accessible and useful. EcoFactor is a

19 private company based in Palo Alto, California. Beginning in 2019, EcoFactor filed actions in the

20 District of Massachusetts, the Western District of Texas, and the International Trade Commission

21 accusing Google's Nest thermostat products of patent infringement.

22   In June 2021, Google filed this action seeking a declaratory judgment of non-infringement

23 of four EcoFactor patents, U.S. Patent Nos. 8,751,186 (the "'186 Patent"), 8,740,100 (the "'100

24 Patent"), 9,194,597 (the "'597 Patent") and 10,584,890 (the "'890 Patent"). *See* Dkt. No. 1. The

25 following month, EcoFactor filed an answer to Google's complaint as well as a counterclaim

26 accusing Google's Nest thermostats of infringing the patents-in-suit. *See* Dkt. No. 17. Google

27 now moves for judgment on the pleadings. *See* Dkt. No. 41 ("Mot."), 48 ("Opp."), and 49

28 ("Reply"). The Court heard oral argument on the motion on April 28, 2022. *See* Dkt. No. 83.

United States District Court
Northern District of California

II.   LEGAL STANDARD

Under Federal Rule of Civil Procedure 12(c), a party may move for judgment on the pleadings "[a]fter the pleadings are closed—but early enough not to delay trial." "Judgment on the pleadings is proper when, taking all allegations in the pleading as true, the moving party is entitled to judgment as a matter of law." *Stanley v. Trustees of Cal. State Univ.*, 433 F.3d 1129, 1133 (9th Cir. 2006). "Rule 12(c) is functionally identical to Rule 12(b)(6) and . . . the same standard of review applies to motions brought under either rule." *Cafasso, U.S. ex rel. v. Gen. Dynamics C4 Sys., Inc.*, 637 F.3d 1047, 1054 n.4 (9th Cir. 2011) (quotation omitted). The Court will "accept factual allegations in the complaint as true and construe the pleadings in the light most favorable to the nonmoving party." *Manzarek v. St. Paul Fire & Marine Ins. Co.*, 519 F.3d 1025, 1031 (9th Cir. 2008).

Section 101 of the Patent Act describes the scope of patentable subject matter as encompassing "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." 35 U.S.C. § 101. It is well settled that laws of nature, natural phenomena, and abstract ideas are excluded from the universe of patentable subject matter. *See Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014). These categories are not patent-eligible because "they are the basic tools of scientific and technological work," which are "free to all men and reserved exclusively to none." *Mayo Collaborative Servs. v. Prometheus Labs.*, 566 U.S. 66, 71 (2012) (citations omitted). Allowing patent claims for laws of nature, natural phenomena, and abstract ideas would "tend to impede innovation more than it would tend to promote it," thereby thwarting the primary object of the patent laws. *Id*. However, the Supreme Court has also recognized the need to "tread carefully in construing this exclusionary principle lest it swallow all of patent law." *Alice*, 573 U.S. at 217.

The Supreme Court and Federal Circuit have articulated a two-part test for determining whether a claim's subject matter is patent-eligible. First, a court "determine[s] whether a claim is 'directed to' a patent-ineligible abstract idea." *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1346-47 (Fed. Cir. 2014) (citing *Mayo*, 566 U.S. at 75-76). If so, the Court then "consider[s] the elements of the claim—both individually and as an

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1　ordered combination—to assess whether the additional elements transform the nature of the claim

2　into a patent-eligible application of the abstract idea." *Id*. at 1347. "This is the search for an

3　'inventive concept'—something sufficient to ensure that the claim amounts to 'significantly more'

4　than the abstract idea itself." *Id*. (quoting *Mayo*, 566 U.S. at 72-73).

5　　　　To determine whether the "claim's character as a whole is directed to excluded subject

6　matter" the Court evaluates the claimed "advance" over the prior art. *Intellectual Ventures I LLC*

7　*v. Erie Indem. Co.*, 850 F.3d 1315, 1325 (Fed. Cir. 2017) (quotation omitted). "At *Alice* step one,

8　'it is not enough to merely identify a patent-ineligible concept underlying the claim; [the court]

9　must determine whether that patent-ineligible concept is what the claim is 'directed to.''" *Data*

10　*Engine Techs. LLC v. Google LLC*, 906 F.3d 999, 1011 (Fed. Cir. 2018) (quoting *Rapid Litig.*

11　*Mgmt. Ltd. v. CellzDirect, Inc.*, 827 F.3d 1042, 1050 (Fed. Cir. 2016))). The Court must "examine

12　earlier cases in which a similar or parallel descriptive nature can be seen—what prior cases were

13　about, and which way they were decided." *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d

14　1288, 1294 (Fed. Cir. 2016). Finally, in *Aatrix Software, Inc. v. Green Shades Software, Inc.*, the

15　Federal Circuit emphasized that the question of eligibility may be determined at the pleadings

16　stage "only when there are no factual allegations that, taken as true, prevent resolving the

17　eligibility question as a matter of law." 882 F.3d 1121, 1125 (Fed. Cir. 2018).

18　**III.　ANALYSIS**

19　　　　Google moves for judgment on the pleadings under Rule 12(c), arguing that the four

20　patents-in-suit are directed to abstract ideas and fail to assert any inventive concept to transform

21　the nature of the claims into a patent-eligible application of the abstract idea. The Court proceeds

22　under the two-part test outlined in *Alice*.[1]

23

24　[1] EcoFactor makes a perfunctory argument that claim construction is necessary before the Court can consider issues of invalidity. Opp. at 24-25. While claim construction is often helpful, and
25　sometimes necessary, to resolve whether a claim is directed to patent-eligible subject matter, it "is not an inviolable prerequisite to a validity determination under § 101." *Bancorp Servs., L.L.C. v.*
26　*Sun Life Assur. Co. of Canada (U.S.)*, 687 F.3d 1266, 1273 (Fed. Cir. 2012). EcoFactor has neither explained how any particular construction would alter the section 101 analysis, nor proposed any
27　constructions that the Court should credit given the posture of this motion. In line with the Federal Circuit and several other courts in this district, the Court finds that this motion can be resolved on
28　the pleadings prior to claim construction on this record. *See Content Extraction*, 776 F.3d at 1349 (affirming grant of motion to dismiss prior to claim construction); *see also OpenTV, Inc. v. Apple,*

A. The '186 Patent

The '186 patent is titled "System and method for calculating the thermal mass of a building." *See* '186 patent. The '186 patent claims "a system for calculating a value for the effective thermal mass of a building." *Id.* at Abstract. Claim 1 recites the following system claim:

> 1. A system for controlling a heating, ventilation and air conditioning (HVAC) system comprising:
>
> > one or more server computers comprising computer hardware, the one or more server computers configured to receive inside temperature measurements from at least a first location conditioned by at least one HVAC system;
> >
> > one or more databases that store the inside temperature measurements over time, the one or more databases accesses by the one or more server computers;
> >
> > wherein the one or more server computers are located remotely from the first location, the one or more server computers configured to receive outside temperature measurements from at least one source other than the HVAC system,
> >
> > wherein the one or more server computers are configured to calculate one or more predicted rates of change in temperature at the first location based on status of the HVAC system, and based on the outside temperature measurements, wherein the one or more predicted rates of change predict a speed a temperature inside the first location will change in response to changes in outside temperature; and
> >
> > wherein the one or more server computers are further configured to determine whether to direct the HVAC control system to pre-cool the first structure based on the one or more predicted rates of change prior to directing the HVAC control system to reduce electricity demand.

'186 patent at 13:31-57. The '186 patent's other independent claim, Claim 8, discloses a method reciting a similar invention. *Id.* at 14:19-39. The parties agree that claim 1 of the '186 patent is representative of the '186 patent for purposes of the Court's § 101 analysis. *See Berkheimer v. HP Inc.*, 881 F.3d 1360, 1365 (Fed. Cir. 2018) ("Courts may treat a claim as representative in certain situations, such as if the patentee does not present any meaningful argument for the distinctive significance of any claim limitations not found in the representative claim or if the parties agree to

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Inc., No. 14-CV-01622-HSG, 2015 WL 1535328, at *2 (N.D. Cal. Apr. 6, 2015) (collecting cases).

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1   treat a claim as representative.").

2   Google argues that claim 1 of the '186 patent is analogous to the patents found ineligible in

3   *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 766 (Fed. Cir. 2019). The Court disagrees.

4   The patents in *ChargePoint* claimed network-connected charging stations for electric vehicles.

5   The patents' specification detailed the prior art's lack of network communication that would allow

6   efficient interaction with respect to electrical needs, and the claimed solution enabled such

7   communication. Noting the breadth of the claims and the fact that the specification never

8   indicated that charging stations were improved from a technical perspective, the Federal Circuit

9   held that these asserted claims were directed to the "abstract idea of network communication for

10   device interaction." *Id.* at 768. The court concluded that "the inventors here had the good idea to

11   add networking capabilities to existing charging stations to facilitate various business interactions.

12   But that is where they stopped, and that is all they patented." *Id.* at 770.

13   By contrast, claim 1 of the '186 patent recites a device that receives and stores inside

14   temperature measurements, calculates a predicted rate of change based on the stored temperature,

15   status of the HVAC system, and outside temperature (the '186 patent describes this analysis as

16   calculating "thermal mass"), then determines whether to direct the HVAC to pre-cool the structure

17   before the HVAC reduces electricity. The Court finds that claim 1 is more analogous to the claims

18   deemed eligible in *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143, 1149 (Fed. Cir.

19   2019) and *CardioNet, LLC v. InfoBionic, Inc.* 955 F.3d 1358, 1368 (Fed. Cir. 2020), *cert. denied*

20   *sub nom. InfoBionic, Inc. v. Cardionet, LLC*, 141 S. Ct. 1266 (2021). In both cases, the Federal

21   Circuit held that the asserted claims were directed to specific implementations of improved

22   devices and systems and not abstract ideas that used computers as tools. *See Koninklijke KPN*

23   *N.V.*, 942 F.3d at 1150 ("[W]e conclude that appealed claims 2–4 of the '662 patent are patent-

24   eligible because they are directed to a non-abstract improvement in an existing technological

25   process (*i.e.*, error checking in data transmissions)."); *CardioNet*, 955 F.3d at 1368 ("[W]e

26   conclude that claim 1 of the '207 patent is directed to an improved cardiac monitoring device and

27   not to an abstract idea."). Similarly, claim 1 of the '186 patent is directed to the non-abstract

28   improvement of using thermal mass calculations and predicted rate of change in the technological

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1   process of directing programmable HVAC thermostats, not an abstract result that merely invokes

2   generic processes or machinery.

3   The written description of the '186 patent supports this reading of claim 1. *See*

4   *ChargePoint*, 920 F.3d at 767 ("The 'directed to' inquiry may also involve looking to the

5   specification to understand 'the problem facing the inventor' and, ultimately, what the patent

6   describes as the invention." (citation omitted)). As the specification explains, thermostats at the

7   time were unable to receive more than two variables and had a limited user interface, making it

8   less likely a user would control or re-program the thermostat to their preferences. *See* '186 patent

9   at 1:46-60. This often diminished the energy savings attainable through the use of programmable

10   thermostats. *Id.* at 1:56-60. Accordingly, the '186 patent provides a specific solution because it is

11   directed to a non-abstract improvement in an existing technological process (*i.e.*, pre-cooling an

12   HVAC system). By requiring the determination of whether to direct the HVAC control system to

13   pre-cool the structure based on thermal mass calculation, claim 1 recites a specific implementation

14   of pre-cooling that improves the operation of the technological HVAC system process.

15   Google also contends that the '186 patent fails because it does not specify *how* the claimed

16   improvement is implemented. But this requirement was rejected by the Federal Circuit in

17   *Koninklijke KPN N.V.*, 942 F.3d at 1151 ("A claim that is directed to improving the functionality

18   of one tool (e.g., error checking device) that is part of an existing system (e.g., data transmission

19   error detection system) does not necessarily need to recite how that tool is applied in the overall

20   system (e.g., perform error detection) in order to constitute a technological improvement that is

21   patent-eligible."). Rather, "the more relevant inquiry is 'whether the claims in th[is] patent[ ]

22   focus on a specific means or method that improves the relevant technology or are instead directed

23   to a result or effect that itself is the abstract idea and merely invoke processes and machinery.'"

24   *Id.* (quoting *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016)).

25   Here, claim 1 of the '186 patent focuses on a specific method – the use of calculated thermal mass

26   – to improve the function of the HVAC thermostat. It is not directed to a result or effect that is the

27   abstract idea itself.

28   Accordingly, the Court concludes that the '186 patent is not directed to an abstract idea at

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step one. Thus, the Court need not reach *Alice* step two. *See Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, 880 F.3d 1356, 1363 (Fed. Cir. 2018) ("Because we hold that the asserted claims are not directed to an abstract idea, we do not proceed to the second step of the inquiry.").

B.   The '100 Patent

The '100 patent is titled "System, method and apparatus for dynamically variable compressor delay in thermostat to reduce energy consumption." *See* '100 patent. It claims systems and methods "for reducing the usage of a ventilation system." *Id.* at Abstract. Claim 1 recites the following system claim:

> 1. A system for reducing the usage of a ventilation system comprising:
>
>> a thermostatic controller having at least two settings for a delay enforced by said thermostatic controller after said thermostatic controller turns said ventilation system off prior to allowing said thermostatic controller to signal said ventilation system to turn on again, one setting being for a first interval, and at least a second setting for a second interval that is longer than said first interval; and
>>
>> a computer processor in communication with said thermostatic controller, the processor configured to:
>>
>>> access stored data comprising a plurality of internal temperature measurements taken within a structure and a plurality of outside temperature measurements relating to temperatures outside the structure;
>>>
>>> use the stored data to predict a rate of change of temperatures inside the structure in response to at least changes in outside temperatures; and
>>>
>>> evaluate one or more parameters including at least the outside temperature measurements and the predicted rate of change, and to determine whether to adopt said first interval or said second interval based upon the values of said parameters.

Id. at 9:61-10:17. The '100 patent's other independent claim, Claim 9, is a method claim reciting a similar invention. *Id.* at 10:36-61. The parties agree that claim 1 of the '100 patent is representative of the '100 patent for purposes of the Court's § 101 analysis. *See Berkheimer*, 881 F.3d at 1365.

Google argues that the '100 patent is patent-ineligible because it is directed to "the abstract idea of using temperature data to determine when an HVAC system should turn on," a "basic

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1   concept" that "humans have performed . . . since people first began using fire to heat their homes."

2   Mot. at 16. However, this characterization oversimplifies the claimed invention. *See McRO*, 837

3   F.3d at 1313; *see also Data Engine*, 906 F.3d at 1011 (explaining that "[i]t is not enough . . . to

4   merely trace the invention to some real-world analogy," because "[t]he question of abstraction is

5   whether the claim is 'directed to' the abstract idea itself."). The Court concludes that the '100

6   patent is more appropriately described as directed to the specific invention of a HVAC system

7   with a computer processor that selects from multiple compressor delays based on a set of

8   parameters like user preferences. And the Court accordingly finds that claim 1 "focus[es] on a

9   specific means or method that improves" HVAC system technology and is not "directed to a result

10   or effect that itself is the abstract idea and merely invoke generic processes and machinery."

11   *CardioNet*, 955 F.3d at 1368 (quoting *McRO*, 837 F.3d at 1314).

12   In particular, the language of claim 1 recites an HVAC system that uses a computer

13   processor to predict a rate of change of inside temperatures, then uses those predictions along with

14   other parameters to select a compressor delay for the operation of the HVAC system. Thus, the

15   Court concludes that this claim is patent eligible because, like the claims deemed eligible in

16   *Koninklijke KPN N.V.*, 942 F.3d at 1149 and *CardioNet*, 955 F.3d at 1368, it is directed to a

17   specific implementation of a system improvement.

18   Google contends that "having multiple compressor delays or adjustable compressor delays

19   was not a new concept [in the prior art]." Reply at 11 (citing '100 patent at 2:25-40 (explaining

20   that existing programmable thermostats could adjust compressor delay through mechanical

21   switches)). Google's argument is correct as far as it goes. But as the '100 patent written

22   description explains, many existing HVAC systems could not easily adjust the compressor delay

23   for the system. Instead, "[c]hanging the compressor delay generally require[d] disassembling the

24   thermostat." *Id.* at 2:32-40. Simply claiming an invention that uses a generic processor to select

25   from multiple compressor delays would not survive *Alice* step one because the "mere automation

26   of manual processes using generic computers does not constitute a patentable improvement in

27   computer technology." *Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1055 (Fed.

28   Cir. 2017). However, the '100 patent claims an improvement beyond the use of a generic

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1   computer and processor. It focuses on a specific method of improving HVAC system operation

2   by selecting an appropriate compressor delay based on user parameters and other calculations.[2] In

3   other words, while the benefits of varying compressor delay were already known in the prior art,

4   the '100 patent claims an improvement over the prior art because it allows the HVAC system to

5   better accommodate certain parameters by varying compressor delay. A review of the

6   specification as a whole makes clear that the '100 patent is not directed to the ineligible idea of

7   merely selecting from multiple compressor delays but rather to the specific improvement of using

8   user preferences and rate of change predictions to make the selection. This provides the

9   technological benefit of "offer[ing] a simple way to create asymmetrical thermal waveforms

10   without the need for highly detailed programming." '100 patent at 3:29-34.

11   Thus, the '100 patent discloses the specific method of a networked HVAC system that

12   selects from compressor delay variables based on certain parameters to improve the operation in

13   thermostats. On this basis, the Court concludes that the '100 patent is not directed to an abstract

14   idea at *Alice* step one and the Court need not reach *Alice* step two. *See Core Wireless Licensing*,

15   880 F.3d at 1363.

16   **C.   The '597 Patent**

17   The '597 patent is titled "System, method and apparatus for identifying manual inputs to

18   and adaptive programming of a thermostat." *See* '597 patent. It claims systems and methods "for

19   incorporating manual changes to the setpoint for a thermostatic controller into long-term

20   programming of the thermostatic controller." *Id.* at Abstract. The '597 patent contains three

21   independent claims, 1, 9, and 17. Because the parties have not designated a representative claim,

22   the Court will analyze each claim separately. *See Berkheimer*, 881 F.3d at 1365.

23   Google argues that all claims of the '597 patent are directed to the abstract idea of "using

24   temperature data to detect a manual change in a thermostat's temperature setting." Mot. at 18.

25   Google characterizes the claims of the '597 patent as "recit[ing] conventional computer functions

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27   [2] The '100 patent written description explains that these parameters "may include user preferences, such as the weather, time of day and other conditions under which the homeowner has elected to permit hysteresis band changes, the maximum length of compressor delay authorized, etc." '100

28   patent at 8:51-57.

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for generic data collection, analysis, and storage to . . . 'detect[] a manual change' to a

[temperature] setpoint." *Id.* at 21. EcoFactor responds that the '597 patent recites an HVAC

control "that uses stored predicted rates of change in inside temperature to calculate scheduled

programming comprising automated setpoints that also compares actual setpoints with one or

more automated setpoints in order to determine whether the actual or automated setpoints are the

same or different based on a difference value." Opp. at 16.

i. Claim 1 of the '597 Patent

The first claim of the '597 patent recites the following method:

> 1. A method for detecting manual changes to the setpoint for a thermostatic controller comprising:
>
> > providing a thermostatic controller operatively connected to a heating ventilation and air conditioning system, the temperature set point of the heating ventilation and air conditioning system being manually changeable;
> >
> > accessing stored data comprising a plurality of internal temperature measurements taken within a structure and a plurality of outside temperature measurements;
> >
> > using the stored data to predict changes in temperature inside the structure in response to at least changes in outside temperatures;
> >
> > calculating with at least one computer, scheduled programming of the thermostatic controller for one or more times to control the heating ventilation and air conditioning system, the scheduled programming comprising at least a first automated setpoint at a first time;
> >
> > recording, with the thermostatic controller, actual setpoints of the heating ventilation and air condition system;
> >
> > communicating the actual setpoints from the one or more thermostatic controllers to the at least one computer;
> >
> > generating with the at least one computer, a difference value based on comparing at least one of the an actual setpoints at the first time for the thermostatic controller to the first automated setpoint for the thermostatic controller;
> >
> > detecting a manual change to the first automated setpoint by determining whether the at least one of the actual setpoints and the first automated setpoint are the same or different based on the difference value; and
> >
> > logging the manual change to a database.

10

1   *Id.* at 8:8-38.

2   The Court concludes that claim 1 of the '597 patent is directed to the patent-eligible idea of

3   detecting and logging manual changes made to a HVAC system and, using that stored information

4   along with predictions of temperature changes based on outside and inside temperatures, adjusting

5   the HVAC system's setpoints. This is a non-abstract improvement to the existing technological

6   process of an HVAC system. By requiring the logging of manual changes in a database, claim 1

7   recites a specific implementation that varies the way the HVAC system functions by improving its

8   ability to consider outside weather conditions and the thermal characteristics of individual homes.

9   This improvement allows the HVAC system to "dynamically achieve the best possible balance

10   between comfort and energy savings." '597 patent at 2:12-17.

11   Claim 1 does not specify how the logged manual changes are applied by the overall HVAC

12   system to achieve a technological improvement. But as noted above, *see supra* Section III.A,

13   under *Koninklijke KPN N.V.*, the Federal Circuit does not require a patent claim recite a "last step

14   tying the claims to a 'concrete application'" to survive at *Alice* step one. 942 F.3d at 1151. The

15   Court concludes that the claim focuses on the specific use of manual changes and internal

16   temperature rate of change predictions to improve adjustments to an HVAC system's automated

17   setpoint. *See id.* ("[T]he more relevant inquiry is 'whether the claims in th[is] patent[ ] focus on a

18   specific means or method that improves the relevant technology or are instead directed to a result

19   or effect that itself is the abstract idea and merely invoke processes and machinery.'"). It does not

20   merely focus on an abstract idea like improving an HVAC automated setpoint or the generic use of

21   computers or processors.

22   The '597 specification confirms that claim 1 is not directed to an abstract idea. It explains

23   that existing thermostats "d[id] not [previously] record such inputs locally, and neither recognize

24   nor transmit the fact that a manual override has occurred." '597 patent at 5:44-47. The '597

25   patent claims recite an invention that detects the manual changes made to the thermostat and uses

26   that data to determine whether it should incorporate the information into long-term programming.

27   The Court concludes that this is a specific enough solution to make concrete the asserted

28   technological improvement in HVAC system operation. *See Koninklijke KPN N.V.,* 942 F.3d at

11

1152.

Because claim 1 of the '597 patent is not directed to an abstract idea at step one, the Court

need not reach *Alice* step two. *See Core Wireless Licensing*, 880 F.3d at 1363.

ii.   Claim 9 of the '597 Patent

Where claim 1 recites a method for "detecting manual changes to the setpoint," claim 9

recites a method for "incorporating manual changes to the setpoint":

> 9. A method for incorporating manual changes to the setpoint for a thermostatic controller, the method comprising:
>
> providing a thermostatic controller operatively connected to a heating ventilation and air conditioning system, the temperature set point of the heating ventilation and air conditioning system being manually changeable;
>
> accessing stored data comprising a plurality of internal temperature measurements taken within a structure and a plurality of outside temperature measurements;
>
> using the stored data to predict changes in temperatures inside the structure in response to at least changes in outside temperatures;
>
> calculating scheduled programming of setpoints in the thermostatic controller based on the predicted rate of change, the scheduled programming comprising at least a first automated setpoint at a first time and a second automated setpoint at a second time to control the heating ventilation and air conditioning system;
>
> recording, with the thermostatic controller, actual setpoints of the heating ventilation and air condition system;
>
> communicating the actual setpoints from the thermostatic controller to the at least one computer;
>
> comparing at least one of the actual setpoints at the first time for the thermostatic controller to the first automated setpoint for the thermostatic controller;
>
> detecting a manual change to the first automated setpoint by determining whether the at least one of the actual setpoints and the first automated setpoint are the same or different; and
>
> changing the operation of the heating ventilation and air conditioning system by changing the second automated setpoint at the second time based on at least one rule for the interpretation of the manual change.

'597 patent at 8:56-9:21.

1   As noted above, claims 1 and 9 of the '597 patent recite slightly different limitations:

2   while claim 1 detects manual change data and predicts inside temperature changes, claim 9

3   "incorporat[es]" that data into the HVAC system to change its operation. The differences do not

4   affect the Court's *Alice* step one analysis, because both claims "focus on a specific means or

5   method that improves" [HVAC system technology] [and] are not 'directed to a result or effect that

6   itself is the abstract idea and merely invoke generic processes and machinery.'" *CardioNet*, 955

7   F.3d at 1368 (quoting *McRO*, 837 F.3d at 1314).

8   Because the '597 specification notes that existing thermostats did not record or recognize a

9   manual change to the thermostat, and because the specification as a whole recites a specific

10   invention that uses manual change data to determine whether it should incorporate certain

11   information into a thermostat's long-term programming, the Court concludes that claim 9 of the

12   '597 patent is not directed to an abstract idea.

13   Accordingly, claim 9 of the '597 patent is not directed to an abstract idea at step one and

14   the Court need not reach *Alice* step two. *See Core Wireless Licensing*, 880 F.3d at 1363.

iii.   Claim 17 of the '597 Patent

16   Claim 17, the last independent claim of the '597 patent, recites the following apparatus:

> 17. An apparatus for detecting manual changes to one or more setpoints for a thermostatic controller, the apparatus comprising:
>
> a programmable communicating thermostat operatively connected to a heating ventilation and air conditioning system, the temperature set point of the heating ventilation and air conditioning system being manually changeable;
>
> at least an electronic storage medium comprising stored data of a plurality of internal temperature measurements taken within a structure and a plurality of outside temperature measurements;
>
> computer hardware configured to communicate with the electronic storage medium and with the programmable communicating thermostat, the computer hardware configured to use the stored data to predict a rate of change of temperatures inside the structure in response to changes in outside temperatures;
>
> the computer hardware further configured to calculate a scheduled setpoint programming of the programmable communicating thermostat for one or more times to control

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the heating ventilation and air conditioning system based on the predicted rate of change, the scheduled programming comprising one or more automated setpoints;

wherein the programmable communicating thermostat records actual setpoints of the heating ventilation and air condition system;

wherein the computer hardware is further configured to store in the electronic storage medium, the one or more automated setpoints associated with the scheduled programming for the programmable communicating thermostat;

wherein the programmable communicating thermostat records actual setpoints of the heating ventilation and air condition system;

wherein the computer hardware is further configured to obtain the actual setpoints from the programmable communicating thermostat and store the actual setpoints in the electronic storage medium;

wherein the computer hardware is further configured to compare the one or more automated setpoints associated with the scheduled setpoint programming with at least one of the actual setpoints; and

wherein the computer hardware is further configured to detect a manual change to the one or more automated setpoints by determining whether the at least one of the actual setpoints and the one or more automated setpoints are the same or different based on the difference value.

Id. at 9:40-10:34.

The Court concludes that Claim 17 is directed not to an abstract idea but to an HVAC system configured to detect manual changes to the automated setpoints and determine whether to change those automated setpoints based on those manual changes. For the same reasons discussed with respect to claims 1 and 9 of the '597 patent, the '597 patent written description reinforces the Court's conclusion that claim 17 recites a specific method to improve the function of the HVAC thermostat and is not directed to a result or effect that is the abstract idea itself.

Accordingly, because claim 17 of the '597 patent is not directed to an abstract idea at step one, the Court need not reach *Alice* step two. *See Core Wireless Licensing*, 880 F.3d at 1363.

D.   The '890 Patent

The '890 patent is titled "System and method for using a mobile electronic device to optimize an energy management system." *See* '890 patent. It claims a system "for using the

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geographic location of networked consumer electronics devices as indications of occupancy of a

structure for purposes of automatically adjusting the temperature setpoint on a thermostatic HVAC

control." *Id.* at Abstract. Claim 1 is the '890 patent's sole independent claim and recites:

> 1. A thermostat system comprising:
>
>> a housing;
>>
>> electrical contacts configured to connect the thermostat with wires that allow for at least two electrical connections from a building's HVAC system to the contacts;
>>
>> a display configured to present information to a user;
>>
>> a wireless radio compatible with a wireless radio frequency protocol and configured to communicate bi-directionally with a location-aware mobile device;
>>
>> a temperature sensor;
>>
>> one or more processors configured with electronic circuitry to:
>>
>>> receive HVAC data parameters, including a first data parameter from the temperature sensor comprising an interior temperature inside the building; and
>>>
>>> a second data parameter from a network connected to the thermostat, wherein the second data parameter comprises an outside weather condition collected from a source external to the building;
>>>
>>> determine a first temperature setpoint data parameter for the building, wherein the first setpoint data parameter includes a first temperature value and a first time value;
>>>
>>> determine a second temperature setpoint data parameter for the building, wherein the second setpoint data parameter includes a second temperature value and a second time value;
>>>
>>> receive radio frequency signals from the location-aware mobile device;
>>>
>>> receive geo-positioning data from the location-aware mobile device and automatically adjust a temperature value based on the geo-positioning data, including initiating at least one cooling or heating cycle for the HVAC system when the geo-positioning data is determined to indicate that the building is unoccupied by the user;
>>
>> electronic circuitry configured to allow the user to adjust a

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desired temperature for the HVAC system;

electronic circuitry configured to analyze a plurality of data parameters specific to the user, including at least one data parameter relating to usage of the HVAC system at various times; and

electronic circuitry configured to generate and communicate usage metrics pertaining to the HVAC system over time; and

a compressor delay circuit configured to delay the start or stop of a compressor for the HVAC system and protect the compressor from rapid cycling.

Id. at 33:29-34:10. The parties agree that claim 1 of the '890 patent is representative of the '890 patent for purposes of the Court's § 101 analysis. *See Berkheimer*, 881 F.3d at 1365.

The Court finds that claim 1 of the '890 patent is directed to an HVAC system that uses geo-positioning data from location-aware mobile devices to determine if a building is occupied and readjust the system's temperature as needed. While Google characterizes the '890 patent as nothing more than the mere automation of turning an HVAC system on or off depending on whether an occupant is home, this again oversimplifies the claims. *See McRO*, 837 F.3d at 1313 ("Courts must be careful to avoid oversimplifying the claims by looking at them generally and failing to account for the specific requirements of the claims." (quotation marks and quotation omitted)). The '890 patent focuses on the new and useful feature of controlling a home's HVAC thermostat by detecting whether an occupant is home based on mobile device location data.

The '890 patent's claimed advance makes clear that its claims are not directed to an abstract idea. *See Ancora Techs.*, 908 F.3d at 1347 ("We examine the patent's 'claimed advance' to determine whether the claims are directed to an abstract idea." (quotation omitted)). The '890 patent specification identifies the growing desire to increase energy efficiency amid rising energy prices. *See* '890 patent at 2:19-39. This trend included the hospitality industry, where HVAC systems in hotel rooms were often left operating while the rooms were unoccupied, wasting considerable energy. *Id.* at 2:40-47. To address this problem, hotels began incorporating motion sensors into their HVAC systems to turn the system off if the sensor did not detect any motion after a predetermined interval. *Id.* at 56-64. However, "the systems used in hotels do not easily transfer to the single-family residential HVAC systems" due to the size and functional differences

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1 between the average hotel room and the average home. *Id.* at 3:1-8. As the '890 patent

2 specification explains, while a hotel room tends "to be small enough that a single motion sensor is

3 sufficient to determine with a high degree of accuracy whether or not the room is occupied," "[a]

4 single motion sensor in the average home today would have limited value because there are likely

5 to be many places one or more people could be home and active yet invisible to the motion

6 sensor." *Id.* And though "[t]he most economical way to include a motion sensor in a traditional

7 programmable thermostat would be to build it into the thermostat itself," because "thermostats are

8 generally located in hallways," they were "unlikely to be exposed to the areas where people tend

9 to spend their time." *Id.* at 3:8-20.

10   To more accurately detect whether an occupant is home, the '890 patent uses a "significant

11 new technology" incorporated into mobile devices – "the ability to geolocate the device," *id.* at

12 3:37-40 – and claims an HVAC system configured to receive mobile device geolocation data

13 signals to detect and predict occupancy and adjust the HVAC system accordingly. Accordingly,

14 EcoFactor's invention solves the problem of managing energy consumption in a home based on

15 mobile device location signals. Such an invention is directed a non-abstract idea and thus patent-

16 eligible.

17   Because the '890 patent is not directed to an abstract idea at step one, the Court need not

18 reach *Alice* step two. *See Core Wireless Licensing*, 880 F.3d at 1363.

19 **IV.   CONCLUSION**

20   The Court **DENIES** Google's motion for judgment on the pleadings.

21   **IT IS SO ORDERED.**

22 Dated: 5/6/2022

23
                                    HAYWOOD S. GILLIAM, JR.
24   United States District Judge

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