



Defendants joined again (Docket No. 149). The parties fully briefed both motions<sup>4</sup>, and the Court heard argument on August 3, 2016. *See* Docket No. 154. For the reasons that follow, the *Allvoice* Motion is **GRANTED-IN-PART** and **DENIED-IN-PART** and the *Alice* Motion is **GRANTED-IN-PART** and **DENIED-IN-PART**.

## BACKGROUND

This is an action for patent infringement in which Plaintiff Automation Middleware Solutions, Inc. (“AMS”) alleges that the Defendants infringe certain claims of U.S. Patent Nos. 6,513,058 (“the ’058 Patent”); 6,516,236 (“the ’236 Patent”); 6,941,543 (“the ’543 Patent”); 5,691,897 (“the ’897 Patent”) and 8,073,557 (“the ’557 Patent”) (collectively, the “Asserted Patents”).

### 1. The Asserted Patents

The Asserted Patents “relate[] to motion control systems and, more particularly, to interface software that facilitates the creation of hardware independent motion control software.” ’897 Patent, col. 1:4–7.<sup>5</sup> Motion control devices have two basic components, a controller and a mechanical system. “The mechanical system translates signals generated by the controller into movement of an object.” *Id.* at col. 1:12–15. The controllers employ a motion control command programming language that, traditionally, is specific to the hardware or at least the manufacturer of the hardware. *Id.* at 55–63. These hardware-specific programs are referred to as “low-level programs.” *Id.*

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<sup>4</sup> With respect to the *Allvoice* motion, the Plaintiff’s response, Defendants’ reply and Plaintiff’s surreply are Docket Nos. 114, 122 and 128, respectively. With respect to the *Alice* Motion, the response, reply and surreply are Docket Nos. 118, 130 and 138, respectively.

<sup>5</sup> All the Asserted Patents take priority to the ’897 Patent and share substantially similar specifications. Accordingly, citations to the ’897 Patent represent similar or identical passages from the other specifications except where specifically stated otherwise.

In the context of factory automation, the Asserted Patents state that “high-level software programs, referred to sometimes as factory automation applications, allow a factory system designer to develop application programs that combine large numbers of input/output (I/O) devices, including motion control devices, into a complex system used to automate a factory floor environment.” *Id.* at col. 1:64–2:2. Traditionally, high-level software or application programs were “written to communicate using the communication protocol associated with one brand or model of motion control device [were likely not] able to communicate with the communication protocol associated [with] another brand or model of motion control device.” ’058 Patent, col. 2:34–39.

Because of the limitations of traditional application programs, “a user who wished to control multiple [heterogeneous] motion control devices with the prior art needed multiple application programs, each of which could communicate with a different group of motion control devices.” Docket No. 118 at 4. Accordingly, the inventors of the Asserted Patents “conceived of a [] three-tier system for motion control, which uses a ‘middleware’ layer of software to translate commands sent from the application program to the driver, thereby permitting an application program to control multiple motion control devices that speak different ‘languages.’ ” *Id.* at 5.

## **2. Prior Litigations Involving the Asserted Patents**

The Asserted Patents were asserted in two prior litigations in this District: *ROY-G-BIV Corp. v. Fanuc Ltd.* (“*Fanuc*”), Case No. 2:07-cv-418 (E.D. Tex. 2007) (Folsom, J.) and *ROY-G-BIV Corp. v. ABB, Ltd.* (“*ABB*”), Case No. 6:11-cv-622 (E.D. Tex. 2011) (Davis, J.). Both the *Fanuc* and *ABB* litigations settled before final judgment but after claim construction. *See Fanuc*, Docket No. 194 (“*Fanuc Order*”); *ABB*, Docket No. 196 (“*ABB Order*”) adopted by Docket No. 220.

### 3. Procedural History of this Litigation

AMS filed this suit against Defendants Invensys Systems, Inc. and Schneider Electric USA, Inc. on May 29, 2015. Docket No. 1.<sup>6</sup> AMS subsequently filed suits against the Emerson Defendants and the Rockwell Defendants (collectively, “Defendants”). Docket No. 1 in Case No. 2:15-cv-1266; Docket No. 1 in 2:15-cv-1269. The Court consolidated the cases for pre-trial purposes. Docket No. 25. In its briefing, AMS alleges that Defendants infringe claims 1–5 of the ’058 Patent, claims 1–9 of the ’236 Patent, claims 16–30 of the ’557 Patent, claims 17–25 of the ’897 Patent and claims 1–4 of the ’543 Patent. Docket No. 118 at 2.

During the pendency of the motions to dismiss, the parties filed their claim-construction briefs (Docket Nos. 192, 197, 200), and the Court held a *Markman* hearing on December 16, 2016. See Docket No. 215.

#### *ALLVOICE MOTION*

In their *Allvoice* Motion, Defendants allege that the claims of the ’058 and ’236 Patents are ineligible for patenting under 35 U.S.C. § 101 because they recite software that is neither claimed as a process nor claimed in any tangible form. Docket No. 47 at 2. AMS denies that the claims of the ’058 and ’236 Patents claim intangible software instructions and argues that, “[t]o the contrary, properly construed in light of the intrinsic evidence, the ’058 and ’236 Patents are machines and manufactures because they claim systems having software stored in a tangible computer-readable medium that generates commands for controlling mechanical devices.” Docket No. 114 at 1. In the alternative, AMS argues that the claims “qualify at least as a process, since software is fundamentally a series of steps.” *Id.* at 11.

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<sup>6</sup> Unless specifically indicated otherwise, all references to the docket are to Case No. 2:15-cv-898.

## LEGAL STANDARD

### 1. Federal Rule of Civil Procedure 12(b)(6)

Under Federal Rule of Civil Procedure 12(b)(6), the Court must dismiss a complaint that does not state a claim for relief that is “plausible on its face.” *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009) (quoting *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007)). To state a plausible claim, Plaintiff must plead facts sufficient to allow the Court to draw a reasonable inference that Defendants are liable for the alleged patent infringement. *See id.* (citing *Twombly*, 550 U.S. at 556). At this stage, the Court accepts all well-pleaded facts as true and views those facts in the light most favorable to the Plaintiff. *Bustos v. Martini Club, Inc.*, 599 F.3d 458, 461 (5th Cir. 2010).

### 2. Eligibility of Inventions Without Physical Form

An inventor may obtain a patent only if the invention falls into one of four statutory classes: processes, machines, manufactures and compositions of matter. 35 U.S.C. § 101; *In re Nuijten*, 500 F.3d 1346, 1352 (Fed. Cir. 2007). To be patent-eligible, a claim must either recite a process or, if it recites one of the other statutory classes of inventions, the invention must have some physical or tangible form. *Allvoice Devs. US, LLC v. Microsoft Corp.*, 612 F. App'x 1009, 1017 (Fed. Cir.), *cert. denied*, 136 S. Ct. 697 (2015) (“Except for process claims, ‘the eligible subject matter must exist in some physical or tangible form.’ ”) (internal quotation omitted). Claims reciting inventions that are not processes and also do not have a physical or tangible form are patent-ineligible. *Id.*; *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1348–49 (Fed. Cir. 2014).

## ANALYSIS

### 1. '236 Patent

Defendants assert that claim 1 of the '236 Patent is representative.<sup>7</sup> Claim 1 provides:

1. A system for generating a sequence of control commands for controlling a selected motion control device selected from a group of supported motion control devices, comprising:

a set of motion control operations, where each motion control operation is either a primitive operation the implementation of which is required to operate motion control devices and cannot be simulated using other motion control operations or a non-primitive operation that does not meet the definition of a primitive operation;

a core set of core driver functions, where each core driver function is associated with one of the primitive operations;

an extended set of driver functions, where each extended driver function is associated with one of the non-primitive operations;

a set of component functions;

component code associated with each of the component functions, where the component code associates at least some of the component functions with at least some of the driver functions;

a set of drivers, where

each software driver is associated with one motion control device in the group of supported motion control devices,

each software driver comprises driver code for implementing the motion control operations associated with at least some of the driver functions, and

one of the software drivers in the set of software drivers is a selected software driver, where the selected software driver is the software driver associated with the selected motion control device;

an application program comprising a series of component functions, where the application program defines the steps for operation motion control devices in a desired manner; and

a motion control component for generating the sequence of control commands for controlling the selected motion control device based on the component functions of the application program, the component code associated with the component functions, and the driver code associated with the selected software driver.

'236 Patent, col. 48:11–49:10.

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<sup>7</sup> AMS does not contest that claim 1 is representative, and the Court considers it as such for purposes of this motion.

Defendants argue that each limitation of claim 1 comprises only software. Docket No. 47 at 4–5 (citing ’236 Patent, col. 7:22–25, 7:57–59, 8:11–14, 8:26–30, 9:27–29). Defendants further argue that “[t]he only hardware even mentioned in the claims of the ’236 Patent is motion control devices and these are not claimed. Rather, the claims recite software ‘for controlling the selected motion device.’ This is a statement of intended use, and is not a limitation.” Docket No. 47 at 11 (internal citation omitted) (emphasis in original). Therefore, Defendants argue, the claimed “system” is a software-only system that is not limited to any tangible form.

AMS counters that “[b]ecause the ’236 Patent claims cover systems that generate commands, rather than commands themselves, the claims are at least machines.” Docket No. 114 at 7. AMS further argues that the claimed software must be “stored on a manufacture, such as tangible computer-readable medium” because the system as claimed must be able to generate motion control commands, call driver functions and implement motion control operations. *Id.* at 8. Additionally, AMS argues that references in the ’236 Patent claims to “a group of supported motion control devices” “are clearly not mere statement[s] of intended use.” *Id.* at 8–9. Rather, AMS argues, the references to devices act as “additional ‘reference points’ that ‘provide[] guidance in understanding and construing the claim’ ” and “make clear that the system of the . . . ’236 Patent[] control[s] mechanical devices, and therefore, the claimed components exist in a tangible computer-readable medium.” *Id.* Finally, AMS argues that even if the claims do not claim more than software, they are nonetheless patent-eligible either because they are processes or because there is no “bright-line rule that all software claims are unpatentable unless claimed as a process, or the claims recite a tangible or physical device.” *Id.* at 11.

In order to be patent-eligible, the claims of the ’236 Patent must either recite processes or an invention fixed in a tangible medium. *See Allvoice*, 612 F. App’x at 1017. Because the

claims of the '236 Patent do not recite processes or claim an invention fixed in a tangible medium, they are patent-ineligible.

The claims of the '236 Patent are not directed to processes. The preambles of the claims are directed to “system[s].” Claims that recite “systems” may be directed to processes, but the patentee’s choice not to use words like “method” or “process” is nonetheless significant. Although the common meaning of “system” can, in some circumstances, embrace a “process,” the context of the claims makes clear that is not the usage here. Unlike many claims directed to processes, the claims of the '236 Patent never mention “steps.” Moreover, the claim elements themselves are not process steps but rather sets of operations, functions or drivers; component code; an application program; and a motion control component. The individual elements are not phrased as process steps, and the Court declines to read into the claims words such as “providing” that are usually used to denote method steps. The specific words of the claims of the '236 Patent and the claims as a whole demonstrate that the claims are not directed to processes.

Because the claims of the '236 Patent are not directed to processes, they must limit the claimed software to a tangible form in order to be eligible. *See Digitech*, 758 F.3d at 1348. The '236 Patent claims do not explicitly recite “a computer readable medium” or similar language, so the tangible medium must be inferred from other claim language. AMS argues that, in order to perform the system functions (e.g., generate motion control commands), the claimed software must exist in some tangible form. The Federal Circuit rejected this argument in *Allvoice* and “declin[e]d] to import . . . a tangible medium into claims that fail[ed] to recite or reference any such medium.” 612 F. App’x at 1018. Similarly, this Court declines to import a tangible medium based only on the claims reciting computer-related functions. Moreover, the fact that the claimed systems generate commands “for controlling a selected motion control device” does not imply that any



such device is part of the system. Finally, this Court previously construed, and AMS asks the Court to construe again, the term “motion control component” to mean “an intermediate software layer . . .” without reference to any hardware. *Fanuc* Order at 50; Docket No. 192 at 37. None of the limitations of the claims of the ’236 Patent requires any hardware or tangible medium in which the claimed software must be embodied.

In sum, the claims of the ’236 Patent are not directed toward processes and not limited to tangible embodiments of the claimed software. Accordingly, the *Allvoice* Motion is **GRANTED-IN-PART** as to claims 1–10 of U.S. Patent No. 6,516,236 because they are not directed to patent-eligible subject matter.

## **2. ’058 Patent**

For the same reasons that apply to the ’236 Patent above, the claims of the ’058 Patent are not directed to processes. Accordingly, the claimed software of the ’058 Patent is also patent-ineligible if the software is not reduced to a physical or tangible form.

The ’058 Patent has five claims, of which claims 1, 3 and 4 are independent. The elements of claim 1 on which AMS relies to show a physical or tangible form are “a software system operating on at least one workstation” and “a network communication protocol that allows the control commands to be communicated from the control command generating module on the at least one workstation to at least one of the supported hardware devices over a network.” Docket No. 114 at 4–5, 6–7. Dependent claim 2 further limits those elements of claim 1 so that “the software system operates on a plurality of workstation[s],” and “the network communication protocol allows the component functions to be communicated from the application program on the first of the plurality of workstations to control command generating module on the second workstation over the network.” Claims 3 and 5 also include “operating on a workstation” and

“network communication protocol” limitations, and claim 4 includes the “network communication protocol” limitation but lacks the “operating on a workstation” limitation. ’058 Patent, col. 50:33–52:20.

The “network communication protocol” limitations do not imply a physical form. AMS admits that the protocol must be “implemented in software” but argues that it “cannot allow communication between workstations and hardware devices ‘over a network’ unless it is first implemented in software stored on a tangible medium.” Docket No. 114 at 7. A network communication protocol can exist in the abstract and “allow” communication among devices over a network even if the network and devices do not actually exist or never actually communicate. The “network communication protocol” limitations do not imply a physical form because they require only that the claimed network communication protocol have the capability to communicate over a network and do not require any actual communication.

With respect to the “operating on a workstation” limitations, AMS argues that the “operating on a workstation” limitations “are not mere ‘statements of transitory operation’ ” but rather “express actual ‘states’ of the system components.” Docket No. 114 at 5 (citing *Imperium (IP) Holdings, Inc. v. Apple Inc.*, Case No. 4:11-cv-163, 2012 WL 6949611, at \*28 (E.D. Tex. July 2, 2012)). The *Imperium* order AMS cites is a *Markman* order in which the Court analyzed a different patent’s claims and construed certain gerund clauses (similar to “operating on a workstation”) as “states, not merely capabilities.” The Court in *Imperium* never ruled on the patent-eligibility of the claims and ultimately granted summary judgment of non-infringement on unrelated grounds. See *Imperium*, Case No. 4:11-cv-163, Docket No. 501.

If, as AMS suggests, “operating on a workstation” is merely a “state” of the claimed software, then such a state may be transitory. AMS has provided no evidence that such a “state”

must be continuous, and AMS provides no authority supporting that such “states” are not transitory or that claims containing such conditionally-infringed limitations are patent-eligible. Because AMS’s proposed construction of “operating” as a “state” would render the claims invalid, it must be rejected for purposes of this motion to dismiss unless no other plausible construction is available. *See Clear with Computers, LLC v. Dick’s Sporting Goods*, 21 F. Supp. 3d 758, 764 (E.D. Tex. 2014) (holding that, on a motion to dismiss, the Court may adopt a construction more favorable to the patentee).

AMS’s briefing provides a second construction by which “operating” refers to a capability, rather than a state, of the claimed software. AMS argues that “[t]he claimed software system, application program, and control command generating module components cannot operate or run ‘on at least one workstation’ without first being stored on a tangible computer-readable medium.” Docket No. 114 at 6 (citing *SSL Servs., LLC v. Cisco Sys., Inc.*, Case No. 2:15-cv-443, 2016 WL 2889625, at \*19 (E.D. Tex. May 17, 2016); *Syncpoint Imaging, LLC v. Nintendo of Am. Inc.*, No. 2:15-cv-247, 2016 WL 55118, at \*22 n.6 (E.D. Tex. Jan. 5, 2016)<sup>8</sup>). In *SSL*, the Court analyzed a claim directed to “computer software for installation” and concluded that it was “unclear whether the ‘for installation’ limitation mean[t] that the claimed invention [was] embodied in a non-transitory tangible form.”<sup>9</sup> 2016 WL 2889625, at \*19. The *SSL* Court held that the defendants in

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<sup>8</sup> The cited document is a *Markman* order, and the specific citation is to a footnote that defines a *Beauregard* claim. In the cited portion, the Court analyzes a claim, the preamble of which specifically recited “a computer readable storage medium.” *Syncpoint*, 2016 WL 55118, at \*23. Accordingly, *Syncpoint* is inapposite and is not analyzed further.

<sup>9</sup> Defendants argue that the patent analyzed in *SSL* “claimed ‘a server and a plurality of client computers’ on which the software was installed.” Docket No. 122 at 3 (citing *SSL*, 2016 WL 2889625, at \*2). The claim to which Defendants ostensibly refer is a different claim, although from the same patent, from the one analyzed in the portion of the opinion cited by AMS. Claims in the same patent do not affect one another for the purposes of this analysis. *See Aatrix Software, Inc. v. Green Shades Software, Inc.*, Case No. 3:15-cv-164, 2016 WL 1375141, at \*10 (M.D. Fla.

that case had not shown, on the record, that the analyzed claim encompassed unpatentable subject matter. *Id.*

As in *SSL*, the Court cannot determine, on the present record, whether the claimed capability to operate on a computer requires the claimed software to exist in a tangible form. Defendants have argued that “operating on a workstation” is not the same as “fixing the software on the workstation” or “stored on a workstation.” Docket No. 122 at 2–3. The relevant inquiry is not whether the workstation itself is the tangible medium in which the software is embodied but rather whether the capability to operate on a workstation implies that the software must be fixed in a tangible medium. Although the Federal Circuit in *Allvoice* declined to import such inferences into the claims as limitations, it did not hold that such an inference is categorically inappropriate, especially where the claim language supports such an inference. *See Allvoice*, 612 Fed. App’x at 1018; *SSL*, 2016 WL 2889625, at \*19 (citing *Allvoice* but declining to rule out implied limitation where claim language was unclear). Here, “operating on a computer” supports the inference that a physical medium is required because the claim language directly invokes the computer instead of merely computer-related functions. Because Defendants fail to show that the “operating on a workstation” limitation does not require the claimed software to be fixed in a tangible medium, the Court denies the *Allvoice* Motion with respect to claims that contain it.

In sum, the *Allvoice* Motion is **GRANTED-IN-PART** with respect to claim 4 and **DENIED-IN-PART** with respect to claims 1, 2, 3 and 5 of U.S. Patent No. 6,513,058.

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Mar. 30, 2016) (distinguishing, for purposes of an *Allvoice* analysis, an independent claim not reciting a tangible medium from its dependent claim that did).

## ***ALICE* MOTION**

In their *Alice* Motion, Defendants allege that the Asserted Patents are “patent-ineligible as a matter of law under 35 U.S.C. § 101 and *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014)” because they are directed to abstract ideas. Docket No. 50 at 1. AMS responds that Defendants fail to prove that any asserted claims of the Asserted Patents are directed to unpatentable abstract ideas under *Alice*. Docket No. 118 at 1.

## **LEGAL STANDARD**

### **1. Eligibility Under 35 U.S.C. § 101**

In determining whether a claim is patent-ineligible under *Alice*, the Court must “first determine whether the claims at issue are directed to a patent-ineligible concept.” *Alice*, 134 S. Ct. at 2355. Claims directed to software inventions do not automatically satisfy this first step of the inquiry. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016). Rather, “the first step in the *Alice* inquiry . . . asks whether the focus of the claims is on [a] specific asserted improvement in computer capabilities . . . or, instead, on . . . an ‘abstract idea’ for which computers are invoked merely as a tool.” *Id.* at 1335–36.

If the Court determines that the claims are directed to an abstract idea, it must then determine whether the claims contain an inventive concept sufficient to transform the claimed abstract idea into a patent-eligible application. *Alice*, 134 S. Ct. at 2357. An inventive concept is “some element or combination of elements sufficient to ensure that the claim in practice amounts to ‘significantly more’ than a patent on an ineligible concept.” *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1255 (Fed. Cir. 2014). The Court “consider[s] the elements of each claim both individually and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible application.” *Alice*, 134 S. Ct. at 2355

(internal quotation omitted). Even if each claim element, by itself, was known in the art, “an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces.” *Bascom Global Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).

## ANALYSIS

### 1. *Alice* Step One

Defendants argue that the Asserted Patents are directed to the abstract idea of moving an object in a desired manner by communicating commands. Docket No. 50 at 14. Defendants state that movement of objects in desired ways via commands is “nothing new” and cite the Great Pyramids among other examples of people moving objects in desired ways. *Id.* at 14–15. They further state that movement of objects in desired ways was fundamental to industry before computers. *Id.* at 15. Defendants argue that because computers did not “change the fundamental abstract idea of causing machines to move in desired ways,” the Asserted Patents automate existing activity with general-purpose computers, which is not patentable. *Id.* at 15–16. Defendants contend that the specification of the Asserted Patents confirms the abstractness of the claims “by inviting a ‘software system designer’ (a human being) to write code to accomplish the communication for motion control that is desired.” *Id.* at 16.

Defendants next argue that the claims are abstract because “[s]imilar computer-dressed claims have been found to comprise an abstract idea.” *Id.* at 16-17 (citation omitted). They state that the inclusion of hardware limitations in some of the asserted claims does not alter this conclusion because “the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” *Id.* at 17 (citing *Alice*, 134 S. Ct. at 2358).

Defendants contend that during prosecution of the Asserted Patents, the patentee made admissions before the Patent Office “that reflect the patent is directed to the concept of an ‘intermediate software layer’ that allows the motion control device to understand the motion commands.” *Id.* at 17–18. They argue that “[t]he idea that there needs to be a bridge in communication between two things that do not speak the same ‘language’ is also as abstract as it gets” and “[t]he idea of a middleman to serve as a communication bridge is a well-known and basic concept.” *Id.* at 18.

Finally, Defendants argue that the system claims are the same as the method claims for purposes of the § 101 analysis. *Id.* They also state, “AMS cannot preempt the idea of a three layer hierarchy, wherein the middle layer translates or correlates.” *Id.* Defendants assert that the Asserted Patents solve the problem of miscommunication between an application program and a motion control device by proposing that someone write a middle layer of software to permit the communication. *Id.*

In response, AMS argues that Defendants fail to prove that the asserted claims are directed to an abstract idea. Docket No. 118 at 15. AMS points out that Defendants offer varying formulations of the alleged abstract idea and argue that Defendants’ “failure to pinpoint a precise abstract idea” shows that the claims are not clearly directed to an abstract idea. *Id.* at 15–16. AMS further argues that all of Defendants’ formulations of the alleged abstract idea are “overbroad and completely untethered to the individual claim limitations provided in **over 50** claims of the **5** different patents-in-suit.” *Id.* at 16 (emphasis in original).

AMS also faults Defendants for not performing a patent-by-patent or claim-by-claim analysis of step one of *Alice*, especially because Defendants do not contend that any claim is representative. *Id.* at 17. Plaintiff states that “[a]ll 56 asserted claims of the 5 patents-in-suit

cannot possibly be ‘directed to’ the same alleged abstract idea, let alone the 6 different ideas proposed by [Defendants].” *Id.* AMS further faults Defendants for not analyzing “whether the claims are directed to an improvement to computer functionality versus being directed to an abstract idea.” *Id.* at 17–18 (citing *Enfish*, 822 F.3d at 1335).

AMS next argues that the claims are not abstract because they recite a particular middleware layer of software that “improve[s] the functioning of motion control systems [by] allowing them to be interoperable with various motion control devices manufactured by other companies.” *Id.* at 18. AMS states that the prior constructions of certain claim terms “further clarify that the claims are directed to improving the functionality of prior art motion control systems and not on tasks for which a computer is used in its ordinary capacity.” *Id.* at 19. AMS contends that the specifications of the Asserted Patents confirm that the claims “relate to improvements of computer technologies and technological processes.” *Id.* AMS argues that Defendants oversimplify the claims by comparing them to “a conventional translator, conversion tool, and look-up table.” *Id.* at 21. AMS compares this alleged oversimplification to the reversed district-court holding in *Enfish* that the claimed self-referential table is like a conventional “table with a simple header row.” *Id.* (citing *Enfish*, 822 F.3d at 1338).

The Asserted Patents are directed to the abstract idea of “a middle translating layer.” That Defendants offer varying formulations of the alleged abstract idea is not fatal to their motion because “[a]n abstract idea can generally be described at different levels of abstraction.” *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1240 (Fed. Cir. 2016). Although the Court agrees with Plaintiff that the formulation “moving objects in a desired manner” does not adequately describe the claims as a whole, the Court agrees with Defendants the claims are directed “a middle translating layer.” The focus of the claims is not on motion control devices; rather, the claims



focus on generating a sequence of control commands “based on the application program, the component code, and the driver code of the selected software driver.” *E.g.*, ’897 Patent, col. 36:42–43, 37:9–11. This “generating” requires translating inputs from the application program’s language into one or more drivers’ programming language.

The claimed middleware layer does not improve the functioning of a computer. The specification of the ’897 Patent admits that prior art “factory automation applications allow[ed] any number of [input/output] devices to be used in a given system, as long as these devices are supported by the high-level program.” ’897 Patent, col. 2:3–5. The Asserted Patents’ alleged improvement over the prior art is allowing more devices to be “supported by the high-level program” by interposing a middleware layer that translates between the language of the high-level program and the various languages of the claimed motion control devices. As a practical matter, users of the claimed systems may have experienced benefits such as reduced costs from the ability to control heterogeneous motion control devices, but these benefits are not sufficiently technological to remove the abstractness of the claims under *Enfish*. *See* 822 F.3d at 1339.

In sum, the Asserted Patents are directed to the abstract idea of a “middle translating layer.”

## **2. *Alice* Step Two**

At the second step of the *Alice* eligibility inquiry, the Court evaluates “whether the claims here do more than simply instruct the practitioner to implement the abstract idea . . . on a generic computer.” *Alice*, 124 S. Ct. at 2359. The Court first analyzes the claim elements separately and then as an ordered combination. *Id.* at 2359–60.

### **a. The ’543 Patent**

The ’543 Patent has four surviving claims, of which claim 1 is independent and claims 2–4 are dependent. Claim 1 provides:

1. A method of moving an object in a desired manner using a motion control device from a group of supported motion control devices, comprising the steps of:
  - (i) selecting a software driver from a plurality of software drivers, each of the plurality of software drivers comprising driver code to control one or more motion control devices;
  - (ii) generating a control command based on an application program and the driver code of the selected software driver; and
  - (iii) operating the selected motion control device in accordance with the control command to move the object.

'543 Patent, col. 47:17–29.

Defendants argue that the three claimed steps—selecting a driver, generating a control command, and operating the selected motion control device in accordance with the command—are “fundamentally how communication of commands to peripheral devices must operate.” Docket No. 50 at 20. They argue that this sequence of steps is the same as is used to control ubiquitous computer-peripheral devices such as printers. *Id.* at 21.

Defendants contend that the Asserted Patents acknowledge that the three steps of claim 1 were routine and conventional at the time of the original filing. They point to the specification’s reference to “the *common programming practice* in which drivers are provided for hardware such as printers or the like [and] an application program such as a word processor allows a user to select a driver associated with a given printer to allow the application program to print on that given printer.” *Id.* (quoting '543 Patent, col. 3:7–12) (emphasis in original). Defendants argue that “[l]imiting this ‘common programming practice’ to the field of automated motion control does not make it patentable.” *Id.*

AMS argues that Defendants fail to show that the asserted claims of the '543 Patent lack an inventive concept. Docket No. 118 at 23. AMS contends that the claimed steps “cover more than the sequence of steps necessary to implement any type of motion control on computers” because conventional systems were tailored to one driver so it was not necessary to “select[] a

software driver from *a plurality of software drivers.*” *Id.* (emphasis in original). AMS states that Defendants’ printer analogy is inapposite because most printers use a single driver and, additionally, because printers are not capable of moving objects like motion control devices as required by the claims. *Id.*

AMS next argues that the specifications of the Asserted Patents distinguish the “common programming practice” cited by Defendants from the claimed invention. *Id.* at 24. Accordingly, AMS states, the ’543 Patent does not preempt traditional motion control systems or the steps necessary to print on a computer. *Id.*

AMS argues that the use of “incremental steps” in the asserted claims provides an inventive concept through improvements over the prior art. *Id.* at 24–25. AMS faults Defendants for “provid[ing] no evidence showing that the particular improvements provided by the methods and systems covered by the patents-in-suit were conventional and well-known in the art.” *Id.* at 25.

Claim 1 of the ’543 Patent does not contain an inventive concept. AMS’s argument regarding multiple drivers as opposed to a single driver is unavailing because prior-art computers have been used with more than one printer and with more than one kind of peripheral device. Prior art computers also “selected from a plurality of software drivers” if they used one printer but not another. Such selection is a routine function of general-purpose computers. Moreover, Defendants are correct that operability with motion control devices is the necessary result of applying a middleware layer in the industrial motion-control field-of-use. That users have greater control over the finer steps of motion control devices also does not show that claim 1 has an inventive concept because the greater control is a by-product of applying the middleware concept in the field of industrial motion control instead of in consumer goods such as printers.

Claim 1 is also not inventive because it does not limit the concept of using a middleware layer. Claim 1 is not specific about how to accomplish “generating a control command based on an application program and the driver code of the selected software driver.” Because the claim recites “generating” at such a high level of generality, the claim is directed to the result—that the commands are generated and the object is moved—and not to a particular way of accomplishing it.

Finally, AMS’s argument that the alleged advantages of the claimed invention are not conventional misunderstands the inquiry. Advantages frequently arise from implementing long-standing practices using conventional computer technology, and courts have held invalid patents that apply long-standing practices using conventional computer technology notwithstanding those advantages. *See Bilski v. Kappos*, 561 U.S. 593, 607–608. At step two of *Alice*, the Court properly looks to whether the computer technology involved in the claims is conventional and whether the claim limitations recite routine, generic or conventional activity. *See, e.g., Alice*, 134 S. Ct. at 2359 (finding the individual claim limitations were well-understood, routine and conventional). Whether the purported advantages of the claimed invention were themselves routine or conventional is irrelevant.

In sum, claim 1 of the ’543 Patent does not provide an inventive concept and is drawn to patent-ineligible subject matter.

Claim 2 depends from claim 1 and additionally limits the “generating” step so that it is “further based on a set of driver functions, each driver function defining one or more incremental motion steps that may be performed by the motion control device.” ’543 Patent, col. 47:30–34.

As stated above, “incremental motion steps” do not provide an inventive concept in the context of claim 1.<sup>10</sup> Claim 2 does not add an inventive concept.

Claim 3 depends from claim 2 and additionally limits the application program to “comprise[] a sequence of component functions, and at least some of the component functions are associated with driver functions.” *Id.* at col. 47:35–38. Claim 3 announces the existence of the middleware layer without meaningfully limiting it and therefore provides no inventive concept.

Claim 4 depends from claim 3 and further limits the “set of driver function” to two groups comprising incremental motion steps and compound (i.e., aggregated incremental) motion steps. This does not limit the middleware layer because it only addresses the “lower layer” of software drivers. Moreover, it provides only routine activity because drivers routinely comprise simpler commands (e.g., “ON”) and more complex commands (e.g., “PRINT”). Accordingly, claim 4 does not provide an inventive concept.

In sum, none of the asserted claims of the ’543 Patent recite patent-eligible subject matter.

**b. The ’857 Patent**

AMS alleges infringement of claims 17–25 of the ’897 Patent. Claim 17, the only independent claim asserted here, recites:

17. A method of generating a sequence of control commands for controlling a motion control device to perform a given series of motion steps based on an application program defining the given series of motion steps, the method comprising the step of:

defining a set of motion control operations, where each motion control operation is either a primitive operation that is necessary to perform motion control and that cannot be simulated using other motion control operations or a non-primitive operation that does not meet the definition of a primitive operation;

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<sup>10</sup> Although, under the doctrine of claim differentiation, the additional limitation of claim 2 would suggest that claim 1 is not so limited, the Court ignores claim differentiation for the purpose of this motion because it must construe the claims in the light most favorable to the Plaintiff.

defining a core set of core driver functions, where each core driver function identifies one of the primitive operations;

defining an extended set of extended driver functions, where each extended driver function identifies one of the non-primitive operations;

defining a set of component functions;

providing component code for each of the component functions, where the component code cross-references at least some of the component functions with at least some of the driver functions;

developing a set of software drivers, where (i) each software driver is developed for a motion control device in a supported group of motion control devices and (ii) each software driver comprises driver code for implementing the motion control operations identified by at least some of the driver functions;

selecting one motion control device from the group of supported motion control devices;

selecting from the set of software drivers the software driver developed for the selected motion control device; and

generating control commands based on the application program, the component code, and the driver code of the selected software driver.

'897 Patent, col. 36:42–37:12.

Defendants argue that the final three steps of claim 1 (and similarly, claim 17) “recite the same basic ingredients described above with respect to the '543 Patent, but the claim adds additional words that merely describe the context or environment in which the steps are performed.” Docket No. 50 at 25. Defendants further allege that claim 17 “relies on technical jargon to convey the illusion of greater limitations.” *Id.*

Defendants characterize the claim as essentially reciting “how to” instructions for writing motion-control software using generic building blocks without describing any particular claimed software. *Id.* at 26. Defendants argue that the claimed distinction between primitive and non-primitive operations is “merely categorizing and reusing labels *already in use* in computer programming long before the asserted patents were filed.” *Id.* at 26–27 (emphasis in original).

AMS argues that the steps of claim 17 cannot be performed by humans because some embodiments of the '897 Patent do not utilize software designers. Docket No. 118 at 26. AMS

states that the distinction between primitive and non-primitive operations provides improvements over the prior art. *Id.* AMS also argues that Defendants have not shown that emulation of non-primitive operations by primitive operations is routine or conventional. *Id.*

AMS construes claim 17 so that it does not require designers in every embodiment, but AMS's proposed construction does not give rise to an inventive concept. A designer is not required in every embodiment because the "defining" steps of the claim may be met if the various functions and operations are pre-defined. A construction under which the software itself performs the claimed "defining" and is completely divorced from any human intervention is implausible. Thus, the "defining" limitations reflect programmer or designer input to the claimed software whether or not the programmer's or designer's involvement is specifically required in every embodiment.

AMS is incorrect that the claimed distinction between primitive and non-primitive operations and emulation of non-primitive operation using primitive ones provide an inventive concept. AMS's argument that a printer and its driver are distinct from the claimed invention essentially argues that printer drivers give users control only over complex, non-primitive operations. The printer driver necessarily assembles primitive functions such as moving the print head using a lateral motor and spraying the ink by opening a valve, etc., into the non-primitive "PRINT" operation. Further, the labels "primitive" and "non-primitive" were in common use in the software arts at the time of invention. Accordingly, the distinction between primitive and non-primitive functions and the emulation of non-primitive functions with primitive ones, considered together, amount to no more than a detailed description of routine and conventional tools in the software arts. Thus, claim 17 does not provide an inventive concept.

Claim 18 depends from claim 17 and limits the "developing" step by instructing the original developer to develop driver code "to implement all of the core driver functions." '897

Patent, col. 37:12–15. Developing driver code to implement all of the core driver functions is routine and conventional computer activity and does not meaningfully limit the concept of using a middleware layer in motion control. Claim 18 therefore does not provide an inventive concept.

Claim 19 depends from claim 18 and further limits the “developing” step by instructing the original developer to implement at least some of the extended driver functions. As with claim 18, the instruction to a developer to write driver code—whether for core or extended driver functions—is routine computer activity and does not provide an inventive concept.

Claim 20 is directed to emulating non-supported extended driver functions using a plurality of core driver functions. Claim 20 highlights that, in the claimed scheme, the middleware layer rather than the lower-level hardware controller combines the core functions into extended ones. In other words, the claimed scheme uses activity that is routine in driver development as part of the middleware layer. This shows that the claimed middleware layer comprises routine and conventional activity, not that it represents a departure from what was previously routine or conventional. Claim 20 thus does not provide an inventive concept.

Claim 21 depends from claim 20 and further requires “developing an extended function pointer table” that maps combinations of core functions that emulate certain extended functions. Claim 21 confirms that the claimed emulation is the routine combination of simpler steps (e.g., moving a print head and opening an ink valve) into more complex ones (e.g., printing a document). Storing these combinations in a pointer table is a routine method used in the software arts. Accordingly, claim 21 does not provide an inventive concept.

Claim 22 further limits the pointer table of claim 21, requiring that it refer directly to extended driver functions when those are available and that it refer to the claimed combinations of core functions for non-supported extended functions. Although one can imagine a system in which



a software developer ignores supported extended functions and writes his or her own combinations of core functions to emulate all extended functions, the more efficient route would be to use the extended driver functions that come with the driver and only to emulate those that do not. Accordingly, claim 22 does not meaningfully limit the idea of using a middleware layer because it merely highlights common-sense conditions under which the middleware layer is less useful (i.e., when the driver already supports a desired extended function) and when the middleware layer is more useful (i.e., when the driver does not support the desired extended function).

Claim 23 recites additionally determining what unit system the driver uses and converting the unit system of the application program into the driver unit system. The specification describes a “CUnitMapper object” that is used to “map units between the Part Coordinate System (PCS) and the Machine Coordinate System (MCS).” ’897 Patent, col. 10:64–66. The specification uses the “UnitMapper” as a label for any generic software component that converts between unit systems. Converting between units is itself an abstract idea and does not provide an inventive concept. *See Gottschalk v. Benson*, 409 U.S. 63, 71–72 (1972) (holding invalid a patent on converting binary-coded decimal numerals to pure binary numerals). Claim 7 therefore fails to provide an inventive concept.

Claims 24 and 25 introduce the claim element “streams,” which are generally data streams carrying commands down the three-tier hierarchy from the application program to the motion control devices and, in some embodiments, also carrying sensory data from sensors or read operations (e.g., “GET POSITION”) back to the application program. Defendants do not make arguments with respect to the “stream” limitations and do not carry their burden to show that they constitute routine or conventional activity. Accordingly, Defendants’ *Alice* Motion is denied as to claims 24 and 25.

**c. The '557, '058 and '236 Patents**

Claim 16, the only independent claim of the '557 Patent that AMS asserts, is almost identical to claim 17 of the '897 Patent except that it is claimed as a system instead of a method. Motion control devices are explicitly required by claim 16 of the '557 Patent, whereas claim 17 of the '897 Patent only refers to unclaimed motion control devices; this does not rescue the patent-eligibility of claim 16 because the motion control devices are post-solution activity. Moreover, motion control devices are claimed generically and encompass a large class of input/output devices, including conventional devices. For the same reasons that claim 17 of the '897 Patent lacks an inventive concept, claim 16 of the '557 Patent also lacks an inventive concept.

Dependent claims 17–22 and 27–30 do not provide an inventive concept as they are analogous to the dependent claims of the '543 and '897 Patents held to lack inventive concepts above. Claims 21, 27 and 28 recite a “binary module,” a limitation not introduced previously. The claims do not provide an inventive concept because writing binary software modules was conventional activity at the time of invention. Moreover, “binary module” is a generic class of modules and does not indicate that the claims are directed to specific software solutions.

Claims 23–26, by contrast, recite “stream” limitations. For the same reasons stated above for claims 24 and 25 of the '897 Patent, the Court denies Defendants' *Alice* Motion with respect to claims 23–26.

Claim 1 of the '058 Patent is similar to claim 16 of the '557 Patent and claim 17 of the '897 Patent except that it additionally recites a “network communication protocol” for communicating the generated commands over a network. The network communication protocol is claimed generically and is not limited to any particular protocol. Furthermore, protocols for network communication were routinely used in the computer arts at the time of invention. Claim 1 thus

does not contain an inventive concept. Claim 4 is substantially similar to claim 1 and fails to recite an inventive concept for the same reasons.

Claims 2, 3 and 5 of the '058 Patent require that the application program run on a first workstation and the middleware layer run on a second workstation. Defendants have not established that this arrangement of computer components was conventional at the time of filing. A non-traditional arrangement of computer components may provide an inventive concept even where the components themselves are routine or conventional. *Bascom*, 827 F.3d at 1350. Accordingly, Defendants have not shown the ineligibility of claims 2, 3 and 5.

Claim 1 is the only asserted independent claim of the '236 Patent. It is substantially similar to claim 1 of the '058 Patent, claim 16 of the '557 Patent and claim 17 of the '897 Patent. For the reasons stated above with respect to those claims, claim 1 does not provide an inventive concept. Similarly, dependent claims 2–7 do not provide inventive concepts because they are substantially similar to the dependent claims of the '543 and '897 Patents. Claims 8 and 9 refer again to “streams,” which Defendants have not adequately addressed. Accordingly, the *Alice* Motion is granted with respect to claims 1–7 and denied with respect to claims 8 and 9 of the '236 Patent.

### CONCLUSION

For the reasons stated above, it is hereby

**ORDERED** that the *Allvoice* Motion (Docket No. 47) is **GRANTED-IN-PART** with respect to claims 1–10 of the '236 Patent and claim 4 of the '058 Patent and is **DENIED-IN-PART** in all other respects; it is further

**ORDERED** that the *Alice* Motion (Docket No. 50) is **GRANTED-IN-PART** with respect to claims 1–4 of the of the '543 Patent, claims 17–23 of the '897 Patent, claims 16–22 and 27–30 of the '557 Patent, claims 1 and 4 of the '058 Patent, and claims 1–7 of the '236 Patent; and

**ORDERED** that the *Alice* Motion (Docket No. 50) is **DENIED-IN-PART** with respect to claims 24 and 25 of the '897 Patent, claims 23–26 of the '557 Patent, claims 2, 3 and 5 of the '058 Patent, and claims 8 and 9 of the '236 Patent. It is further

**ORDERED** that the Rockwell Defendants' motions (Docket Nos. 57 and 149) are **GRANTED-IN-PART** and **DENIED-IN-PART** to the same extent as the *Allvoice* and *Alice* Motions; and

**ORDERED** that Defendants may renew their challenge to the surviving claims under *Alice* after the Court issues its claim construction order only to the extent that the claim construction bears on the limitations held to support the eligibility of the surviving claims.

**So ORDERED and SIGNED this 31st day of March, 2017.**

  
ROBERT W. SCHROEDER III  
UNITED STATES DISTRICT JUDGE