2026-1248

United States Court of Appeals for the Federal Circuit

AMERANTH, INC.,

Plaintiff-Appellant,

– v. –

DOORDASH, INC.,

Defendant-Appellee.

On Appeal from the United States District Court for the District of Delaware in No. 1:25-cv-00180-JCB Honorable Campbell J. Barker, Judge

BRIEF FOR PLAINTIFF-APPELLANT

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FEDERAL CIRCUIT RULE 32(a)(3) STATEMENT

U.S. Patent No. 11,276,130

1. An intelligent web server computer with multi-modes of contact, multi-communications protocols, multi-user and parallel operational capabilities for use in completing remotely initiated hospitality food/drink delivery or pick up ordering tasks comprising;

at least one said web server computer with web server software;

at least one hospitality food/drink ordering software application for delivery or pick up orders integrated with the at least one said web server computer;

an advanced master database comprising data and parameters of the at least one hospitality food/drink ordering software application integrated with the at least one said web server computer and with a usable menu file structure dictated prior to task execution and is accessible via its own database API and with one or more predefined formats stored within it and which intelligently learns, updates and stores multiple communication modes of contact and related operational parameters for hospitality entities and for remote hospitality users along with their prior attributes or preferences, if any and then intelligently applies them;

Middleware/Framework Communications Control Software (MFCCS) which enables via its centralized system layer architecture the at least one said web server computer to communicate with two or more remote wireless handheld computers and for multiple modes of contact, multiple communications protocol functionality, integrated with the master database and with the at least one hospitality food/drink ordering software application;

at least one external software API, which enables the full integration of the at least one hospitality food/drink ordering software application and the MFCCS with one or more non hospitality applications via the internet;

the external software API integrating with and leveraging the advanced master database to enable the importing of food/drink menus including required and non-required modifiers which are then automatically reflected throughout the master menu tree file structure, improving efficiency while eliminating the necessity of continually querying or checking every tree branch in the master menu tree file structure when responding to remote user requested tasks and/or other inputs;

wherein the at least one said web server computer is integrated with the MFCCS, the hospitality food/drink ordering software and is programmed with instructions enabled to intelligently choose and apply multiple and different modes of contact and/or different communications protocols, if applicable with the said hospitality entities and/or said remote users associated with the user requested

hospitality food/drink delivery or pick up ordering application tasks and is enabled to support the completion of those tasks.

2. The intelligent web server of claim 1 further enabled to assign and apply sub-modifiers to the required or non required modifiers.

3. The intelligent web server of claim 1, further enabled to include meal preparation times in the food/drink ordering.

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

CERTIFICATE OF INTEREST

Case Number 2026-1248

Short Case Caption Ameranth, Inc. v. DoorDash, Inc.

Filing Party/Entity Ameranth, Inc.

Instructions:

1. Complete each section of the form and select none or N/A if appropriate.
2. Please enter only one item per box; attach additional pages as needed, and check the box to indicate such pages are attached.
3. In answering Sections 2 and 3, be specific as to which represented entities the answers apply; lack of specificity may result in non-compliance.
4. Please do not duplicate entries within Section 5.
5. Counsel must file an amended Certificate of Interest within seven days after any information on this form changes. Fed. Cir. R. 47.4(c).

I certify the following information and any attached sheets are accurate and complete to the best of my knowledge.

Date: 12/22/2025

Signature: /s/ Richard C. Weinblatt

Name: Richard C. Weinblatt

1. Represented Entities. Fed. Cir. R. 47.4(a)(1).	**2. Real Party in Interest.** Fed. Cir. R. 47.4(a)(2).	**3. Parent Corporations and Stockholders.** Fed. Cir. R. 47.4(a)(3).
Provide the full names of all entities represented by undersigned counsel in this case.	Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities. ☑ None/Not Applicable	Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities. ☑ None/Not Applicable
Ameranth, Inc.		

☐ Additional pages attached

4. Legal Representatives. List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

☐ None/Not Applicable ☐ Additional pages attached

Stamoulis & Weinblatt LLC: Shekhar Vyas	Pribanic & Pribanic: Vincent A. Coppola	

5. Related Cases. Other than the originating case(s) for this case, are there related or prior cases that meet the criteria under Fed. Cir. R. 47.5(a)?

☐ Yes (file separate notice; see below) ☑ No ☐ N/A (amicus/movant)

If yes, concurrently file a separate Notice of Related Case Information that complies with Fed. Cir. R. 47.5(b). **Please do not duplicate information.** This separate Notice must only be filed with the first Certificate of Interest or, subsequently, if information changes during the pendency of the appeal. Fed. Cir. R. 47.5(b).

6. Organizational Victims and Bankruptcy Cases. Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees). Fed. Cir. R. 47.4(a)(6).

☑ None/Not Applicable ☐ Additional pages attached

TABLE OF CONTENTS

TABLE OF AUTHORITIES

CASES

STATUTES

RULES

I. STATEMENT OF RELATED CASES

There have been no other appeals before this or any other appellate court stemming from the civil action giving rise to this appeal.

II. STATEMENT OF JURISDICTION

Appellant, Ameranth, Inc. ("Ameranth"), brings this Appeal from the United States District Court for the District of Delaware (the "District Court") to the United States Court of Appeals for the Federal Circuit in accordance with 28 U.S.C. § 1295(a)(1).[1]

This is a case arising under the United States Patent Laws and jurisdiction exists in accordance with and pursuant to 28 U.S.C. §§ 1338(a) and 1400(b). Ameranth is appealing the order of the District Court dismissing this case pursuant to Fed. R. Civ. P. 12(b)(6) and finding all claims of the patent-in-suit to be unpatentable under 35 U.S.C. § 101. The order is final because final judgment was entered on November 24, 2025. Appx1-14.

This appeal has been timely taken within thirty (30) days of the entry of final judgment pursuant to 28 U.S.C. § 1295(a)(1).

III. STATEMENT OF THE ISSUES

1. Whether, in ruling on a motion to dismiss, the District Court erred by failing to accept facts and claim constructions, including the limiting preamble, as

[1] *See* Fed. R. App. P. 4(a)(4)(B)(i).

pled in the Amended Complaint, as true and in the light most favorable to Ameranth as required when deciding a motion to dismiss.

2. Whether the District Court erred in its *Alice* Step One analysis by failing to properly identify the subject matter of what the claims are "directed to."

3. Whether the district court erred at *Alice* Step Two by ignoring Ameranth's inventive concepts which are (1) in the claims, (2) supported by the specification, (3) supported by the original claims, and/or (4) were added during prosecution to overcome examiner identified prior art.

IV. STATEMENT OF THE CASE

In this patent infringement suit, the District Court decided on a motion to dismiss that all claims of U.S. Patent No. 11,276,130 (the "'130 patent") are unpatentable under 35 U.S.C. § 101. Ameranth appeals the District Court's order.

A. Origins and Background of the Litigation

Beginning in 1996, Ameranth pioneered front-end, mobile/web food ordering; and by 2005 had invented, patented, and deployed in 2005 and over time to thousands of hospitality locations, and licensed many of its award winning technologies which modernized computerized systems to more than 47 licensees. Appx55-56, ¶ 19; Appx57-58, ¶ 27; Appx121-122, ¶ 9. Continuing its innovations, Ameranth recently obtained additional patents and has developed a new AI-based product – MyAI Concierge – which is now undergoing operational testing with an

expected full product release in Q-2, 2026.[2]

DoorDash, founded years later in 2012, grew rapidly and is now the largest food ordering company in the world, controlling two-thirds of the entire food/drink ordering delivery market and now valued at nearly $100B. However, in 2019, it realized its system architecture was deficient, and publicly admitted that it had to "redesign" and "completely reengineer its platform." Appx77-78, ¶ 75; Appx7435. In so doing, DoorDash incorporated Ameranth's years-earlier inventions into its products and its own later-filed patents.[3]

B. The '130 Patent and Ameranth's First Amended Complaint

As the '130 patent's specification acknowledges, and the inventor's declaration attached to the First Amended Complaint ("FAC") further explains, Appx119-181; Appx57-63, ¶¶ 26-39, the hospitality industry around 2005 faced technological hurdles when attempting to adopt computerized information management and communications systems due to the then prevalent, conventional web server computers which lacked both parallel operational capabilities and a corresponding accessible database architecture. Appx36, 1:31-2:60. For example, "[a] single point of entry for all hospitality applications to communicate with one another wirelessly"

[2] https://www.myaiconcierge.com/.

[3] In fact, in that process DoorDash's inventors made admissions that expressly contradict the legal and factual positions it argued in the District Court below concerning the patent-eligibility of Ameranth's 2005 '130 patent claims. Appx79-86, ¶¶ 78-82; Appx273-404; Appx7339-7412.

was *unavailable* to "keep all wireless handheld devices and linked Web sites in synch with the back office server (central database) so that the different components are in equilibrium at any given time and an overall consistency is achieved." *Id.* at 2:31-38. Technology in 2005 multi-thread systems was *unavailable* at the time that could perform the function that "changes made on any of the [multiple] wireless handheld devices would be reflected instantaneously on the back office server, Web pages and the other handheld devices." *Id.* at 2:41-44. This problem existed in 2005 due to the inability to design a distributed database system that achieved the design goals of consistency, availability, and partition-tolerance, Appx63-64 at ¶ 40, with the result that system would crash and become unavailable. While this problem may now seem trivial based on the advancements in technology now available in 2025, this was not so in the state of the art twenty years ago, prior to the '130 patent's claimed inventions.

"[I]n distributed database systems, a database is distributed across multiple computers and devices in a network." Appx249, ¶ 57. In 2005, files stored on a computer in a database were typically organized hierarchically, in tree file structures. Appx39, 8:9-14. The traditional tree file structures, which existed at the time of the invention, required separate sequential updating of each data node located in various limbs of the tree structure when new information was added. Appx242, ¶ 44. For example, if a single restaurant wanted to have its menu of food offerings in a

traditional database system and the menu included sandwiches with different meat options, such as chicken, beef, turkey, and ham, and cheese options, such as cheddar, Swiss, and American, the different meat options would be located in separate file nodes in the tree structure with the different types of cheese as sub-modifiers. Appx242-243, ¶ 45. If the restaurant decided to add a new type of cheese, such as Provolone, the traditional tree structure API required a process of separately locating and inserting such new data in each of the nodes for each of the four different meats individually. *Id.* Thus, four distinct insertions would be required, which resulted in increased network traffic and CPU cycles, which thereby decreased the reliability and availability of the system. Expanding this example to encompass the practical effects, a branded chain of 100 sandwich restaurants desiring to add just one additional sub-modifier for Provolone cheese sub-modifiers to each type of the four meats to all of the 100 restaurant's menus would require the traditional system to perform at least 400 location identifications and individual node insertions. Appx243-244, ¶ 46. This number is multiplied when more than one addition or deletion of information is required and/or the branded chain has thousands rather than a 100 restaurant locations. This is the result because a traditional tree file-structure API at the time only supported insertions at individual nodes. *Id.* This highly inefficient updating/modifying of the traditional tree structure database system required substantially increased CPU cycles and network traffic, which

resulted in the system becoming unavailable due to not being able to efficiently and optimally process a partition and change the database. *Id.*; Appx249-250, ¶ 57.

Ameranth's FAC, Appx47-93, described the significant problems that existed in 2005 and how the asserted '130 patent claims overcame and solved them:

- "A distributed database is a database that is distributed across multiple computers and devices in a network. Such an architecture can provide tremendous benefits for users. As would be well-known to a POSITA prior to 2005 and prior to the new and non-conventional '130 patent claimed inventions, however, there were significant challenges for system designers to be able to successfully implement such a distributed database. For example, a major challenge is that of achieving the design goals of consistency, availability, and partition-tolerance . . . ."[4] Appx63-64, ¶ 40.

- "Claim 1 of the '130 patent recites an ordered combination and includes each of the following elements:
  - a web server with multi-modes of contact, multi-communications protocols, multiuser and parallel operational capabilities;
  - at least one hospitality food/drink ordering software application
  - an advanced master database, with its own database API; and its own learning and intelligence capabilities
  - Middleware/Framework Communications Control Software (MFCCS), which enables at least one web server to communicate with at least two remote handheld computers and for multiple modes of contact and multiple communications protocols; and
  - at least one external software API, which integrates the hospitality software application and the MFCCS with the Internet, at least one external, non hospitality application while importing POS databases into and leveraging the advanced master database including the automatic reflection into the menu tree file structure.

  This combination of the above-listed elements in the '130 patent ***overcomes***

[4] The inability to concurrently optimize consistency, availability, and partition tolerance (e.g., avoiding or recovering from errors) resulted in distributed computing systems failing, by crashing and becoming and unable to efficiently and optimally process changes to the database

the challenge of simultaneously achieving consistency, availability, and partition-tolerance for a distributed database by changing the preconditions inherent in the environment for which these goals were typically articulated." Appx65-66, ¶ 45 (emphasis added).

- "[C]laim 1 of the '130 patent explicitly recites that its new combination of elements provides the functionality of 'improving efficiency while eliminating the necessity of continually querying or checking every tree branch in the master menu tree file structure when responding to remote user requested tasks and/or other inputs.' This 'eliminating the necessity of continually querying or checking' limitation claims a system that simultaneously achieves improved consistency and availability in a distributed database. That is, it achieves consistency, since one node in the system does not need to check or continually check another node in the system to know that its data is consistent with the data of the other node, and, further, the updated modifiers are, as recited in the claim, 'automatically reflected throughout the master menu tree file structure.' Similarly, this limitation achieves availability, since it implies that there is no need to continually be checking if another node is available or not." Appx66-67, ¶ 46.

- "This limitation (the 'automatic reflection' limitation [of claim 1]) recites technological improvements to computers and is not reciting a routine or conventional element. It saves web server CPU cycles and reduces network traffic for updating menu trees and similar tree file structures, as it requires only one insertion or deletion rather than performing insertions or deletions at every node tagged with the same modifier name, which improves the functioning of computers in any context that involves tree file structures where insertions or deletions may involve node tags or node types rather than individual nodes, which is a broad scope of applications. Indeed, the 'automatic reflection' limitation in claim 1 itself recites, 'improving efficiency while eliminating the necessity of continually querying or checking every tree branch in the master menu tree file structure when responding to remote user requested tasks and/or other inputs.'" Appx68, ¶ 50.

- "A person of ordinary skill in the art would understand this 'eliminating the necessity of continually querying or checking' limitation of claim 1 of the '130 patent to be claiming that its system ***effectively achieves consistency and availability in a distributed database***. That is, it effectively achieves

> consistency, since one node in the system does not need to check or continually check another node in the system to know that its data is consistent with the data of the other node, and, further, the updated modifiers are, as recited in the claim, 'automatically reflected throughout the master menu tree file structure.' Similarly, this limitation effectively achieves availability, since it implies that there is no need to continually be checking if another node is available or not." Appx73-74, ¶ 65 (citation omitted) (emphasis added).

Additional factual allegations are pled in the FAC, in paragraphs 30, 36, 37, 41, 46, 47, 49, 54-56, 59, 62, 65, 66, 67, 72, 76 and 82, all of which are directly relevant to these critical threshold issues, but were not acknowledged or addressed by the District Court.

In addition, Ameranth alleges and defines the knowledge of a person of ordinary skill in the art ("POSITA") and the constructions of eight terms in the asserted claims, citing support from the intrinsic record.[5] Appx53-55, ¶¶ 16, 18. Although the view of a POSITA is relevant when performing an *Alice* analysis, the District Court's opinion makes no mention or application of it.

Critically, Ameranth also alleges that the preamble is a limitation that defines the "said web server computer" and the claim is, thereby, "directed to" an improved and innovative "web server computer" in ¶ 44. Appx65. Ameranth cites and attaches relevant portions of the prosecution history, and specifically alleges how that prosecution history supports both the constructions alleged and what the claims

[5] Ameranth also proposed constructions for three additional terms in its brief in opposition to DoorDash's motion to dismiss. Appx7459-7460, n.5.

are "directed to." Appx53-55, ¶ 18; Appx68-69, ¶¶ 52-53; Appx190-213 The original claims and the relevant portions of the prosecution history of them further support Ameranth's positions of patent eligibility, including, but not limited to, the fact that a human cannot perform the claimed inventions. Appx7470-7471; Appx7528-7542, claims 10, 25, 40, 54, 65, 75; Appx7564; Appx7570.

At this motion stage, the District Court is required to view the facts in the light most favorable to Ameranth and to either adopt and apply Ameranth's constructions or otherwise construe the claim terms at issue. But the District Court did neither. Instead, the District Court generally disregarded all of Ameranth's allegations and claim constructions and improperly accepted DoorDash's contrary positions and contorted, non-alleged facts in violation of the legal standards applicable to motions to dismiss. Appx1-2. In doing so, it is apparent that the District Court failed to apply the presumption of validity to which the '130 patent is entitled.

V. SUMMARY OF THE ARGUMENT

The District Court erred in its *Alice* analysis by failing to properly identify what the patent claims at issue are clearly "directed to" based upon the allegations of the complaint and a plain reading of the claims. This misstep affected the court's entire analysis, misdirected it right out of the gate and down a path of reasoning largely irrelevant to a proper analysis, and led it to a conclusion that cannot be reconciled with the '130 patent claims themselves and the plausible factual

allegations of Ameranth's complaint.

By focusing on unclaimed embodiments disclosed in the specification, the court wrongly concluded that the claims at issue are directed to: "the abstract idea of ordering food or drinks for delivery or take-out from a menu capable of multiple modes of communication." Appx8. However, such a described "menu" is not the subject of the asserted claims. Instead, the subject of the claims is an improved "web server computer" having multiple innovative elements and operating with an integrated and ordered combination of claimed software components..

This mistaken premise led the court to three analytical errors. First, the court focused its attention on a description in the patent specification of a single unclaimed embodiment irrelevant to the invention of the specific '130 patent claims asserted here. Several "embodiments" are disclosed in the specification, including the one, laser focused on by the court, that pertains exclusively to a "front-end system" of linked menus appearing on small screens for the placement of food orders. The asserted claims of the '130 patent, however, do **not** encompass front-end system embodiments, like the one selected by the court. The '130 patent asserted claims, instead, claim an innovative "web server computer," which is, in contrast, by definition and technology, a "back-end system," that improves the operation and efficiency of complex, computerized distributed database systems. These performance enhancements are done "in background" incorporating new

functionality, which, among other things, eliminates the necessity of continuous querying or checking every node on every tree branch in the master menu tree file structure when responding to remote user requested tasks and/or other inputs, and which maintains the availability, reliability, and partition-tolerance of the database system. This claimed functionality, by its very definition, is directed to a technological problem and most certainly cannot be accomplished by manual human actions.

Second, the District Court, led astray by its "directed to" error, reasoned that "the specification describes the claimed elements as 'typical,' 'simple,' and 'known' throughout the specification," Appx13, and are "no more than computerizing the traditional pen-and-paper process of reserving orders or appointments" "us[ing] known computer technology." Appx12. The District Court misinterpreted the specification's use of words like "typical" or "known" which are related to unclaimed embodiments and misapplied the law regarding these terms, while overlooking the actual *inventive* features clearly recited in the asserted claims. Further, even if the claimed inventions of the '130 patent had incorporated generic computer components, this Court's precedent is clear that neither the inclusion of generic computer components nor known programming steps in the elements of a claim preclude eligibility under § 101.

Third, the court neither accepted Ameranth's claim constructions as alleged

nor otherwise properly construed them, as required – which led to further misinterpretation of the asserted claims. Appx2 ("Further, defendant – and this court – are not bound to apply plaintiff's proposed constructions."). Had the court adopted and applied Ameranth's proposed constructions, there is no doubt that the claims are "directed to" the innovative and improved "web server computer."

The District Court's threshold error in its *Alice* analysis was perpetuated and compounded at Step Two where the court failed to acknowledge the legal requirement to consider and analyze the patent claim as an "ordered combination" to determine whether the additional recited elements, in combination, transform the nature of the claim into a patent-eligible application. Instead, the court only considered a single element: the "Middleware/Framework Communications Control Software (MFCCS)." Appx11-14. The asserted claims, however, include a number of other elements that together constitute an ordered combination that is patent-eligible. Among them (which also explicitly recites the technological improvement) is

> the external software API integrating with and leveraging the advanced master database to enable the importing of food/drink menus including required and non-required modifiers which are then automatically reflected throughout the master menu tree file structure, improving efficiency while eliminating the necessity of continually querying or checking every tree branch in the master menu tree file structure when responding to remote user requested tasks and/or other inputs.

Appx46, 22:25-33. This claimed external API is, and is referred to herein as, a

"three-way API" because it integrates with (1) the hospitality food/drink ordering software; (2) the MFCCS, and (3) the **advanced** master database. *Id.*, 22:21-33.

Nothing in the record even suggests that this claimed three-way API was routine or conventional or that the claimed web server computer – as programmed according to and using the centralized system layered architecture of the claims – was routine or conventional. And it was not in 2005. Indeed, the record evidence is the opposite: the "web server computer" of the claims is specialized, differs from, and improves upon the typical, generic web server that existed at the time of the claimed invention. These facts are well-pled in the complaint and directly supported by (a) the expert declaration cited in and attached to it, (b) a plain reading of the asserted patent claims and specification, and (c) the original claims, the prosecution history of those claims, and the prosecution history of the '130 patent. The court failed to consider and address them, resulting in a fatally flawed decision in granting the motion to dismiss.

As set forth in greater detail below the District Court failed in its § 101 *Alice* analysis under both Steps One and Two in finding the '130 patent claims ineligible, and the court's decision should be reversed under this Court's *de novo* review.

VI. ARGUMENT

A. Applicable Legal Principles

1. Standard of Review

This Court reviews this matter *de novo*.[6]

2. Legal Framework

The Federal Circuit reviews procedural issues, including Rule 12(b)(6) motions, according to regional circuit law.[7] The Third Circuit, the Court of Appeals for cases in the District Court of Delaware, requires a two-part analysis for Rule 12(b)(6) motions.[8] First, the court "must accept all of the complaint's well-pleaded facts as true."[9] Second, the court "must then determine whether the facts alleged in the complaint are sufficient to show that the plaintiff has a 'plausible claim for relief.'"[10]

"A claim has facial plausibility when the plaintiff pleads factual content that allows the court to draw the reasonable inference that the defendant is liable for the misconduct alleged."[11] In assessing plausibility, the court must "construe the

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[6] *See Allergan, Inc. v. Athena Cosmetics, Inc.*, 640 F.3d 1377, 1380 (Fed. Cir. 2011); *see also Phillips v. County of Allegheny*, 515 F.3d 224, 230 (3d Cir. 2008) ("The standard of review for a dismissal under Fed. R. Civ. P. 12(b)(6) is *de novo*.").
[7] *Disc Disease Sols. Inc. v. VGH Sols. Inc.,* 888 F.3d 1256, 1259 (Fed. Cir. 2018).
[8] *Fowler v. UPMC Shadyside,* 578 F.3d 203, 210-11 (3d Cir. 2009).
[9] *Id.* at 210.
[10] *Id.* at 211 (quoting *Ashcroft v. Iqbal,* 556 U.S. 662, 679 (2009)).
[11] *Iqbal,* 556 U.S. at 678 (citing *Bell Atl. Corp. v. Twombly,* 550 U.S. 544, 556 (2007)).

complaint in the light most favorable to the plaintiff, and determine whether, under ***any reasonable reading of the complaint***, the plaintiff may be entitled to relief."[12]

Section 101 broadly defines who may obtain a patent: "Whoever invents or discovers ***any*** new and useful process, machine, manufacture, or composition of matter, or ***any*** new and useful improvement thereof." (emphasis added.) "In choosing such expansive terms . . . modified by the comprehensive 'any,' Congress plainly contemplated that the patent laws would be given wide scope."[13]

Only three narrow exceptions exist to the broad patent-eligibility principles of 35 U.S.C. § 101 – "laws of nature, physical phenomena, and abstract ideas."[14] The Supreme Court reiterated its reluctance to broadly apply these exceptions: "[W]e tread carefully in construing this exclusionary principle, lest it swallow all of patent law. At some level, 'all inventions . . . embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.'"[15]

Whether a claim satisfies § 101 requires viewing the claim as a whole, and not individual limitations.[16] In fact, "it is irrelevant that any individual step or

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[12] *Fowler,* 578 F.3d at 210 (emphasis added).
[13] *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980).
[14] *Bilski v. Kappos*, 561 U.S. 593, 601-02 (2010).
[15] *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014) (quoting *Mayo Collaborative Services v. Prometheus Labs., Inc.* 132 S. Ct. 1289*,* 1293 (2012) (citation omitted)).
[16] *Diamond v. Diehr*, 450 U.S. 175, 188-89 (1981); *King Pharms., Inc. v. Eon Labs, Inc.*, 616 F.3d 1267, 1277 (Fed. Cir. 2010) ("The Supreme Court has stated that a §

limitation of such processes by itself would be unpatentable under § 101."[17]

"[P]atent eligibility can be determined at the Rule 12(b)(6) stage . . . only when there are no factual allegations that, taken as true, prevent resolving the eligibility question as a matter of law."[18] Indeed, "plausible factual allegations may preclude dismissing a case under § 101 where, for example, 'nothing on th[e] record . . . refutes those allegations as a matter of law or justifies dismissal under Rule 12(b)(6).'"[19]

B. The District Court Failed to Properly Identify What the Asserted Claims Are "Directed To," Resulting in a Fatally Flawed § 101 Analysis

Critical to a § 101 analysis of patent eligibility is the threshold identification of the subject matter of the asserted claims. If this initial determination is in error, then the rest of the analysis will be, as has occurred here, fatally flawed.

It is axiomatic that the definition of what the patent claims are directed to must be based upon the specific language of the claims in light of the specification and the prosecution history, if on record as it is here. In sum, the question is: whether the *character of the claims as a whole,* when read *in light of the specification,* is

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101 patentability analysis is directed to the claim as a whole, not individual limitations.").

[17] *In re Bilski*, 545 F.3d 943, 958 (Fed. Cir. 2008).

[18] *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121, 1125 (Fed. Cir. 2018) (citations omitted).

[19] *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1097 (Fed. Cir. 2016) (quoting *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1352 (Fed. Cir. 2016)).

directed to excluded subject matter.[20] In doing so "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."[21] Indeed, "describing the claims at such a high level of abstraction and untethered from the language of the claims all but ensures that the exceptions to § 101 swallow the rule."[22]

Ameranth's Complaint evidences that the '130 patent claims different embodiments and inventions from those of Ameranth's earlier patent claims invalidated in *Apple*, *Domino's*, and *Olo*. *See* Appx64-65, ¶ 43; Appx182-189. A simple reading of the '130 patent claims identifies the proper subject matter, and exposes the District Court's mistake. The '130 patent claims an innovative "web server computer" having new elements of advanced functionality and operating within a non-conventional ordered combination of claimed software, a centralized system layer architecture and advanced database components.

But, instead of considering the specific limitations of the asserted claims for the defined "web server computer," the District Court held that:

> The '130 Patent is directed to the abstract idea of ordering food or drinks for delivery or take-out from a menu capable of multiple modes of communication. To be sure, the patent teaches that the "principal object of the invention is to provide an improved information management and

[20] *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016).
[21] *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1313 (Fed. Cir. 2016) (quotations omitted).
[22] *Id.* at 1337; *see also TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1293 (Fed. Cir. 2020).

> synchronous communications system and method which facilitates user-friendly and efficient generation of computerized menus for restaurants and other applications." The claim elements provide nothing further than the desired "result or effect" through "generic processes and machinery."

Appx8 (citations omitted).

This result is an unacceptable oversimplification, not tethered to the specific claims asserted, and a misdirection from the outset. Indeed, the court's quote about the principal object of the invention applies to a claim of a patent that is *not at issue in this case:* Claim 4 of U.S. Patent No. 6,982,733 (the "'733 patent"),[23] which is directed to a very different, front-end-based invention: a menu generation system. Further, "[t]he fact that a patent asserts that an invention achieves several objectives does not require that each of the claims be construed as limited to structures that are

[23] Claim 4 of the '733 patent recites:

> An information management and synchronous communications system for generating menus comprising:
>
> a. a central processing unit,
>
> b. a data storage device connected to said central processing unit,
>
> c. an operating system including a graphical user interface,
>
> d. a first menu stored on said data storage device,
>
> e. application software for generating a second menu from said first menu,
>
> wherein the application software facilitates the generation of the second menu by allowing selection of items from the first menu, addition of items to the second menu and assignment of parameters to items in the second menu using the graphical user interface of said operating system and wherein data comprising the second menu is synchronized between the data storage device connected to the central processing unit and at least one other computing device, wherein said second menu is manually modified by handwriting or voice recording after generation.

capable of achieving all of the objectives."[24]

On their face, the '130 patent back-end-based claims are directed otherwise – to an improved web server computer – and do not address the same embodiment as claim 4 of the '733 patent.

Avoiding oversimplification is "crucial to the sound conduct of the inquiries into the problem being addressed and whether the line of specificity of solution has been crossed."[25] In this regard, the Step One inquiry "cannot simply ask whether the claims *involve* a patent-ineligible concept,"[26] but instead must "'look at the focus of the claimed advance over the prior art to determine if the claim's character *as a whole* is directed to excluded subject matter.'"[27]

Specific improvements to a technology (as the asserted claims specify here), such as improving computer operation or network functionality, are not abstract ideas.[28] "In cases involving software innovations, this inquiry often turns on whether the claims focus on 'the specific asserted improvement in computer capabilities or, instead, on a process that qualifies as an 'abstract idea' for which computers are

[24] *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).
[25] *TecSec*, 978 F.3d at 1294.
[26] *Enfish,* 822 F.3d at 1335.
[27] *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143, 1149 (Fed. Cir. 2019) (quoting *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016)).
[28] *See McRO*, 837 F.3d at 1314 (claims that "focus on a specific means or method that improves the relevant technology" are not abstract).

invoked merely as a tool.'"[29]

Claims like those at issue here that are "necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks" and computers also are not abstract ideas.[30] Such claims, as the '130 patent claims do, "stand apart because they do not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet."[31]

As seen through the lens of a POSITA,[32] Appx53, ¶¶ 16-17, which the District Court did not address, and applying the limitations of the preamble of claim 1, the '130 patent's asserted claims are directed to: "an intelligent web server computer with multi-modes of contact, multi-communications protocols, multi-user and parallel operational capabilities." When applying Ameranth's pled claim constructions, it claims an "an improved machine capable of running or executing server software that uses HTTP to serve up HTML documents and any associated

[29] *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299, 1303 (Fed. Cir. 2018) (quoting *Enfish*, 822 F.3d at 1335-36).
[30] *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014).
[31] *Id.*
[32] *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) ("[P]atents are addressed to and intended to be read by others ***of skill in the pertinent art***." (emphasis added)); *In re Nelson*, 280 F.2d 172, 181 (C.C.P.A. 1960), *rev'd on other grounds*, *In re Kirk*, 376 F.2d 936 (C.C.P.A. 1967) ("The descriptions in patents are not addressed to the public generally, to lawyers or to judges, but, as section 112 says, ***to those skilled in the art*** to which the invention pertains or with which it is most nearly connected." (emphasis added)).

files and scripts when requested by a client, such as a Web browser, and having the ability of a program to monitor its environment and initiate appropriate actions to achieve a desired state with two or more communication options including e.g. telephone calls, web pages, emails, pages, facsimiles, instant messages, and text messages, two or more protocols, two or more users and the parallel processing of related operational parameters to improve the performance of the web server."[33] Appx53-55, ¶ 18; Appx65, ¶ 44.

Moreover, ¶ 66 of Dr. Goodrich's declaration provides a definition from the *Microsoft Computer Dictionary* for an unimproved web server. Appx256, ¶ 66. Dr. Goodrich then explains the '130 patent's improved web server computer:

Thus, a POSITA would understand that, ***rather than being*** *a generic*

[33] This construction of "said web server computer" applies the limiting preamble and takes into account the following additional constructions:
"Intelligence" means "the ability of a program to monitor its environment and initiate appropriate actions to achieve a desired state. For example, a program waiting for data to be read from disk might switch to another task in the meantime." Appx237-238, ¶ 37); Appx40, 10:48-52; Appx43, 15:59-16:4, 16:9-17, 16:38-40; Appx43-44, 16:61-17:6; Microsoft Computer Dictionary (5th ed. 2002) at p. 278, Def. 2.
"Parallel operational capabilities" means "parallel processing of related operational parameters to improve the performance of the web server." Microsoft Computer Dictionary (5th ed. 2002) at p. 391; Appx43, 16:5-18; Appx44, 17:35-48, 17:56-18:3, 18:27-29; D.I. 14-6 at p. 9.
"Related operational parameters" means " a set of operational criteria or rules related to the modes of contact and associated with the hospitality entities and for remote hospitality users, such as e.g. periods of time, alternate modes, multi-thread communications, restaurant inventory/menu options that are set aside for one or more particular purposes, location, type and/or price range." Appx42, 13:58-61, 13:62-14:4; Appx43, 15:49-51, 15:62-66; Appx43-44, 16:52-17:12, 17:35-47, 18:12-18, 27-29; Appx202; Appx210.

> computer, the "web server" of claim 1, ***and as it is defined in the preamble is specialized*** to involve multi-modes of contact, multi-communications protocols, multi-user, and parallel operational capabilities, which is supported by the specification of the '130 Patent. . . . Further, the above definition of a Web server from *Microsoft Computer Dictionary* ***does not mention*** any of limitations of a web server additionally having multi-modes of contact, multi-communications protocols, multi-user, and parallel operational capabilities.

Id. Dr. Goodrich described the problems that existed at the time of invention in 2005 in distributed database systems, Appx249-250, ¶ 57, and how the '130 patent's claimed invention solved those problems. Appx249-271, ¶¶ 55-94. No record evidence contests these well-pled allegations of technological problems, and no record evidence contradicts that the asserted claims' unique ordered combinations solved those technological problems. *See, e.g.,* Appx65-67, ¶¶ 45-46; Appx68, ¶ 50; Appx73-74, ¶ 65.

In further examining the claims as an "ordered combination," the District Court's error in not doing so is clearly exposed. For example, the claims ***explicitly recite*** programming elements and their technological benefit when claiming the external software API, as explained below.[34]

Claim 1 of the '130 patent specifically includes and recites "an advanced

[34] *Cellspin Soft, Inc. v. Fitbit, Inc.* 927 F.3d 1306, 1317-18 (Fed. Cir. 2019) ("As long as what makes the claims inventive is recited by the claims, the specification need not expressly list all the reasons why this claimed structure is unconventional.").

master database" having "a usable menu file structure," Appx46, 21:48-22:9, and the "master menu file structure" has "modifiers" that can be changed via "automatic reflection" through use of the three-way API. *Id.*, 22:25-33. This specific data structure directly aligns with *Enfish*'s patent-eligible improvements to the data structures as an eligible invention affirmed by this Court[35]:

> the external software API integrating with and **leveraging the advanced master database** to enable the importing of food/drink menus including required and non-required modifiers which are then **automatically reflected** throughout the master menu tree file structure, ***improving efficiency while eliminating the necessity of*** continually querying or checking every tree branch **in the master menu tree file structure** when responding to remote user requested tasks and/or other inputs[.]

Appx46, 22:25-33 (emphasis added).

This means that when a single-tree node type modifier is updated, it is "automatically reflected throughout the tree. That is, the imported modifier is reflected at each node with the same modifier name. Such a scheme is different from single-position methods, such as embodied in data structure libraries like JDSL and in tree-structured file systems, such as in Athos, MacOS, and Linux/Unix."[36] Appx68, ¶ 51 (citing Appx40, 9:48-62); *see also* Appx241-242, ¶¶ 43-44.

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[35] "In sum, the self-referential table recited in the claims on appeal is a specific type of data structure designed to improve the way a computer stores and retrieves data in memory." *Enfish*, 822 F.3d at 1339.

[36] In single position methods, modifying a tree-structure node requires separate sequential updating of each data node located in various limbs of the tree structure,

As pled in the FAC, this claim limitation explicitly recites a technological improvement to computers – it saves web server CPU cycles and reduces network traffic for updating tree file structures. Appx68, ¶ 50. It requires only one insertion or deletion rather than performing insertions or deletions at every node tagged with the same modifier name (i.e., "one to many"); substantially improving computer functionality. *Id.*

In addition, the claimed three-way API ordered combination operating together and in parallel along with the specific structuring of the master database resulted in "improv[ed] efficiency" of the distributed database, which in turn resulted in improved distributed computing systems that are failure tolerant and do not crash and become unavailable due to not being able to efficiently and optimally process a partition and change to the database. *See* Appx66-67, ¶ 46. The prosecution history evidences that this three-way API functionality was added by a claim amendment, and the inclusion of it within an ordered combination led to allowance. Appx202-203; Appx208-209; Appx191-199; *see also* Appx68-69, ¶¶ 52-53.

Another technical improvement in the claims is its "back-end" improvement to the "master menu file structure." This is not a "food menu" but a "data file menu

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Appx242, ¶ 44, which increases CPU cycles and network traffic, which results in the system becoming unavailable due to not being able to efficiently and optimally process a partition and change to the database. Appx243-244, ¶ 46; Appx249-250, ¶ 57.

structure," two things that a POSITA would know are altogether different and completely unrelated to each other, *see, e.g.,* Appx263-267, ¶¶ 84-87 – as clearly described in the specification and the claims themselves.

This claimed computer data file structure existing in an ordered combination with the "automatic reflecting," Appx45, 20:36-40, and the "parallel operations" eliminates bottlenecks at the "web server computer," Appx40, 9:60-62; Appx45, 20:14-18; Appx46, 21:23-27, and solves a technical resource problem, creating efficiency by utilizing less computer resources and computing time.[37] Appx241-245, ¶¶ 42-48; Appx249-256 , ¶¶ 55-65; Appx263-268, ¶¶ 84-89.

These technical improvements are clear from a review of the '130 patent's prosecution history and its impact on the proper construction and interpretation of the scope and meaning of the '130 patent's claims. The amendment to the claims in responding to and overcoming an examiner's rejection clearly reveals the following key claim revisions were made as shown in the exhibit attached to the complaint:

- "computer" was added to the "web server" term in the preamble to specifically define the preamble as to be directed to computer hardware and not software;

[37] The District Court's reliance on *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161 (Fed. Cir. 2018), where this Court found no inventive step under *Alice* Step Two when noting "neither the claims nor the specification call for any parallel processing architectures different from those available in existing systems" is misplaced. Unlike the detailed claims at issue here, the claims in *SAP* did not describe any component in detail, let alone the parallel processor element. Moreover, the claims in *SAP* were truly the automation of a manual process – "statistical analysis of investment information."

- "said" was added throughout the claim in association with the "web server computer" of the preamble, thus establishing it to provide the antecedent basis for the "web server computer" in the body of the claims, which confirms that the preamble was limiting and that the inventor intended it to be so.[38]
- The prior broad "communication control software" limitation was redefined to be the MFCCS, thus linking it specifically to "Ameranth's MFCCS" as shown in Figure 10[39] and specifically stated as such in the corresponding Amendment filed with the examiner.
- An entire new element was added, containing the inventive concept inclusive of the "automatic reflecting" limitation, and as part of an ordered combination including the three-way API inventive concept.[40]

Appx200-213.

The amendment, which is specifically alleged and relied upon, Appx53-55, ¶ 18; Appx69, ¶ 53; Appx70, ¶ 55; Appx71, ¶ 58, (and to which the examiner at the USPTO agreed) distinguished the single-thread-based prior art reference (Turcan)[41] and in so doing limited the claim to a multi-threaded invention. Importantly, through

[38] *See Summit 6, LLC v. Samsung Elecs. Co.*, 802 F.3d 1283, 1291 (Fed. Cir. 2015) ("The use of the term 'said' indicates that this portion of the claim limitation is a reference back to the previously claimed" term.). The prosecution history also shows the claims were allowed after being amended to change "a web server computer" in the body of the claims to "said web server computer." Appx190-213. This confirms that with all of the times "said web server" appears in the claims, the preamble is limiting, and the claims *must* be directed to the improved web server.

[39] Consequently, the MFCCS is not a generic term or merely a black box, but rather the centralized layered architecture that is specifically taught and shown in Figure 10 and as a POSITA would understand.

[40] This inventive concept as an ordered combination is explained in detail as part of the *Alice* Step Two section.

[41] "There is nothing in Turcan regarding hospitality software applications much less requiring **multi-thread** and multiple communications and the intelligence and logic to ensure that a particular hospitality task is actually completed."Appx205-206 (emphasis added). Humans cannot perform this.

the lens of a POSITA, as defined in the FAC allegations, Appx53, ¶ 16, the '130's asserted claims repeated uses of "multi" (defined to mean "more than one," Appx54) requires "parallel operational capabilities," which is not merely "parallel computing" but an innovative technological element, which could not be done by a human on pen and paper. Appx7564 (prosecution history from the related '797 patent arguing in response to a § 101 rejection

> "Claims 1, 2, and 7-10 are all directed to a 'parallel processing' capability, as is explained and detailed in the specification, from and which *is something a human cannot do* and which *is innately a technical problem,* and which is solved by Ameranth' s inventive concepts."

(emphasis added)); Appx7570 (USPTO examiner agreeing and withdrawing the § 101 rejection).

Ameranth's FAC allegations also address the original claims teaching "parallel operations" and how the prosecution history evidences the fact that "parallel operational capabilities" cannot be done by hand. Appx7471 (explaining that the examiner at the USPTO agreed with Ameranth that "'**parallel processing**' capability, as is explained and detailed in the specification, from and which **is something a human cannot do** and which **is innately a technical problem**, and which **is solved by Ameranth's inventive concepts**.'" (quoting Appx7564)). The District Court, however, failed to consider the original claims, the prosecution history, and the claimed ordered combination. Instead the court addressed very

different functionality – of "parallel operations" by itself – and not as claimed nor through the lens of a POSITA. Appx10.

This new three-way API element was added to the claims during prosecution and, as an ordered combination, overcame multiple prior art references. Appx190-213. Improving the operation and efficiency of web server computers – by incorporating improved distributed computing systems that are failure tolerant and are able to efficiently and optimally process a partition and corresponding changes to a database – makes the '130 patent's asserted claims patent-eligible.

C. The District Court Erred in Concluding That the Claims Are Ineligible Under § 101 Because the Invention Allegedly Uses "Typical" Computer Components and "Known Programming Steps"

The District Court's decision, both at *Alice* Step One and Step Two, is based on its mistakenly deciding that the '130 specification somehow "admits" that the claims use "typical" computer components and "known programming steps" to automate a manual process. For example, the District Court summarized its *Alice* Step One conclusion by stating: "Considering the '130 Patent teaches a virtual ordering system *using typical computer elements with known programming steps and automation of manual processes*, *the '130 Patent is directed to the abstract idea* of ordering food or drinks for delivery or take-out from a menu capable of multiple modes of communication." Appx10 (emphasis added). And at Step Two, the District Court dismissed Ameranth's "patent-eligibility allegations" because "the

specification describes the claimed elements as 'typical,' 'simple,' and 'known' throughout the specification," Appx13, and they are "no more than computerizing the traditional pen-and-paper process of reserving orders or appointments" "us[ing] known computer technology." Appx12. These conclusions are based on the District Court's misinterpretation of the specification's use of words like "typical" or "known" related to unclaimed embodiments and a misapplication of the law regarding these terms.

For example, the District Court pointed to such terms found in the specification, that were used only to provide general background information of the then – 2005 – state of the art and never used to describe the back-end-based invention actually embodied in the asserted claims. *E.g.*, Appx38, 6:41-46 ("Menus are *typically* utilized to provide end users of applications with available choices or processing options while using the applications. For example, in a *typical desktop or interactive application,* selection of a 'file' from a menu bar may cause display of a context menu which provides 'file' options." (emphasis added)). The District Court also pointed to these terms where they are used in the specification to ensure that the invention is not limited to certain embodiments, for example restaurants embodiments or certain display types. *E.g.*, Appx46, 21:8-19. ("The inventive concept encompasses the generation of a menu in any context known to those skilled in the art . . . . Any display and transmission means known to those skilled in the art

is equally usable with respect to menus generated in accordance with the claimed invention."). The District Court also incorrectly relied on a description of a "preferred embodiment," *e.g.*, Appx38-39, 6:57–7:12, which should not be read into the claims "***even if it is the only embodiment***[,] absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited."[42] In other instances the court relied on a description of "typical" hardware components, *e.g.*, Appx38-39, 6:57–7:12; Appx42, 13:17, while ignoring the *inventive* features clearly recited in the claims, which results in an *improved* (thus non-typical) "web server computer."

Regarding the claims incorporating "known programming steps," Appx10, the District Court relied on a single, isolated statement in the specification that simply explains the unremarkable proposition that, after reading the claims and specification teachings *disclosed by the patent*, a POSITA would have known how to implement the new inventive features, so *disclosed*, into programming code. These statements do not indicate, in any way, ***that the actual invention set forth in the asserted claims*** involved only known programming steps. Appx10 (quoting Appx42, 13:9-12 ("The discrete programming steps are commonly known and thus programming details are not necessary to a full description of the invention.")));

[42] *Liebel-Flarsheim*, 358 F.3d at 913 (emphasis added).

Appx11 (citing Appx42, 12:9-21); Appx13 (citing Appx42, 13:9-21).[43]

Even if the District Court was correct in its assessment, that the claims employ some generic computer components or known programming steps, this Court has made it abundantly clear that neither precludes eligibility under § 101 when, as here, computer improvements are present.

In the leading case of *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*,[44] this Court rejected the district court's finding of patent ineligibility where the specification described the invention as being based on "well-known generic computer components" and "any type of code which may be executed."[45] In *BASCOM*, this Court held that the claims included the inventive concept of locating conventional filtering functionality on a generic ISP server because the location of known filtering software at a known server provided advantages over prior art filters.[46] The Federal Circuit panel agreed with the district court "that the limitations of the claims, taken individually, recite generic computer, network and Internet components, none of which is inventive by itself," but reversed the district court because it failed to recognize the "inventive concept" in the ordered combination of

[43] The District Court cited '130 patent col. 13, ll. 9-21, Appx11; Appx13, but that specification text referred to unclaimed embodiments relative to beepers (i.e., pagers) and valet parking base stations, which were claimed in the much earlier U.S. Patent No. 6,871,325.
[44] 827 F.3d 1341 (Fed. Cir. 2016).
[45] *Id.* at 1349-50.
[46] *Id.* at 1350-51.

the known elements.[47] This Court stated as governing precedent that "[t]he inventive concept inquiry requires more than recognizing that each claim element, by itself, was known in the art" and that "an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces."[48] This is the same the error that the District Court made below, because it failed to consider the claimed ordered combination of the asserted '130 patent claims.

Similarly, the District Court's mistaken premise that the claims are simply "directed to" the automation of a manual paper-based process is also based on an obvious misinterpretation of the specification and claims and its flawed focus on unclaimed embodiments. For this conclusion the District Court relied primarily on "cherry-picked" quotations from the specification that related to unclaimed embodiments that sought to solve problems relating to "***paper-based ordering***, waitlist and reservations management" and "***converting paper-based menus*** . . . ***to small PDA-sized*** **displays and Web pages.**" Appx13 (quoting Appx36, 2:45-48; Appx37, 3:44-51) (emphasis added).[49] However, the asserted claims of the '130

[47] *Id.* at 1349.
[48] *Id.*
[49] Notably, the District Court used an ellipses to combine two sentences and mask the fact that the specification separately stated that "**[i]n one embodiment**, the present invention is a software tool for building a menu, optimizing the process of how the menu can be downloaded to either a handheld device or Web page, and making manual or automatic modifications to the menu after initial creation." Appx37, 3:47-51 (emphasis added). Doing so erroneously conflated the prior

patent *are not* directed to solving the problem of converting paper-based menus to small PDA-sized displays and Web pages, as the District Court states. In fact, there is no mention of a "display" anywhere in the claims of the '130 patent. The back-end-focused claims of the '130 patent are directed to an improved web server computer that communicates using a specialized three-way API to overcome then-existing reliability problems to create a failure tolerant distributed database.

The District Court also improperly imported limitations from certain irrelevant embodiments to allege conventionality of the claimed, improved web server computer. These cited unclaimed embodiments include embodiments that relate to (1) combining paper-based ordering with existing computerized systems by allowing handwritten messages on a screen to be transmitted with the options chosen from a menu, *e.g.,* Appx37, 3:52-61; Appx36, 1:31-39; *see also* Appx37, 4:10-15, (2) converting paper-based menus for use in a computerized system, *e.g.,* Appx37, 3:43-51, and (3) "user-friendly and efficient generation of computerized menus for restaurants and other applications that utilize equipment with non-PC-standard graphical formats, display sizes and/or applications," *e.g.*, Appx36, 2:61-65. Appx2-3. But none of these descriptions apply to the asserted claims, and are, therefore

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statement regarding "the menu generation approach of the present invention" to "solve the problem of converting paper-based menus . . . to small PDA-sized displays and Web pages," *id.*, 43-47, which the asserted claims do not address, with the software problem of modifying the menu "after initial creation," which they do.

irrelevant to the patent-eligibility analysis that must be conducted here.[50]

The District Court provided no other bases for holding that the claims are ineligible. Because the court's holding was legally and factually flawed and because this Court's *BASCOM* decision requires a different result, the decision must be reversed.

D. The District Court Erred by Disregarding or Improperly Rejecting Ameranth's Proposed Claim Constructions

The court's errors were compounded by its failure to accept and consider the specific claim constructions alleged in the FAC. Where there are claim construction disputes at the Rule 12(b)(6) stage, "either the court must proceed by adopting the non-moving party's constructions, or the court must resolve the disputes to whatever extent is needed to conduct the § 101 analysis, which may well be less than a full, formal claim construction."[51] This is not only legal precedent, but common sense. In order to perform a proper analysis, the terms of the claims must be based upon determined constructions. The District Court did neither.

Ameranth fully complied with this Court's direction by including allegations **in the FAC** directed to the constructions of eight terms, with extensive citations to and descriptions of the intrinsic evidence supporting each of them, Appx53-55, ¶ 18,

[50] *American Axle & Mfg., Inc. v. Neapco Holdings LLC*, 967 F.3d 1285, 1293 (Fed. Cir. 2020) ("[F]eatures that are not claimed are irrelevant as to step 1 or step 2 of the *Mayo*/*Alice* analysis.").
[51] *Aatrix*, 882 F.3d at 1125 (citations omitted).

and that the preamble is limiting Appx65, ¶ 44. Ameranth also alleged its definition for "one of ordinary skill in the art," Appx53, ¶ 16, and specifically explained why the constructions are material to the question of patent eligibility. Appx7459-7460; Appx7463-7467; Appx7470.

This is of particular importance to consideration of the terms "said web server computer" and "parallel operational capabilities," limitations of the preamble that apply to each asserted claim. In the FAC, Ameranth alleges that "said web server computer" must be construed to incorporate the limitations from the preamble: "an intelligent web server computer with multi-modes of contact, multi-communications protocols, multi-user and parallel operational capabilities." Appx54. In its opposition below, Ameranth pointed out that, when all of Ameranth's proposed constructions are applied, "said web server computer" should be construed to mean "an improved machine capable of running or executing server software that uses HTTP to serve up HTML documents and any associated files and scripts when requested by a client, such as a Web browser, and having the ability of a program to monitor its environment and initiate appropriate actions to achieve a desired state with two or more communication options including e.g. telephone calls, web pages, emails, pages, facsimiles, instant messages, and text messages, two or more protocols, two or more users and the parallel processing of related operational parameters to improve the performance of the web server." Appx7459; Appx7463-

7464. Applying these constructions to obtain the fully construed meaning of "said web server computer" clarifies what they claims are actually "directed to" and the claimed inventive concept for purposes of the *Alice* analysis.

Regarding the term "parallel operational capabilities," Ameranth alleged in the FAC that it should be construed to mean "parallel processing of related operational parameters to improve the performance of the web server." Appx54. Ameranth further alleged that "related operational parameters" should be construed to mean "a set of operational criteria or rules related to the modes of contact and associated with the hospitality entities and for remote hospitality users, such as times of day, alternate modes, multi-thread communications, restaurant inventory/menu options that are set aside for one or more particular purposes, location, type and/or price range," Appx55, and that "said web server computer" "is an ordered combination defined and limited by the anteceding, first element of the claim preamble and with all terms non-conventionally arranged and integrated to improve the web server computer." Appx54. Ameranth similarly described how these constructions materially impact the *Alice* analysis. Appx7459-7460; Appx7463-7467; Appx7470.

Ameranth having made these construction allegations, and with DoorDash disputing them, the District Court was required to either adopt Ameranth's or conduct an appropriate claim construction proceeding. But the District Court did

neither. Instead, it stated that it is "not bound to apply plaintiff's proposed constructions." Appx2.

Without properly construing the claims, the entire *Alice* analysis – both Steps One and Two – is incomplete and flawed. This is especially true here due to the limiting preamble and the extensive prosecution history, which the District Court did not address – all relating to the critical subject of "what the claims are directed to."

E. *Alice* Step Two: The Claims Include Multiple Inventive Concepts

As explained above, the '130 patent's claims are not directed to an abstract idea and the *Alice* inquiry ends. However, should the Court choose to adopt the District Court's "directed to," then all of Ameranth's previously stated improvements are "something more" than the court's very high level "directed to."

At Step Two, the Court is to consider "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.'"[52] The District Court's opinion makes no mention of considering the claims as an ordered combination, and, for this reason alone, its decision cannot stand.

In the context of a Rule 12 motion, "[w]hether the claim elements or the

[52] *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1293 (Fed. Cir. 2016) (quoting *Mayo*, 132 S. Ct. at 1298, 1297).

claimed combination are well-understood, routine, [or] conventional is a question of fact,"[53] that question is to be answered from the view of "a skilled artisan in the relevant field,"[54] and "[a]ny fact, such as this one, that is pertinent to the invalidity conclusion must be proven by clear and convincing evidence."[55] "[P]lausible and specific factual allegations that aspects of the claim are inventive [or not conventional] are sufficient" to overcome the Step Two inquiry.[56] "As long as what makes the claims inventive is recited by the claims, the specification need not expressly list all the reasons why this claimed structure is unconventional."[57]

In its complaint and at the District Court, Ameranth argued that the claims recite several inventive concepts that were technical solutions to technical problems. Appx7460-7463. For example, the FAC explained that known distributed database systems failed to achieve consistency, availability, and partition-tolerance. Appx63-64, ¶ 40. The FAC further explained that the '130 patent addressed this issue through the ordered combination of claim 1 "eliminating the necessity of continually

[53] *Aatrix*, 882 F.3d at 1128.
[54] *Berkheimer*, 881 F.3d at 1368.
[55] *Id.* at 1369.
[56] *See Cellspin*, 927 F.3d at 1317-18 (reversing district court's Rule 12 dismissal); *see also Aatrix*, 882 F.3d at 1126-27 (finding that a proposed amended complaint included allegations that the asserted claims contain inventive concepts and would therefore survive a Rule 12(b)(6) motion); *Berkheimer*, 881 F.3d at 1368-69 (holding factual issues regarding what is routine or conventional precluded summary judgment).
[57] *Cellspin*, 927 F.3d at 1317.

querying or checking every tree branch in the master menu tree file structure." Appx65-67, ¶¶ 45-46. As further detailed below, claim 1's ordered combination includes a three-way API operating in parallel and together with the specific structuring of the advanced master database, and the claimed back-end improvements to the "master menu file structure" combined with those from the "automatic reflecting" and the "parallel operations" required by the claim's limiting preamble eliminated bottlenecks at the "said web server computer." Appx65-66, ¶ 40; Appx68, ¶¶ 50-51; Appx72-74, ¶¶ 63-67.

As alleged in the FAC:

> This 'eliminating the necessity of continually querying or checking' limitation claims a system that simultaneously achieves improved consistency and availability in a distributed database." That is, it achieves consistency, since one node in the system does not need to check or continually check another node in the system to know that its data is consistent with the data of the other node, and, further, the updated modifiers are, as recited in the claim, 'automatically reflected throughout the master menu tree file structure.' Similarly, this limitation achieves availability, since it implies that there is no need to continually be checking if another node is available or not. Moreover, the claimed invention of the '130 patent provides partition-tolerance through its multi-modes of contact, multi-communications protocols, multi-user and parallel operational capabilities, whereby a partition in one mode of communication (such as the Internet) can be overcome by communicating over another alternate modality (such as wireless text messaging).

Appx65-66, ¶ 46.

The FAC further alleges that the claimed ordered combination improved efficiency of the computer by

> sav[ing] web server CPU cycles and reduc[ing] network traffic for updating menu trees and similar tree file structures, as it requires only one insertion or deletion rather than performing insertions or deletions at every node tagged with the same modifier name, which improves the functioning of computers in any context that involves tree file structures where insertions or deletions may involve node tags or node types rather than individual nodes, which is a broad scope of applications.

Appx68, ¶ 50. The FAC also provided additional allegations as to how the claims recited technological improvements, all of which were overlooked by the court. Appx68-72 ¶¶ 50-59.

For all of these reasons, the District Court's decision should be reversed.

1. The District Court Erred in Finding That the Claims Do Not Recite an "Inventive Concept"

As described in Section VI.C. above, the District Court's conclusion that the claims do not recite an inventive concept is based entirely on an erroneous conclusion that the specification somehow admits that the asserted claims are limited to "typical" computer components and "known programming steps." Indeed, the District Court went so far as to suggest that the specification "admits" its inventive concepts are well-understood, routine and conventional, Appx11, but the specification *never* makes such an admission.

The court cites to a concurring opinion in *Aatrix* for the proposition that "'it will be difficult, if not impossible'" to successfully argue an inventive concept when "'the specification admits the additional claim elements are well-understood, routine, and conventional.'" *Id.* (quoting *Aatrix*, 890 F.3d 1356). However, the "additional

elements" mistakenly mentioned by the District Court relate to unclaimed embodiments that are not related to the asserted '130 claims, *see supra* Section VI.C., and the *Alice* Step Two inquiry requires considering what is actually claimed, and not additional elements *that are not claimed*. *Aatrix*'s logic is inapplicable here.

Critically, even in instances where the specification describes the use of known components and implementation with known coding steps, this Court in *BASCOM* and other cases has flatly rejected such a description precluding subject matter eligibility.

As explained in FAC ¶¶ 50-51, claim 1 of the '130 patent recites an ordered combination that includes the three-way API ordered combination operating together and in parallel along with the specific structuring of the master database which resulted in "*save[d] web server CPU cycles and reduce[d] network traffic* for updating menu trees and similar tree file structures, as it requires only one insertion or deletion rather than performing insertions or deletions at every node tagged with the same modifier name, *which improves the functioning of computers,*" and its "automatic reflection" limitation in claim 1 itself recites "improving efficiency while *eliminating* the necessity of *continually querying or checking every tree branch* in the master menu tree file structure when responding to remote user requested tasks and/or other inputs." Appx68 (emphasis added). These factual allegations are unrebutted.

In its Step Two "analysis," the District Court failed to consider the ordered combinations, nor as a whole, through the lens of a POSITA and considered the "Middleware/Framework Communications Control Software (MFCCS)" in a vacuum while ignoring its associated prosecution history. Appx11-14. Although the claimed "Middleware/Framework Communications Control Software" is a specific layered architecture framework, the court misunderstood its functionality and, thereby, mistakenly characterized it as merely providing "synchronization capability" and "further pen-and-paper technology done on a computer."[58] Appx12. Continuing this misunderstanding of the factual allegations, and addressing only a single element in isolation, the District Court failed to properly consider all of the claimed elements as an ordered combination holistically, leading to the wrong conclusion that "[t]his is no more than computerizing the traditional pen-and-paper process of reserving orders or appointments." *Id.*

That is clearly and decidedly not what is claimed. Claim 1 of the '130 patent specifically recites the ordered combination and includes each of the following elements:

- a web server with multi-modes of contact, multi-communications protocols, multiuser and parallel operational capabilities;

[58] The MFCCS was limited to Ameranth's specific layered architecture during prosecution to overcome prior art. Appx202-203; Appx206; Appx208; Appx210.

- at least one hospitality food/drink ordering software application
- an advanced master database, with its own database API; and its own learning and intelligence capabilities
- Middleware/Framework Communications Control Software (MFCCS), which enables at least one web server to communicate with at least two remote handheld computers and for multiple modes of contact and multiple communications protocols; and
- at least one external software API, which integrates the hospitality software application and the MFCCS with the Internet, at least one external, non hospitality application while importing POS databases into and leveraging the advanced master database including the automatic reflection into the menu tree file structure.

This combination of the above-listed elements in the '130 patent ***overcomes*** *the challenge of simultaneously achieving consistency, availability, and partition-tolerance for a distributed database by changing the preconditions inherent in the environment for which these goals were typically articulated*.

Appx65-66, ¶ 45 (emphasis added).

The described combination of the three-way API ordered combination operating in parallel and together with the specific structuring "improv[ed] efficiency" of the advanced master database, which resulted in enhanced distributed computing systems that are more reliable as "failure tolerant" – they do not crash and become unavailable due to not being able to efficiently and optimally process a partition and change to the database. *See* Appx66-67, ¶ 46. The claimed back-end improvements to the "master menu file structure" combined with those from the "automatic reflecting"[59] and the "parallel operations" required by the claim's limiting

[59] Appx45, 20:36-40.

preamble eliminated bottlenecks at the "said web server computer,"[60] which improves efficiency because less computer resources and less computing time are required. While the MFCCS is the architecture used to enable the various claimed components to communicate with each other, it is wrong to disregard the ordered combination of all of the claim elements as District Court did here.

As an example, claim 1 of the '130 patent identifies the MFCCS as "which enables via" and is "integrated" with other claim elements to enable and improve the "said web server computer" and overcomes the technical challenge of simultaneously achieving consistency, availability, and partition tolerance. The claims *explicitly teach the layered architecture and recite* programming details which provide the "how" for the patent-eligibility analysis and thus are not purely functional.[61] When all of Ameranth's factual allegations in the FAC, *see, e.g.,* Appx58-86, ¶¶ 30, 36, 37, 40, 41, 45-47, 49, 50, 54-56, 59, 62, 65, 66, 67, 72, 76, 82, are considered and viewed as being true, as this Court must do, it is clear that, in conformance with the precedent set forth in the *Cellspin* decision, DoorDash's Motion should have been denied.[62]

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[60] Appx40, 9:60-62; Appx45, 20:14-18; Appx46, 21:23-27.
[61] As evidenced in the declaration attached to the FAC, Dr. Goodrich was able to write source code – the technical language that controls the operation of a computer and its software – after reading the '130 patent's claims, which further proves that the "how" is provided in the claims and specification. Appx258-271, ¶¶ 74-94.
[62] *See Cellspin*, 927 F.3d at 1316-19.

Governing precedent requires reversal here. As described in the specification and complaint, Ameranth's claims recite an inventive ordered combination that is an improvement on existing systems. Even if, as the District Court incorrectly found, the inventive ordered combination of claim 1 is built upon generic computer components and/or may be implemented with known programming steps, *BASCOM* precludes a finding that the subject inventive concept was well-known, routine, and conventional. For at least this additional reason the District Court's decision should be reversed.

2. This Court's Decisions in *Berkheimer* and *Aatrix*, and Their Progeny, Require Reversal in This Case

In *Berkheimer v. HP Inc.*,[63] the Federal Circuit reversed a district court decision granting summary judgment based on invalidity under § 101 because "the district court erred in concluding there are no underlying factual questions to the § 101 inquiry" that precluded summary judgment.[64] Shortly thereafter, this Court's decision in *Aatrix Software, Inc. v. Green Shades Software, Inc.*[65] confirmed that *Berkheimer* applied to motions to dismiss, holding that "concrete allegations" in the complaint that "the claimed combination [is] not well-understood, routine, or conventional activity" and "improve[s] the functioning of the computer" raises

[63] 881 F.3d 1360 (Fed. Cir. 2018).
[64] *Id.* at 1369.
[65] 882 F.3d 1121 (Fed. Cir. 2018).

factual issues that preclude dismissal.[66] These decisions confirm that the similar factual issues raised in this case preclude dismissal.

In *Berkheimer*, the claims recited "a method for archiving an item in a computer processing system."[67] The specification described "the state of the art at the time the patent was filed," including that "[c]onventional digital asset management systems at the time included 'numerous documents containing multiple instances of redundant document elements,'" that "[t]his redundancy in conventional systems led to 'inefficiencies and increased costs,'" and that "the claimed improvement increases efficiency and computer functionality over the prior art systems."[68] This improvement was captured by several of the claims, which expressly recited archiving "without substantial redundancy" and a "one-to-many change."[69] The Federal Circuit reversed the district court's finding of ineligible subject matter for these claims because, while the claims are directed to an abstract idea of "parsing, comparing and storing data," "[t]he improvements in the specification . . . create a factual dispute regarding whether the invention describes well-understood, routine, and conventional activities."[70]

Ameranth's patent claims here are four-square with the reasoning and

[66] *Id.* at 1128.
[67] 881 F.3d at 1366.
[68] *Id.* at 1369.
[69] *Id.* at 1370.
[70] *Id.* at 1369.

conclusions of *Berkheimer*. The inventive concepts recited in the '130 patent claims are described in the specification and FAC as improvements on prior systems by propagating changes and eliminating repetitive steps, like the "one-to-many change" of *Berkheimer*. And just as in *Berkheimer*, this improvement is recited *in the claims*. Appx46, 22:25-33 ("[T]he external software API integrating with and leveraging the advanced master database to enable the importing of food/drink menus including required and non-required modifiers *which are then automatically reflected* throughout the master menu tree file structure, *improving efficiency while eliminating the necessity of continually querying or checking every tree branch in the master menu tree file structure when responding to remote user requested tasks and/or other inputs*[.]" (emphasis added)).

In fact, the '130 patent claims are considerably *more specific* than those in *Berkheimer*. For example, '130 patent claim 1's external API element, Appx46, 22:25-33, which was added to the claims during prosecution to overcome prior art, Appx197; Appx203, included, within the claim, the problem, the technical improvement solution, and the how, with specificity:

> the external software API integrating with and leveraging the advanced master database to enable the importing of food/drink menus including required and non-required modifiers which are then automatically reflected throughout the master menu tree file structure, improving efficiency while eliminating the necessity of continually querying or checking every tree branch in the master menu tree file structure when responding to remote user requested tasks and/or other inputs[.]

In *Berkheimer*, one claim generally recited that the problem in the prior art was solved (archiving "without substantial redundancy") and a different claim recited the specific solution (the "one-to-many change"). Yet, the Federal Circuit determined that both claims sufficiently captured the improvement. Here, claim 1 recites *both* the problem – the need for "continually querying or checking every tree branch in the master menu tree file structure when responding to remote user requested tasks and/or other inputs" – *and* the specific solution – "improving efficiency while eliminating the necessity" for such continuous "querying or checking" by "automatically reflect[ing]" any modifiers "throughout the master menu tree file structure."

There are no material differences between this case and *Berkheimer*. The Court in *Berkheimer* rejected the district court's finding that the improvement pled in the complaint and described in the specification – eliminating redundancy and efficiency – "are considerations in any archival system, including paper-based systems," holding that,

> At this stage of the case, however, there is at least a genuine issue of material fact in light of the specification regarding whether claims 4–7 archive documents in an inventive manner that improves these aspects of the disclosed archival system. Whether claims 4–7 perform well-understood, routine, and conventional activities to a skilled artisan is a genuine issue of material fact making summary judgment inappropriate with respect to these claims.[71]

[71] *Id.* at 1370.

Here, it is similarly improper "at this stage of the case" to reject Ameranth's nearly identical allegations of improvements to technology. Simply put, in the precedential *Berkheimer* decision, this Court already has held that an alleged inventive concept of eliminating repetitive steps with a "one-to-many change," as alleged here, is sufficient to avoid dismissal. As in *Berkheimer*, there is at least an issue of fact that precludes dismissal.[72]

In *Aatrix*, the specification described the same type of improvement – efficiency by eliminating repetitive steps.[73] *Aatrix* reversed the district court's § 101 dismissal because the complaint, just like the complaint in this case, "at a minimum raise[d] factual disputes" as to whether the claims included an inventive concept based these statements in the specification and allegations in the complaint.[74] *Aatrix* too precludes dismissal here based on the issues of fact regarding the inventive concepts in claim 1. The District Court cited to *Aatrix* when ruling "[t]he '130 Patent's intrinsic record provides sufficient reasoning and evidence to hold the claims patent-ineligible." Appx13 (citing *Aatrix*, 882 F.3d at 1125). However, the

[72] While the District Court concluded that Ameranth's inventive concepts carried no weight because they were supposedly inconsistent with admissions in the specification, Appx11-13, as described above this conclusion is based on material errors of fact and law. *See supra* Section VI.C.

[73] 882 F.3d at 1129 ("that the claimed 'data file' imports data from third-party applications into a viewable electronic form *without programming each form file* to work with each third-party application, which improves interoperability with third-party software") (emphasis added).

[74] *Id.* at 1126.

prosecution history of the '130 patent, the original claims, and the prosecution history regarding those claims, all of which were overlooked, but are part of the intrinsic record, establish the District Court is wrong. *See supra* pp. 25-28.

Other Federal Circuit cases applying *Berkheimer* and *Aatrix* similarly require reversal here. For example, in *Cellspin Soft, Inc. v. Fitbit, Inc.*,[75] the Federal Circuit reversed a finding of ineligible subject matter holding that, while directed to the abstract idea of "capturing, transferring and publishing data," the district court erred in not accepting as true Cellspin's "specific, plausible factual allegations about why aspects of its claimed inventions were not conventional, *e.g.*, its two-step, two-device structure requiring a connection *before* data is transmitted."[76] This Court also clarified that "the specification need not expressly list all the reasons why this claimed structure is unconventional" "[a]s long as what makes the claims inventive is recited by the claims."[77] As in this case, the Federal Circuit in *Cellspin* had "no basis, at the pleadings stage, to say that these claimed techniques, among others, were well-known or conventional as a matter of law."[78]

Similarly, in *Cooperative Ent., Inc. v. Kollective Tech., Inc.*,[79] the Federal Circuit reversed a district court dismissal based on § 101 where the district court

[75] 927 F.3d 1306 (Fed. Cir. 2019).
[76] *Id.* at 1317-18.
[77] *Id.* at 1317.
[78] *Id.* at 1318.
[79] 50 F.4th 127 (Fed. Cir. 2022).

held there was no inventive concept in the face of plausible allegations of an inventive concept in the specification and complaint. In particular, the Federal Circuit held that, "[a]t a minimum, the district court should have denied the motion to dismiss because Cooperative's allegations in the complaint regarding the claims and the '452 patent's written description create a plausible factual issue regarding the inventiveness of the dynamic P2P configuration of claim 1."[80]

And in *Weisner v. Google LLC*,[81] the Federal Circuit reversed a dismissal based on § 101 of claims directed to improved search results. In *Weisner*, the district court found no inventive concept because the complaint and specification admitted that the invention relied on known search engines, and did not invent a new algorithm.[82] This Court disagreed because the inventive concept was not in the search algorithm, but was instead in the claimed use of a location to filter search results.[83] The same is true with respect to the '130 asserted claims.

For each of these reasons, the District Court erred in finding the '130 patent claims involved no inventive concept under *Alice* Step Two and should be reversed.

VII. CONCLUSION AND STATEMENT OF RELIEF SOUGHT

For these reasons, the District Court's grant of DoorDash's Motion to Dismiss

[80] *Id.* at 133.
[81] 51 F.4th 1073 (Fed. Cir. 2022).
[82] *Id.* at 1085.
[83] *Id.* at 1085-87.

should be reversed and the case remanded for further proceedings.

Dated: February 10, 2026

Respectfully submitted,

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ADDENDUM

ADDENDUM TABLE OF CONTENTS

Page

UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE

No. 1:25-cv-00180

Ameranth, Inc.,
Plaintiff,
v.
DoorDash, Inc.,
Defendant.

OPINION AND ORDER

Plaintiff brought this action alleging that defendant infringes U.S. Patent No. 11,276,130 ('130 Patent). Doc. 14 at 40. Defendant moved to dismiss the complaint under Federal Rule of Civil Procedure 12(b)(6). Doc. 54. Defendant argues that the '130 Patent claims patent-ineligible subject matter under 35 U.S.C. § 101. Doc. 55 at 7. The court agrees.

I. Procedural arguments

Plaintiff argues that the court should deny defendant's motion for "sandbagging" by asserting arguments for the first time in the reply brief and not applying plaintiff's proposed claim construction at the pleading stage. Doc. 56 at 8–15. Those arguments lack merit.

Plaintiff argues that defendant ignored the plaintiff's factual allegations and proposed claim constructions, failed to properly apply those constructions, and disputed the constructions which waived defendant's arguments applying plaintiff's constructions in the reply brief. Doc. 56 at 8–11. Defendant's motion argued that plaintiff's proposed constructions should not be accepted because the constructions contradict the '130 Patent's claims and specification. Doc. 55 at 17–21. "[A]t the motion to dismiss stage, factual allegations in the complaint which contradict the specification or the claims need not be credited as true under the Rule 12(b)(6) analysis." *IPA Techs., Inc. v. Amazon.com, Inc.*, 352 F. Supp. 3d 335, 343 (D. Del. 2019) (citing *Aatrix Software, Inc. v. Green Shades*

Software, Inc., 882 F.3d 1121, 1125 (Fed. Cir. 2018)). Thus, these arguments were proper.

Moreover, defendant adds that "should the [c]ourt adopt [plaintiff's] proposed constructions for purposes of this motion," the court should still dismiss because the claimed components are abstract and do not add an inventive concept. Doc. 55 at 19. Defendant argued for a construction based on the intrinsic record and alternatively argued that the claims are still ineligible under plaintiff's proposed constructions. Defendant was free to respond to plaintiff's counter-arguments on both points in its reply brief.

Further, defendant—and this court—are not bound to apply plaintiff's proposed construction. *Aatrix*, 882 F.3d at 1125. Plaintiff misstates the law when asserting otherwise. *Compare* Doc. 56 at 11 ("Applying [plaintiff's] proposed constructions . . . as this court must do . . . .") *with Aatrix*, 882 F.3d at 1125 ("we have held that either the court must proceed by adopting the non-moving party's constructions, or the court must resolve the disputes to whatever extent is needed to conduct the § 101 analysis, which may well be less than a full, formal claim construction." (citation omitted)).

II. U.S. Patent No. 11,276,130

Plaintiff is the assignee and owner of the '130 Patent. Doc. 14 at 6. The '130 Patent "relates to an information management and synchronous communications system and method for generation of computerized menus for restaurants and other applications with specialized display and synchronous communications requirements." '130 Patent col. 1 ll. 17–21. The "principal object of the ['130 Patent] is to provide an improved information management and synchronous communications system and method which facilitates user-friendly and efficient generation of computerized menus for restaurants and other applications." *Id.* col. 2 ll. 61–65. In other words, the '130 Patent discloses an information management and synchronous communications system—a system that allows for real-time data exchange between two or more

parties simultaneously—for use in the food and hospitality services industry.

The '130 patent teaches computerizing the traditional pen-and-paper ordering common to "restaurant/hotel/casino food/drink" services. *Id.* col. 3 ll. 43–61. Computerization provides a more efficient mechanism for ordering than the traditional method of a customer verbally ordering food and the hospitality service employee manually writing it down on paper. *Id.* col. 1 ll. 31–39, col. 3 ll. 43–51. This advancement may be accomplished using "typical hardware elements in the form of a computer workstation, operating system and application software elements" that configure the hardware—including a central processing unit, microprocessor, RAM, ROM, hard drive storage, modem, display screen, keyboard, mouse, and removable storage devices (e.g., floppy drive or a CD ROM drive)—to achieve computerized ordering. *Id.* col.6 l. 57–col. 7 l. 9. In summary, the '130 Patent teaches an efficient hospitality ordering system using computer elements known in the art.

There are three claims in the '130 Patent, one independent and two dependent, that cover:

> 1. An intelligent web server computer with multi-modes of contact, multi-communications protocols, multi-user and parallel operational capabilities for use in completing remotely initiated hospitality food/drink delivery or pick up ordering tasks comprising;
>
> at least one said web server computer with web server software;
>
> at least one hospitality food/drink ordering software application for delivery or pick up orders integrated with the at least one said web server computer;
>
> an advanced master database comprising data and parameters of the at least one hospitality food/drink ordering software application integrated with the at least one said web server computer and with a usable menu file structure dictated prior to task

execution and is accessible via its own database API and with one or more predefined formats stored within it and which intelligently learns, updates and stores multiple communication modes of contact and related operational parameters for hospitality entities and for remote hospitality users along with their prior attributes or preferences, if any and then intelligently applies them;

Middleware/Framework Communications Control Software (MFCCS) which enables via its centralized system layer architecture the at least one said web server computer to communicate with two or more remote wireless handheld computers and for multiple modes of contact, multiple communications protocol functionality, integrated with the master database and with the at least one hospitality food/drink ordering software application;

at least one external software API, which enables the full integration of the at least one hospitality food/drink ordering software application and the MFCCS with one or more non hospitality applications via the internet;

the external software API integrating with and leveraging the advanced master database to enable the importing of food/drink menus including required and non-required modifiers which are then automatically reflected throughout the master menu tree file structure, improving efficiency while eliminating the necessity of continually querying or checking every tree branch in the master menu tree file structure when responding to remote user requested tasks and/or other inputs;

wherein the at least one said web server computer is integrated with the MFCCS, the hospitality food/drink ordering software and is programmed

> with instructions enabled to intelligently choose and apply multiple and different modes of contact and/or different communications protocols, if applicable with the said hospitality entities and/or said remote users associated with the user requested hospitality food/drink delivery or pick up ordering application tasks and is enabled to support the completion of those tasks.
>
> 2. The intelligent web server of claim 1 further enabled to assign and apply sub-modifiers to the required or non required modifiers.
>
> 3. The intelligent web server of claim 1, further enabled to include meal preparation times in the food/drink ordering.

Id. col. 21 l.37–col. 22 l.49.

Plaintiff argues that these claims are "back-end directed" to improvements of "the operation and efficiency of web server computers and networks." Doc. 56 at 6. On plaintiff's view, the claims are not only directed to virtual food or drink ordering, but also disclose an improvement to "distributed computing systems." *Id.* at 6–8.

III. Legal standards

Federal Rule of Civil Procedure 8(a)(2) states that a pleading must contain "a short and plain statement of the claim showing that the pleader is entitled to relief." The Federal Circuit reviews procedural issues, including Rule 12(b)(6) motions, according to regional circuit law. *Disc Disease Sols. Inc. v. VGH Sols., Inc.*, 888 F.3d 1256, 1259 (Fed. Cir. 2018). In the Third Circuit, courts conduct a two-part analysis for Rule 12(b)(6) motions. *Fowler v. UPMC Shadyside*, 578 F.3d 203, 210 (3d Cir. 2009). First, the court separates the factual and legal elements of a claim, "accept[ing] all of the complaint's well-pleaded facts as true, but . . . disregard[ing] any legal conclusions." *Id.* at 210–11. Second, the court determines whether the alleged facts sufficiently show a "plausible claim for relief." *Id.* at 211 (quoting *Ashcroft v. Iqbal*,

556 U.S. 662, 679 (2009)). "A claim has facial plausibility when the plaintiff pleads factual content that allows the court to draw the reasonable inference that the defendant is liable for the misconduct alleged." *Iqbal*, 556 U.S. at 678 (citing *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 556 (2007)).

Assessing plausibility, the court must "construe the complaint in the light most favorable to the plaintiff, and determine whether, under any reasonable reading of the complaint, the plaintiff may be entitled to relief." *Fowler*, 578 F.3d at 210. "To decide a motion to dismiss, courts generally consider only the allegations contained in the complaint, exhibits attached to the complaint and matters of public record." *Pension Benefit Guar. Corp. v. White Consol. Indus., Inc.*, 998 F.2d 1192, 1196 (3d Cir. 1993).

The Federal Circuit has "repeatedly recognized[] it is possible and proper to determine patent eligibility under 35 U.S.C. § 101 on a Rule 12(b)(6) motion." *Mobile Acuity Ltd. v. Blippar Ltd.*, 110 F.4th 1280, 1289–90 (Fed. Cir. 2024) (cleaned up). Section 101 eligibility is properly decided on a Rule 12(b)(6) motion "only when there are no factual allegations that, taken as true, prevent resolving the eligibility question as a matter of law." *Beteiro, LLC v. DraftKings Inc.*, 104 F.4th 1350, 1355 (Fed. Cir. 2024) (quoting *Aatrix*, 882 F.3d at 1125).

Patentability under 35 U.S.C. § 101 is a threshold legal issue. *Bilski v. Kappos*, 561 U.S. 593, 602 (2010). Patent-eligible subject matter is defined in § 101 as "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof . . . subject to the conditions and requirements of this title." 35 U.S.C. § 101. The Supreme Court has excepted "[l]aws of nature, natural phenomena, and abstract ideas" from patentability under § 101. *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014) (cleaned up).

> Accordingly, in applying the § 101 exception, we must distinguish between patents that claim the building blocks of human ingenuity and those that integrate the building blocks into something more, thereby transforming them

> into a patent-eligible invention. The former would risk disproportionately tying up the use of the underlying ideas and are therefore ineligible for patent protection. The latter pose no comparable risk of pre-emption, and therefore remain eligible for the monopoly granted under our patent laws.

Id. at 217 (cleaned up).

Alice established a two-step framework for determining patent-eligibility under § 101. At step one, the court determines whether a claim is "directed to a patent-ineligible concept," such as an abstract idea. *Id.* at 218. If so, the court determines at step two whether the claim "contains an inventive concept sufficient to transform the claimed abstract idea into a patent-eligible application." *Id.* at 221 (cleaned up).

IV. Analysis

As a matter of law, the '130 Patent is directed to a patent-ineligible abstract idea, and the claims do not otherwise provide an inventive step.

A. *Alice* step one

To determine whether claims are "directed to patent-ineligible subject matter," such as an abstract idea, the court should "look to the character of the claims as a whole," including the patent's specification. *Broadband iTV, Inc. v. Amazon.com, Inc.*, 113 F.4th 1359, 1367 (Fed. Cir. 2024) (citing *Enfish v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016)). Under *Alice* step one, the inquiry "often turns to the question of what the patent asserts as the claimed advance over the prior art." *Id.* In other words, "whether the claims . . . focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery." *McRo, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016) (citing *Enfish*, 822 F.3d at 1336).

The '130 Patent is directed to the abstract idea of ordering food or drinks for delivery or take-out from a menu capable of multiple modes of communication. *See* '130 Patent col. 21 ll. 38–42 (claiming "An intelligent web server computer with multi-modes of contact, multi-communications protocols, multi-user and parallel operational capabilities for use in completing remotely initiated hospitality food/drink delivery or pick up ordering tasks"). To be sure, the patent teaches that the "principal object of the present invention is to provide an improved information management and synchronous communications system and method which facilitates user-friendly and efficient generation of computerized menus for restaurants and other applications". *Id.* col. 2 ll. 61–65. The claim elements provide nothing further than the desired "result or effect" through "generic processes and machinery." *McRo*, 837 F.3d at 1314.

For example, the "intelligent web server" of Claim 1 comprises "an advanced master database . . . which intelligently learns, updates and stores multiple communication modes of contact and related operational parameters for hospitality entities and for remote hospitality users along with their prior attributes or preferences, if any and then intelligently applies them." '130 Patent col. 21 l. 38, col. 21 l. 48–col. 22 l. 9; *see also id.* col. 22 ll. 34–39 ("wherein the at least one said web server computer . . . is programmed with instructions enabled to intelligently choose and apply multiple and different modes of contact and/or different communications protocols"). The term "intelligent" is not mentioned once in the specification outside of Claim 1.

According to plaintiff, "intelligence" allegedly means "the ability of a program to monitor its environment and initiate appropriate actions to achieve a desired state." Doc. 56 at 7 n.5. Even accepting this construction, "intelligent" is merely an aspirational goal of the invention, not a disclosed improvement. In fact, the specification teaches that the disclosed invention can be achieved with "typical hardware elements," on a "typical workstation," with a "typical file server platform," and/or "on a

typical wireless device." '130 Patent col. 6 l. 58, col. 6 l. 61, col. 7 ll. 5–6, col. 13 l. 17. "In other words, the specification does not support a finding that the claims are directed to a technological improvement" in computer functionality. *Trinity Info Media, LLC v. Covalent, Inc.*, 72 F.4th 1355, 1364 (Fed. Cir. 2023). "This is a quintessential 'do it on a computer' patent: it acknowledges that" ordering food or drinks is traditionally done with pen-and-paper "and it simply proposes doing so with a computer." *Univ. of Fla. Rsch. Found., Inc. v. Gen. Elec. Co.*, 916 F.3d 1363, 1367 (Fed. Cir. 2019).

Plaintiff rebuts that the '130 Patent is directed to an abstract idea by arguing that claim 1 recites computer technology improvements, including: "the specific type of master menu file structure," "automatic reflecting," "parallel operations," and "programming instructions." Doc. 56 at 17–18.

The alleged improvement to the specific type of master menu file structure does not disclose an improvement to computer technology. Claim 1 teaches that this file structure "improv[es] efficiency while eliminating the necessity of continually querying or checking every tree branch in the master menu tree file structure when responding to remote user requested tasks and/or other inputs." '130 Patent col. 22 ll. 29–33; *see also id.* col. 20 ll. 37–41. Plaintiff alleges that this teaching "aligns with Enfish's patent-eligible improvements to . . . data structures." Doc. 56 at 17 (citing *Enfish*, 822 F.3d at 1339).

Plaintiff misses the key distinction in the caselaw. *Enfish* held that "the first step in the *Alice* inquiry . . . asks whether the focus of the claims is on the specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool." 822 F.3d at 1335–36. There, the specification "improve[d] upon prior art information search and retrieval systems by employing a flexible, self-referential table to store data." *Id.* at 1337 (quoting U.S. Patent No. 6,151,604 col. 2 ll. 44–46). Here, the '130 Patent teaches an "inventive menu generation approach [which] provides

a solution for the pervasive connectivity and computerization needs of the restaurant and related markets," i.e., using "typical" computer systems to transform the pen-and-paper ordering system to a "computerized" system. '130 Patent col. 12 ll. 15–17. The disclosed master menu file structure merely computerizes a pen-and-paper ordering system; it does not teach an improvement to computer technology.

Plaintiff's other alleged improvements fare no better. "Automatic reflecting" is merely an automation of the writing down of an order. *See Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1055 (Fed. Cir. 2017) ("mere automation of manual processes using generic computers does not constitute a patentable improvement in computer technology"). The "parallel operations" disclosed do not describe how to improve simultaneous computer operations, but merely describe how their functionality will "allow the user to select from presented possibilities a desired choice." '130 Patent col. 16 ll. 5–24; *cf. SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1170 (Fed. Cir. 2018) (finding no inventive step under *Alice* step 2 when noting "neither the claims nor the specification call for any parallel processing architectures different from those available in existing systems"). The additional claim element that "said web server computer . . . is programmed with instructions enabled to intelligently choose and apply multiple and different modes of contact and/or different communications protocols" does not claim improved computer technology—especially considering that the disclosure teaches that "[t]he discrete programming steps are commonly known and thus programming details are not necessary to a full description of the invention." '130 Patent col. 22 ll. 34–39, col. 13 ll. 9–12.

Considering the '130 Patent teaches a virtual ordering system using typical computer elements with known programming steps and automation of manual processes, the '130 Patent is directed to the abstract idea of ordering food or drinks for delivery or take-out from a menu capable of multiple modes of communication.

B. *Alice* step two

At *Alice* step two, the court considers whether the claims contain an "inventive concept" that is "sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself." *Alice*, 573 U.S. at 217–18 (cleaned up). "A claim that recites an abstract idea must include additional features to ensure that the claim is more than a drafting effort designed to monopolize the abstract idea." *Id.* at 221 (cleaned up). For example, in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, "methods for determining metabolite levels were already 'well known in the art,' and the process at issue amounted to 'nothing significantly more than an instruction to doctors to apply the applicable laws when treating their patients.'" *Id.* at 221–22 (quoting *Mayo Collaborative Servs. v. Prometheus Lab'ys, Inc.*, 566 U.S. 66, 79 (2012)). So too in *Alice*, where "the claims at issue amount[ed] to nothing significantly more than an instruction to apply the abstract idea of intermediated settlement using some unspecified, generic computer." *Id.* at 225–26 (quotation marks omitted).

Plaintiff has not successfully pointed to any inventive concept in the claims or the specification. Plaintiff relies heavily on the court's mandate to take all well-pleaded factual allegations as true and its expert declaration that alleges the '130 Patent provides an inventive concept. Doc. 56 at 21–24. However, "[i]n a situation where the specification admits the additional claim elements are well-understood, routine, and conventional, it will be difficult, if not impossible, for a patentee to show a genuine dispute" as to inventiveness. *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 890 F.3d 1354, 1356 (Fed. Cir. 2018) (Moore, J., concurring in the denial of the petition for rehearing en banc). As discussed above, the structures disclosed in claim 1 are described in the specification as "typical," "simple," and "known" not once, but throughout the specification. '130 Patent col. 6 ll. 41–46, col. 6 l. 57–col. 7 l. 12, col. 13 ll. 9–21, col. 21 ll. 8–19.

Plaintiff adds that the Middleware/Framework Communications Control Software (MFCCS) improves the claimed web server computer and "overcomes the technical challenge of simultaneously achieving consistency, availability, and partition tolerance." Doc. 56 at 24. The MFCCS enables the web server computer of claim 1 "via its centralized system layer architecture . . . to communicate with two or more remote wireless handheld computers and for multiple modes of contact, multiple communications protocol functionality, integrated with the master database and with the . . . hospitality food/drink ordering software application." '130 Patent col. 22 ll. 11–19; *see also id.* Fig. 10.

However, the specification teaches that this is further pen-and-paper technology done on a computer. The synchronization capability "works to keep all wireless handheld devices and linked web sites in synch with the backoffice server application so that the different components are in equilibrium at any given time and overall consistency is achieved." *Id.* col. 5 ll. 27–40. In simpler terms, synchronization ensures that the inventory/menu displayed on a user's smartphone or laptop is the same inventory/menu stored at the retailer/restaurants home server. By synchronous communication, each connected device is seeing the same data or selection in real time on the given webpage. *See id.*

This is no more than computerizing the traditional pen-and-paper process of reserving orders or appointments. *See id.* col. 18 ll. 15–18 ("For example, the user might be prevented from specifying a desired appointment and/or reservation date and/or time known by the computer to correspond to inventory that was not available."). The specification teaches that synchronization through MFCCS uses known computer technology (e.g., instant messaging, text messaging, text to voice, voice to text, touch tone recognition) to organize reservations and hold reservations from being selected by other users. *See id.* fig. 10, col. 14 l. 55–col. 16 l. 4, col. 16 l. 61–col. 17 l. 34, col. 18 l. 19–col. 19 l. 10. These disclosures do not teach enhanced computer technology. "Indeed, the [computerized reservations] at issue here are unpatentable

because they 'could still be made using a pencil and paper' with a simple notification device even in real time as [reservations] were being made." *Intell. Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1368–69 (Fed. Cir. 2015) (cleaned up) (quoting *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371 (Fed. Cir. 2011) (quoting *Parker v. Flook*, 437 U.S. 584, 586 (1978))). The specification instead teaches that "paper-based ordering, waitlist and reservations management have persisted in the face of widespread computerization" and "solv[es] the problem of converting paper-based menus . . . to small PDA-sized displays and Web pages" through "the present invention[,] . . . a software tool for building a menu, optimizing the process of how the menu can be downloaded to either a handheld device or Web page, and making manual or automatic modifications to the menu after initial creation." '130 Patent col. 2 ll. 45–48, col. 3 ll. 44–51.

Plaintiff's reliance on *Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306 (Fed. Cir. 2019) falls short. Even the *Cellspin* court did "not read *Aatrix* to say that any allegation about inventiveness, wholly divorced from the claims or the specification, defeats a motion to dismiss." 927 F.3d at 1317. In *Aatrix*, the Federal Circuit reversed dismissal at the 12(b)(6) stage on § 101 patent eligibility because "[t]he district court supplied no reasoning or evidence for its finding that the" claims disclosed routine components and functionalities of a computer. 882 F.3d at 1129. Here, the specification describes the claimed elements as "typical," "simple," and "known" throughout the specification. '130 Patent col. 6 ll. 41–46, col. 6 l. 57–col. 7 l. 12, col. 13 ll. 9–21, col. 21 ll. 8–19. The '130 Patent's intrinsic record provides sufficient reasoning and evidence to hold the claims patent-ineligible under 35 U.S.C. § 101; the court cannot ignore this evidence in favor of plaintiff's creative patent-eligibility allegations. *See Aatrix*, 882 F.3d at 1125 ("plausible factual allegations may preclude dismissing a case under § 101 where, for example, nothing on the record refutes those allegations as a matter of law or justifies dismissal under Rule 12(b)(6)" (cleaned up)).

While plaintiff does not explicitly argue that dependent claims 2 or 3 provide anything to alter the analysis under *Alice* step 1 or 2, these additional web server limitations of "enabled to assign and apply sub-modifiers" and "enabled to include meal preparation times in the food/drink ordering" are directed to the same abstract idea and provide no inventive step.

V. Leave to amend

Plaintiff has already amended its complaint once. Further, five patents related to the '130 Patent have been held unpatentable under § 101 by the Federal Circuit. *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1245 (Fed. Cir. 2016) ("Claims 1–11 of [U.S. Patent No. 6,384,850], claims 1–10 of [U.S. Patent No. 6,871,325], and claims 1–16 of [U.S. Patent No. 6,982,733] are all unpatentable under § 101"); *Ameranth, Inc. v. Domino's Pizza, LLC*, 792 F. App'x 780, 788 (Fed. Cir. 2019) ("Accordingly, we agree with the district court's determination that claims 1, 6–9, 11, and 13–18 [of U.S. Patent No. 8,146,077] are patent ineligible."); *Ameranth, Inc. v. Olo Inc.*, No. 1:20-cv-00518, 2020 WL 6043929, at *7–10 (D. Del. Oct. 13, 2020) (Stark, J.) (joint opinion for *Ameranth, Inc. v. Olo Inc.* and two unrelated cases), *aff'd without opinion*, *Ameranth, Inc. v. Olo Inc.*, No. 21-01211, 2021 WL 4699180 (Fed. Cir. Oct. 8, 2021) (holding claims 1, 3, 6, 9–11 of U.S. Patent No. 9,747,651 patent ineligible under § 101). One of which, with the exact same specification as the '130 Patent, was held invalid by this court. *Olo*, 2020 WL 6043929, at *7–10. As such, any further amendments to the complaint would be futile.

VI. Conclusion

Thus, defendant's motion to dismiss under Rule 12(b)(6) is granted. Plaintiff's case is dismissed with prejudice. Any pending motions are denied as moot.

So ordered by the court on November 24, 2025.

J. CAMPBELL BARKER
United States District Judge

US011276130B2

(12) **United States Patent**
McNally

(10) **Patent No.: US 11,276,130 B2**
(45) **Date of Patent: Mar. 15, 2022**

(54) **INFORMATION MANAGEMENT AND SYNCHRONOUS COMMUNICATIONS SYSTEM**

(71) Applicant: **Ameranth, Inc.**, San Diego, CA (US)

(72) Inventor: **Keith R. McNally**, San Diego, CA (US)

(73) Assignee: **Ameranth, Inc.**, San Diego, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/086,181**

(22) Filed: **Oct. 30, 2020**

(65) **Prior Publication Data**

US 2021/0065318 A1 Mar. 4, 2021

Related U.S. Application Data

(63) Continuation of application No. 15/688,198, filed on Aug. 28, 2017, now Pat. No. 10,970,797, which is a (Continued)

(51) **Int. Cl.**
G06Q 50/12 (2012.01)
G06Q 10/02 (2012.01)
(Continued)

(52) **U.S. Cl.**
CPC ***G06Q 50/12*** (2013.01); ***G06Q 10/02*** (2013.01); ***G06Q 30/0621*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC G06Q 50/12; G06Q 10/02
(Continued)

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Primary Examiner — Luna Champagne
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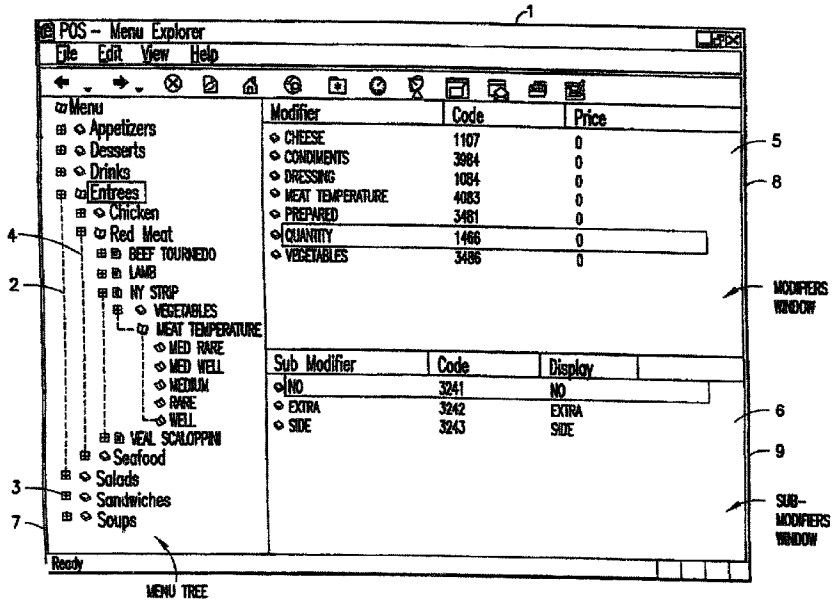
(57) **ABSTRACT**

An information management and synchronous communications system and method facilitates database equilibrium and synchronization with wired, wireless, and Web-based systems, user-friendly and efficient generation of computerized menus and reservations with handwritten/voice modifications for restaurants and other applications that utilize equipment with nonstandard graphical formats, display sizes and/or applications for use in remote data entry, information management and communication with host computer, digital input device or remote pager via standard hardwired connection, the internet, a wireless link, printer, or the like. Various operations employing automated telephone calls and/or messaging may, for instance, be performed. For example, desired reservation and/or appointment information may be automatically converted and conveyed to one or more entities via automated telephone call and/or messaging. As another example, information regarding reservation acceptability may be received and automatically converted via automated telephone can and/or messaging. Telephones may, for instance, be the only equipment required by the entities.

3 Claims, 9 Drawing Sheets



Related U.S. Application Data

continuation of application No. 14/276,948, filed on May 13, 2014, now Pat. No. 9,747,651, which is a continuation of application No. 14/265,519, filed on Apr. 30, 2014, now abandoned, which is a continuation of application No. 11/190,633, filed on Jul. 26, 2005, now Pat. No. 9,009,060.

(51) **Int. Cl.**

H04M 3/493	(2006.01)
H04W 99/00	(2009.01)
G06Q 30/06	(2012.01)
H04L 29/06	(2006.01)
H04W 4/00	(2018.01)
H04W 88/02	(2009.01)

(52) **U.S. Cl.**

CPC ***G06Q 30/0623*** (2013.01); ***G06Q 30/0641*** (2013.01); ***G06Q 30/0643*** (2013.01); ***H04L 63/083*** (2013.01); ***H04M 3/4938*** (2013.01); ***H04W 99/00*** (2013.01); *H04M 2201/60* (2013.01); *H04M 2203/1058* (2013.01); *H04M 2203/2016* (2013.01); *H04W 4/00* (2013.01); *H04W 88/02* (2013.01)

(58) **Field of Classification Search**

USPC 705/15

See application file for complete search history.

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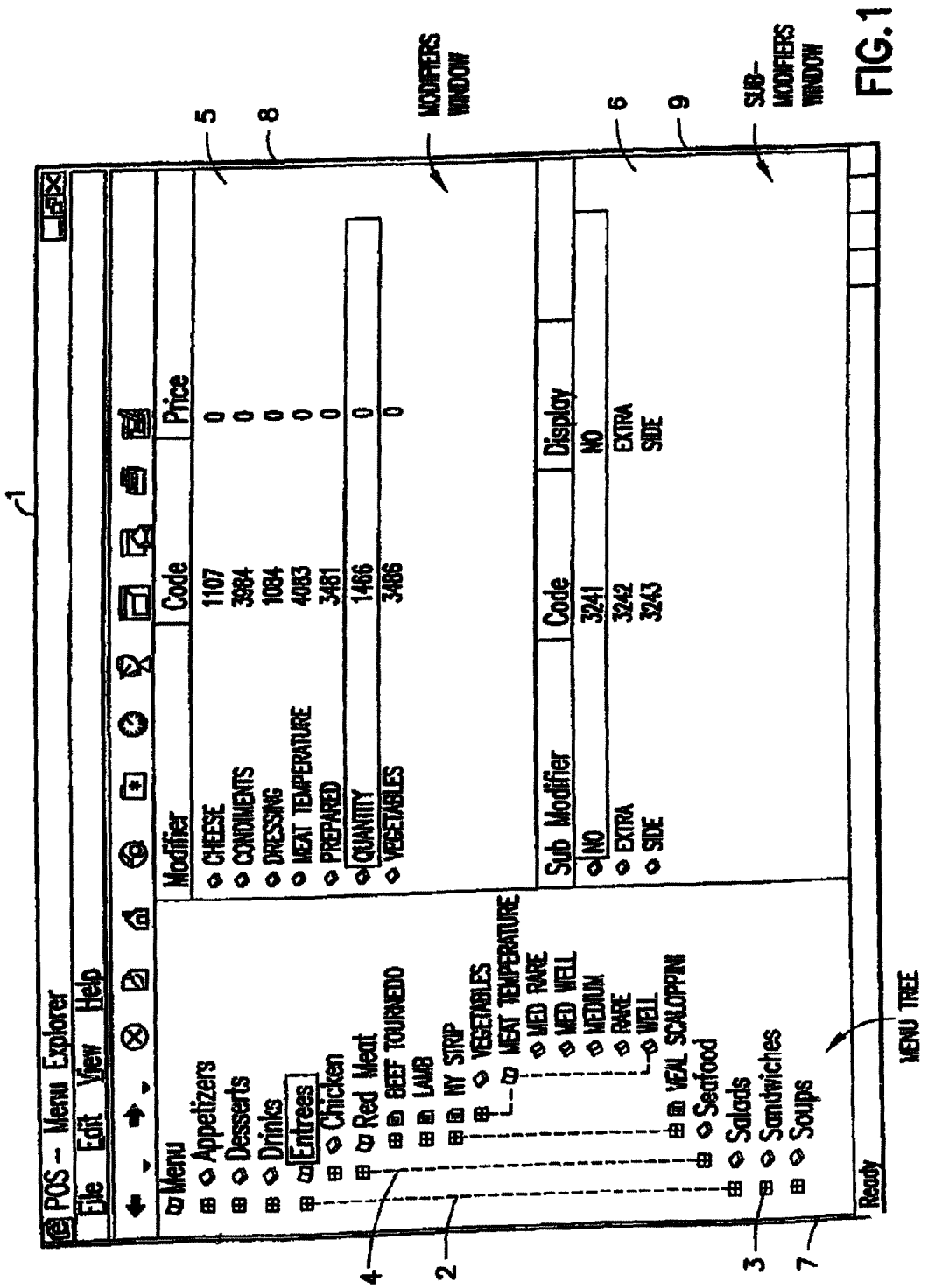

POS -- Menu Explorer
File Edit View Help
Menu
Appetizers
Desserts
Drinks
Entrees
Chicken
Red Meat
BEEF TOURNEDO
LAMB
NY STRIP
VEGETABLES
MEAT TEMPERATURE
MED RARE
MED WELL
MEDIUM
RARE
WELL
VEAL SCALOPPINI
Seafood
Salads
Sandwiches
Soups
Modifier
Code
Price
CHEESE 1107 0
CONDIMENTS 3984 0
DRESSING 1084 0
MEAT TEMPERATURE 4083 0
PREPARED 3481 0
QUANTITY 1466 0
VEGETABLES 3486 0
Sub Modifier
Code
Display
NO 3241 NO
EXTRA 3242 EXTRA
SIDE 3243 SIDE
Ready
1
2
3
4
5
6
7
8
9
MODIFIERS WINDOW
SUB-MODIFIERS WINDOW
MENU TREE

FIG.1

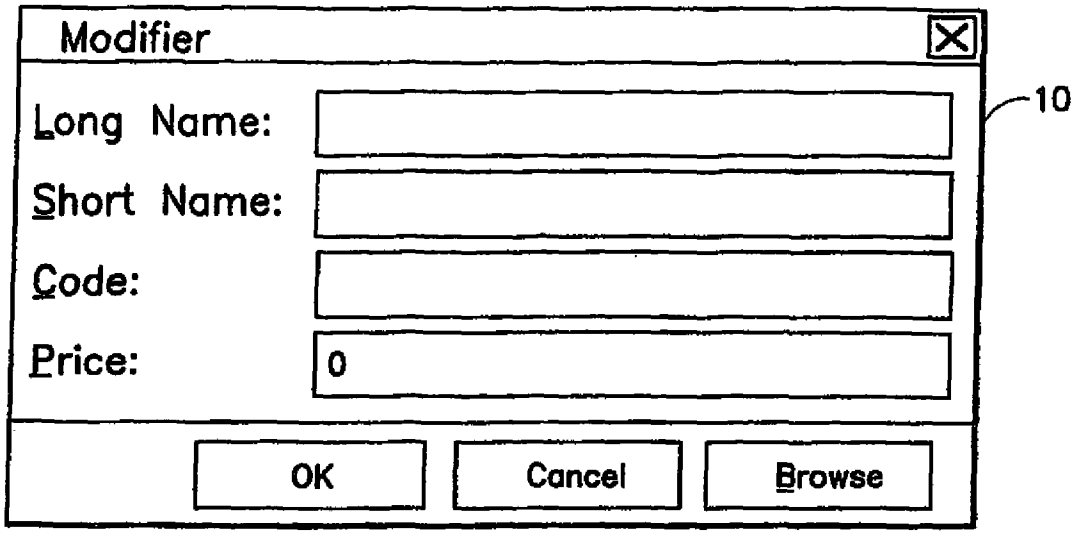

Modifier
Long Name:
Short Name:
Code:
Price:
0
OK
Cancel
Browse
10

FIG.2

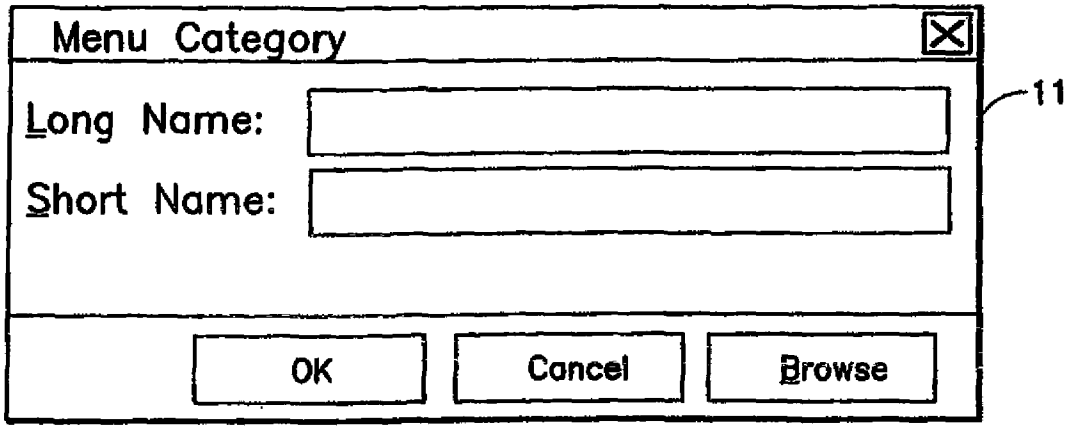

Menu Category
Long Name:
Short Name:
OK
Cancel
Browse
11

FIG.3

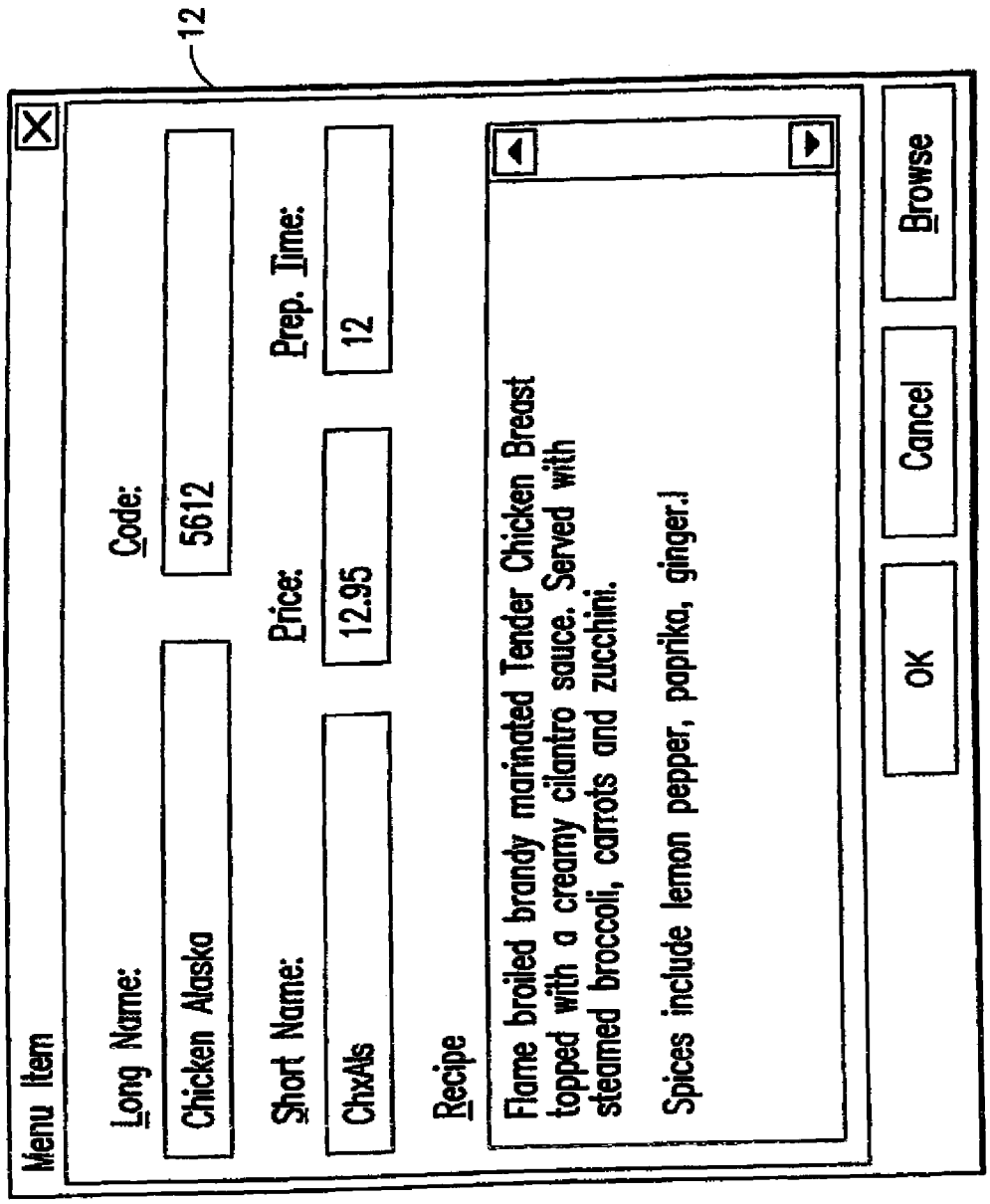


FIG.4

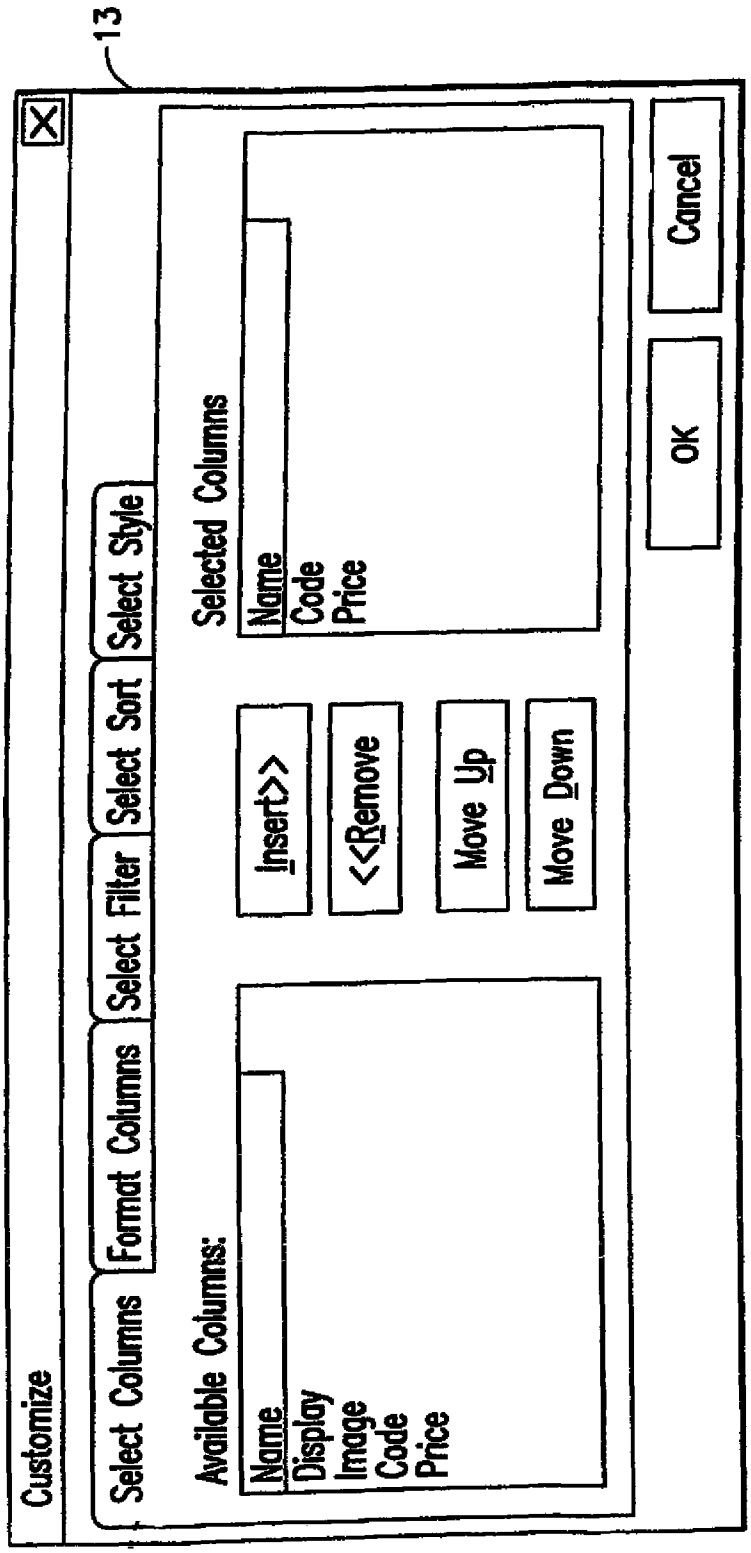


FIG.5

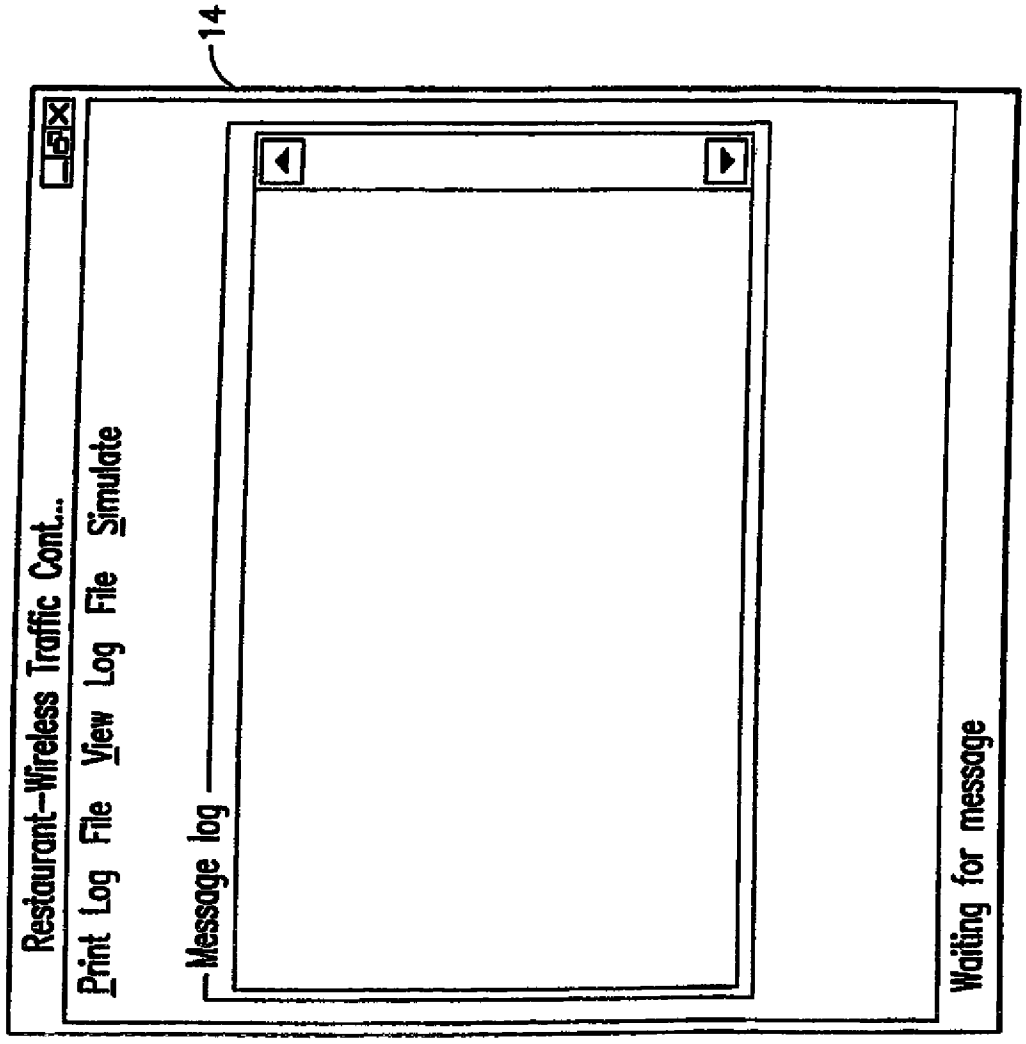

14
Restaurant-Wireless Traffic Cont...
Print Log File View Log File Simulate
Message log
Waiting for message

FIG.6

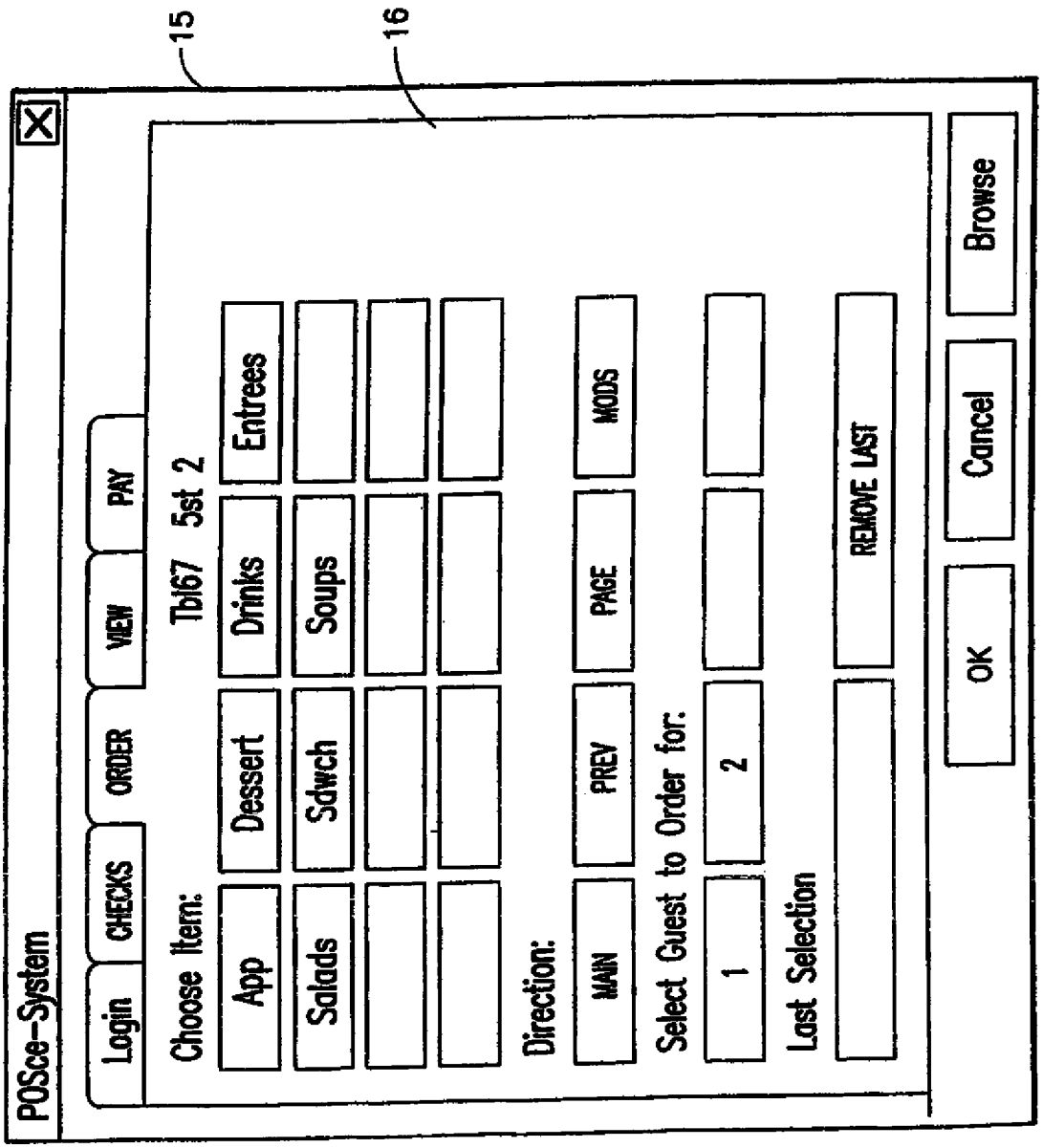
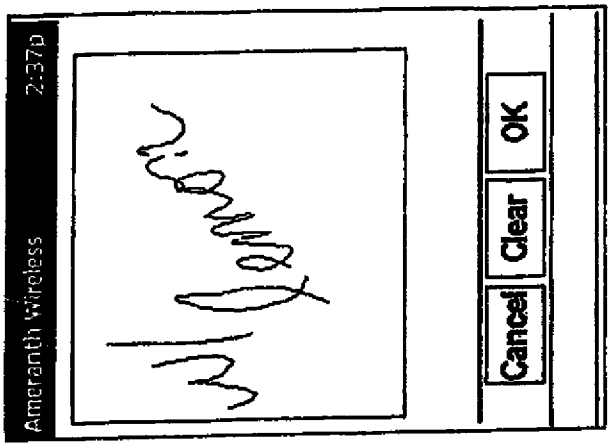


FIG. 7



This is an example of the ordering "Literal Screen".

FIG. 8

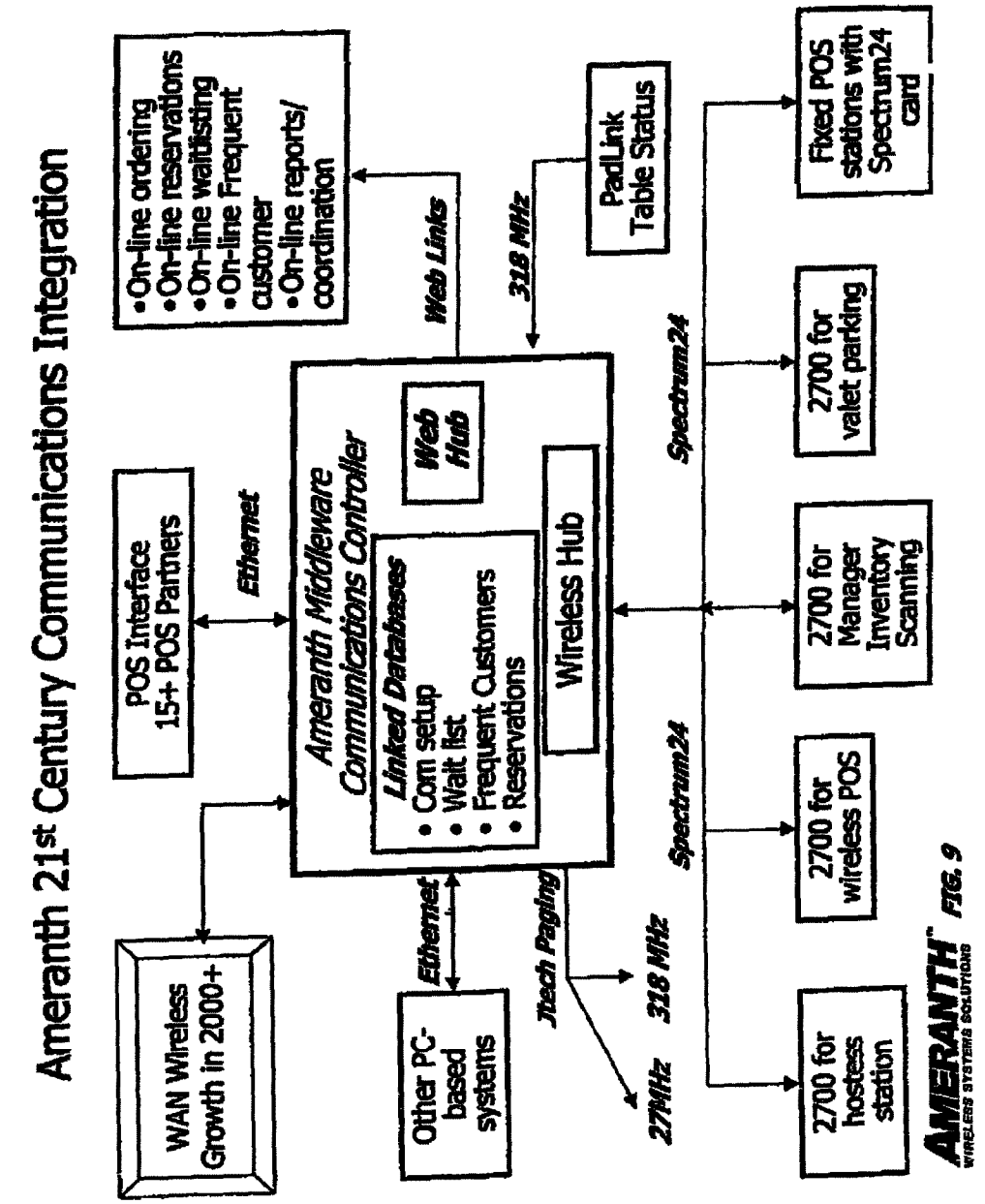


FIG. 9

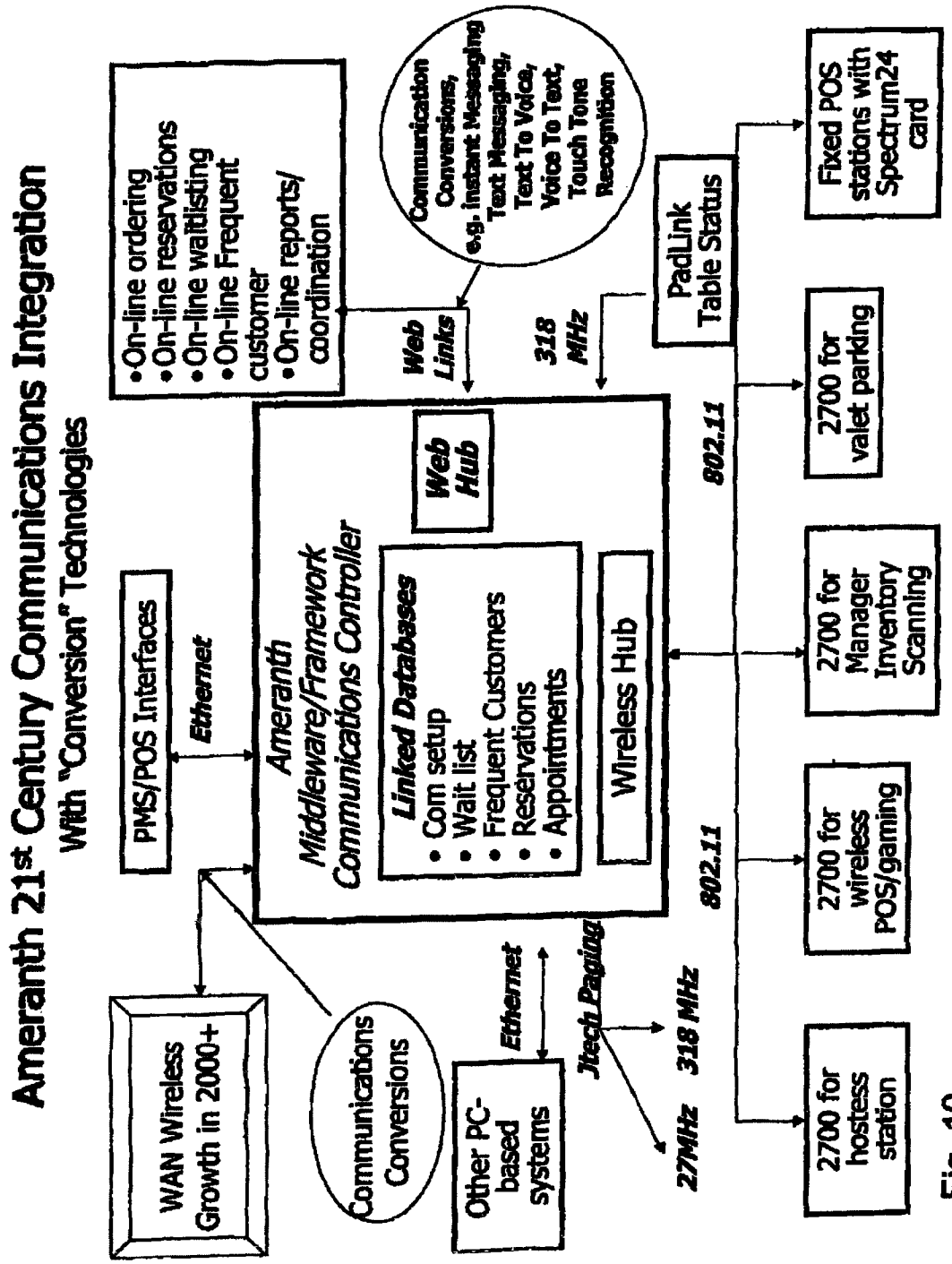


Fig. 10

INFORMATION MANAGEMENT AND SYNCHRONOUS COMMUNICATIONS SYSTEM

The present application is a continuation-in-part of application Ser. No. 14/112,990, filed Apr. 22, 2005, which is a continuation of application Ser. No. 10/016,517, filed Nov. 1, 2001, which is a continuation-in-part of application Ser. No. 09/400,413, filed Sep. 21, 1999 (now U.S. Pat. No. 6,384,850). The contents of application Ser. No. 11/112,990, application Ser. No. 10/016,517, and application Ser. No. 09/400,413 are incorporated herein by reference.

FIELD OF THE INVENTION

This invention relates to an information management and synchronous communications system and method for generation of computerized menus for restaurants and other applications with specialized display and synchronous communications requirements related to, for example, the use of equipment or software with non-PC-standard graphical formats, display sizes and/or applications for use in remote data entry, information management and synchronous communication between host computer, digital input device or remote pager via standard hardwired connection, the internet, a wireless link, smart phone or the like.

BACKGROUND OF THE INVENTION

While computers have dramatically altered many aspects of modern life, pen and paper have prevailed in the hospitality industry, e.g., for restaurant ordering, reservations and wait-list management, because of their simplicity, ease of training and operational speed. For example, ordering prepared foods has historically been done verbally, either directly to a waiter or over the telephone, whereupon the placed order is recorded on paper by the recipient or instantly filled.

Although not previously adapted for wide-scale use in the hospitality industry, various forms of digital wireless communication devices are in common use, e.g., digital wireless messengers and pagers. Also in common use are portable laptop and handheld devices. However, user-friendly information management and communication capability not requiring extensive computer expertise has not heretofore been available for use in everyday life such as for restaurant ordering, reservations and wait-list management. Hundreds of millions of dollars have been spent on personal digital assistant ("PDA") development seeking to produce a small, light-weight and inexpensive device that could be adapted to such uses; yet none have yielded a satisfactory solution.

One of the inherent shortcomings of PDA type devices is that, as they strive for small size, low weight and low cost, they must compromise the size and clarity of the operator, display medium interface itself, which in most cases is one of a variety of LCD (liquid crystal display) type devices. As the size of the display shrinks, the amount of information that may be displayed at any one point or time is commensurately decreased, typically requiring multiple screens and displays to display information to the operator. This reduces the overall utility of the device. Additionally, the smaller display and keyboard results in a non-optimal operator interface, which slows down operation and is thus unacceptable for the time criticality of ordering, reservation and wait-list management and other similar applications. This necessitates many design compromises which in the aggregate have resulted in limited acceptance of PDA type devices in the restaurant and hospitality fields.

Many of the negatives prevalent in earlier devices have been eliminated, but, to date, there is still no integrated solution to the ordering/waitlist/reservation problem discussed above. With the advent of the Palm® and other handheld wireless devices, however, the efforts to make such devices ubiquitous have begun to bear fruit at least in some areas, e.g., personal calendars. However, substantial use of such devices in the restaurant and hospitality context has not occurred to date. As discussed above, at least one of the reasons PDAs have not been quickly assimilated into the restaurant and hospitality industries is that their small display sizes are not readily amenable to display of menus as they are commonly printed on paper or displayed on, e.g., large, color desktop computer screens. Another reason is that software for fully realizing the potential for wireless handheld computing devices has not previously been available. Such features would include fast and automatic synchronization between a central database and multiple handheld devices, synchronization and communication between a World Wide Web ("Web") server and multiple handheld devices, a well-defined application program interface ("API") that enables third parties such as point of sale ("POS") companies, affinity program companies and internet content providers to fully integrate with computerized hospitality applications, real-time communication over the internet with direct connections or regular modem dialup connections and support for batch processing that can be done periodically throughout the day to keep multiple sites in synch with the central database. A single point of entry for all hospitality applications to communicate with one another wirelessly has also previously been unavailable. Such a single point of entry would work to keep all wireless handheld devices and linked Web sites in synch with the backoffice server (central database) so that the different components are in equilibrium at any given time and an overall consistency is achieved. For example, a reservation made online would be automatically communicated to the backoffice server and then synchronized with all the wireless handheld devices wirelessly. Similarly, changes made on any of the wireless handheld devices would be reflected instantaneously on the backoffice server, Web pages and the other handheld devices.

For the foregoing reasons, paper-based ordering, waitlist and reservations management have persisted in the face of widespread computerization in practically all areas of commerce. At most, computerization of these functions has been largely limited to fixed computer solutions, i.e., desktop or mainframe, because of the problems heretofore faced in configuring wireless handheld devices and maintaining database synchronization for such applications. Specifically, the unavailability of any simple technique for creating restaurant menus and the like for use in a limited display area wireless handheld device or that is compatible with ordering over the Internet has prevented widespread adoption of computerization in the hospitality industry. Without a viable solution for this problem, organizations have not made the efforts or investments to establish automated interfaces to handheld and Web site menus and ordering options.

A principal object of the present invention is to provide an improved information management and synchronous communications system and method which facilitates user-friendly and efficient generation of computerized menus for restaurants and other applications that utilize equipment with non-PC-standard graphical formats, display sizes and/or applications.

A further object of the present invention is to provide an improved information management and synchronous communications system and method which provides for entry, management and communication of information from the operator as well as to and from another computer, Web page menu, remote digital device using a standard hardwired connection, the internet or a wireless link.

A further object of the present invention is to provide an improved information management and synchronous communications system which is small, affordable and lightweight yet incorporates a user-friendly operator interface and displays menus in a readily comprehensible format.

A further object of the present invention is to provide a synchronous information management and communications system which enables automatic updating of both wireless and Internet menu systems when a new menu item is added, modified or deleted from any element of the system.

SUMMARY OF THE INVENTION

The foregoing and other objects of the present invention are provided by a synchronous information management and communications system and method optimized for simplicity of operation which incorporates menu generation for creation of menus to be used with wireless remote handheld computer and PDA devices, the Internet or any application where simple and efficient generation of menus is appropriate. The menu generation approach of the present invention includes a desktop software application that enables the rapid creation and building of a menu and provides a means to instantly download the menu configuration onto, e.g., a handheld device or Web page and to seamlessly interface with standard point of sale ("POS") systems to enable automatic database updates and communication exchanges when a change or input occurs in any of the other system elements. To solve the above and other related problems, an information management and communications system is provided which results in a dramatic reduction in the amount of time, and hence cost, to generate and maintain computerized menus for, e.g., restaurants and other related applications that utilize non-PC-standard graphical formats, display sizes or applications.

The menu generation approach of the present invention has many advantages over previous approaches in solving the problem of converting paper-based menus or Windows® PC-based menu screens to small PDA-sized displays and Web pages. In one embodiment, the present invention is a software tool for building a menu, optimizing the process of how the menu can be downloaded to either a handheld device or Web page, and making manual or automatic modifications to the menu after initial creation.

Manual modifications to the generated menus include handwritten screen captures and/or voice recorded message captures coupled with the standard menus and modifiers generated according to standard choices. Such manual modifications enable an extremely rapid and intuitive interface to enhance operations and further optimize the overall operator interface. This approach solves a long-standing, operational issue in restaurant/hotel/casino food/drink ordering when customers want something unusual and not anticipated and available through normal computerized selections. As seen in FIG. **8**, the operator screen on the hand-held can capture handwritten information specific to a customers requests directly on the touch-sensitive screen of the wireless computing device. This additional information can then be coupled with the fixed menu and modifier information generated automatically from the hospitality application

software and the combined message can be sent to a restaurant point of sale (POS) system, printer or/or display system. This unique operator interface enables universal languages and an unlimited set of information to be manually communicated and exchanged. The resultant combined message of one or more fixed indications selected from a menu of a device such as a hand-held, and dynamic handwritten messages and/or data provides an even more powerful tool than either modality used independently.

For example a restaurant server taking a drink order could select from a menu of her hand-held device's screen "Iced Tea", and then manually write in the literal screen of her hand-held "with lemon" as shown in FIG. **8**. The manually-written information could, for example, be printed or displayed in front of a bartender preparing the drink order. The indication "Iced Tea" as selected from a menu of the hand-held would also be presented to the bartender, perhaps by printing and/or screen display. The server can also select any printer from within the hospitality establishment directly from the operator interface on the screen of the hand-held and have either the order or the receipt printed out where it is most convenient and efficient.

Similarly, a server taking a drink order could select from a menu of her hand-held device's screen "Iced Tea", and then record the voice message "with lemon" using her hand-held device integral microphone. The recorded information could, for example, be played on a speaker attached to a computer, POS system, or the like located near the bartender or chef preparing the order. The indication "Iced Tea" as selected from a menu of the hand-held would also be presented to the bartender/chef, perhaps by printing and/or screen display. Both the literal screen capture method and the voice recorded message method combine the power of automatic fixed menu generation with the expanded flexibility to resolve operational issues that exist throughout the hospitality market without this innovative solution. Additionally, in certain embodiments, hand-writing and voice recognition technologies can be utilized to convert the manual operator inputs into appropriate text messages which can be combined with the computer generated menu options to convey the combined information to, for example, a bartender or chef.

Similarly, hand-held devices can link the above innovations to individual customers at specific tables through a graphical user interface on the hand-held screen that assigns each customer a number within a table. For example, table 20 might have 6 customers (1-6) and each customer has a different order, By enabling the linkage of the orders to specific customer positions within the table and accessible from the hand-held screen, the servers can easily track and link the specific orders to the specific customers.

The use of wireless handheld devices in the restaurant and hospitality industry is becoming increasingly pervasive as restaurant owners and managers become more aware of the benefits. With the proper wireless handheld system in place, restaurants can experience increased table turns from improved server productivity and shorter order taking and check paying times. Restaurants and POS companies seeking to provide a wireless handheld interface to their desktop-based POS systems or a Web page equivalent face several challenges. These challenges include building a menu using their existing database and transferring the menu onto handheld devices or Web pages that will interface with servers wirelessly or to restaurants/customers over the internet. The menu generation approach of the present invention is the first coherent solution available to accomplish these objectives easily and allows one development effort to produce

both the handheld and Web page formats, link them with the existing POS systems, and thus provides a way to turn a complicated, time-consuming task into a simple process.

The information management and synchronous communications system of the present invention features include fast synchronization between a central database and multiple handheld devices, synchronization and communication between a Web server and multiple handheld devices, a well-defined API that enables third parties such as POS companies, affinity program companies and internet content providers to fully integrate with computerized hospitality applications, real-time communication over the internet with direct connections or regular modem dialup connections and support for batch processing that can be done periodically throughout the day to keep multiple sites in synch with the central database.

The communication module also provides a single point of entry for all hospitality applications, e.g., reservations, frequent customer ticketing, wait lists, etc. to communicate with one another wirelessly and over the Web. This communication module is a layer that sits on top of any communication protocol and acts as an interface between hospitality applications and the communication protocol and can be easily updated to work with a new communication protocol without modifying the core hospitality applications. An exemplary system diagram of such a communications systemic relationship is shown in FIG. **9** and serves as an example of the power of the synchronization element of the invention through a common, linked solution. A single point of entry works to keep all wireless handheld devices and linked web sites in synch with the backoffice server applications so that the different components are in equilibrium at any given time and an overall consistency is achieved. For example, a reservation made online can be automatically communicated to the backoffice server and then synchronized with all the wireless handheld devices wirelessly. Similarly, changes made on any of the wireless handheld devices are reflected instantaneously on the backoffice server. Web pages and the other handheld devices.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing features and advantages of the present invention can be appreciated more fully from the following description, with references to the accompanying drawings in which:

FIG. **1** is a schematic representation of a window displayed on a computer display screen which shows a hierarchical tree menu, modifier window and sub-modifier window in conformity with a preferred embodiment of the present invention.

FIG. **2** is a schematic representation of a modifier dialog box in conformity with a preferred embodiment of the present invention.

FIG. **3** is a schematic representation of a menu category dialog box in conformity with a preferred embodiment of the present invention.

FIG. **4** is a schematic representation of a menu item dialog box in conformity with a preferred embodiment of the present invention.

FIG. **5** is a schematic representation of a display customization dialog box in conformity with a preferred embodiment of the present invention.

FIG. **6** is a schematic representation of a communications control window in conformity with a preferred embodiment of the present invention.

FIG. **7** is a schematic representation of a point of sale interface on a wireless handheld device for use in displaying page menus created in conformity with a preferred embodiment of the present invention.

FIG. **8** is an example of a literal, hand-written screen according to embodiments of the present invention.

FIG. **9** is an exemplary system diagram relating to embodiments of the present invention.

FIG. **10** is a further exemplary system diagram relating to embodiments of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Most personal computers today run under an operating system that provides a graphical user interface ("GUI") for accessing user applications. A GUI is used in the preferred embodiment of the present invention. Through an interface of windows, pull-down menus, and toolbars, GUI operating systems have simplified PCs and have rendered computer technology more user friendly by eliminating the need to memorize keyboard entry sequences. In addition, GUIs allow users to manipulate their data as they would physical entities. For example, a window can represent a file and the contents of the window can represent the records of the file. The window can be opened, closed, or set aside on a desktop as if it were an actual object. The records of the file can be created, deleted, modified and arranged in a drag-and-drop fashion as if they also were physical objects. The most common GUI operating systems that provide this "object-oriented" environment for personal computers are Microsoft Windows® systems, including Windows CE® for handheld wireless devices and the like. Generally, a particular application program presents information to a user through a window of a GUI by drawing images, graphics or text within the window region. The user, in turn, communicates with the application by "pointing" at graphical objects in the window with a pointer that is controlled by a hand-operated pointing device, such as a mouse, or by pressing keys on a keyboard.

The use of menus is conventional in GUIs for software applications. Menus are typically utilized to provide end users of applications with available choices or processing options while using the applications. For example, in a typical desktop or interactive application, selection of a "file" from a menu bar may cause display of a context menu which provides "file" options. File options can have additional subordinate or child options associated with them. If a file option having subordinate options is selected, the child options are displayed in context in a child menu or submenu proximate to the selected parent option. One or more of the child options provided in the child menu may have further subordinate options. Thus, such a menu system comprises cascading sets of menus which are displayable in context to show the parent/child relationships between options of the context menu. A menu system of this type is incorporated into the preferred embodiment of the invention.

The preferred embodiment of the present invention uses typical hardware elements in the form of a computer workstation, operating system and application software elements which configure the hardware elements for operation in accordance with the present invention. A typical workstation platform includes hardware such as a central processing unit ("CPU"), e.g., a Pentium® microprocessor, RAM, ROM, hard drive storage in which are stored various system and application programs and data used within the workstation, modem, display screen, keyboard, mouse and optional removable storage devices such as floppy drive or a CD

ROM drive. The workstation hardware is configured by software including an operating system, e.g., Windows® 95, 98, NT or CE, networking software (including internet browsing software) and application software components. The preferred embodiment also encompasses a typical file server platform including hardware such as a CPU, e.g., Pentium® microprocessor, RAM, ROM, hard drive, modem, and optional removable storage devices, e.g., floppy or CD ROM drive. The server hardware is configured by software including an operating system, e.g., Windows® 95, 98, NT or CE, networking software (including Web server software) and database software.

A computer workstation for use in the preferred embodiment also includes a GUI. As is conventional, the GUI is configured to present a graphical display on the display screen arranged to resemble a single desktop. Execution of an application program involves one or more user interface objects represented by windows and icons. Typically, there may be several windows and icons simultaneously present on the desktop and displaying information that is generated by different applications.

The window environment is generally part of the operating system software that includes a collection of utility programs for controlling the operation of the computer system. The computer system, in turn, interacts with application programs to provide higher level functionality, including a direct interface with the user. Specifically, the application programs make use of operating system functions by issuing task commands to the operating system which then performs the requested task. For example, an application program may request that the operating system display certain information on a window for presentation to the user.

An aspect of the preferred embodiment of the information management and communications system of the invention is shown in FIG. **1**. FIG. **1** shows an example of the GUI provided by the operating system of the preferred embodiment of the present invention. With reference to FIG. **1**, the preferred embodiment includes an intuitive GUI **1** from which to build a menu on a desktop or other computer. A hierarchical tree structure **2** is used to show the different relationships between the menu categories **3** (e.g., soups, salads, appetizers, entrees, deserts, etc.), menu items **4** (e.g., green salad, chicken caesar salad, etc), menu modifiers **5** (e.g., dressing, meat temperature, condiments, etc.) and menu sub-modifiers **6** (e.g., Italian, French, ranch, bleu cheese, etc.).

The procedure followed in configuring a menu on the desktop PC and then downloading the menu configuration onto the POS interface on the handheld device in conformance with the preferred embodiment is as follows.

The menu configuration application is launched by clicking on the appropriate icon on the desktop display screen. FIG. **1** will then be displayed. There are three windows on the screen shown in FIG. **1**. The left window is the menu tree **7**, also called the tree view. The top right window is the Modifiers window **8** and the bottom right window is the Sub-Modifiers window **9**. The Sub-Modifiers window lists the sub-modifiers that correspond to the modifier that is selected. The views on the right are referred to as list views. There are several ways of invoking a command, including using the menu options; using the context menu (right mouse click); using the keyboard or using the toolbar icons. For example, if it is desired to add a category to the menu, the following four options are available: (1) clicking on Edit, Add Category; (2) right mouse clicking on Menu, then clicking on Add Category; (3) highlighting Menu, then typing Ctrl+T or (4) clicking on the Add Category icon on the toolbar. To add an item to a category, the following options are available: (1) highlighting the category to which it is desired to add an item and then clicking on Edit>Add Item; (2) right mouse clicking on the desired category and then clicking on Add Item; (3) highlighting the desired category, then typing Ctrl+N or (4) clicking on the Add icon on the toolbar.

When building a menu, it should be kept in mind that the menu items are stored using a tree metaphor similar to how files are stored on a PC with folders and subfolders. The menu structure is similar to the Windows® File Explorer in the way the items are organized hierarchically. Below is an example of how an item may be configured:

```
Menu
>>      Entrees
        >>      Red Meat
                >>      NY Strip
                        >>      Vegetables
                                >>  Tomato
                                >>  Lettuce
                                Meat Temperature
                                >>  Medium Rare
```

In the above example, Menu is the root. Entrees is a menu category. Red Meat is an Entree category. NY Strip is a modifier. Vegetable is a modifier. Meat Temperature is a modifier. Medium Rare is a sub-modifier of Meat Temperature.

The steps taken in building a menu are as follows:

1. Add Modifiers;
2. Add Sub-Modifiers and link them to the Modifiers;
3. Create Menu categories;
4. Add menu items to the categories;
5. Assign Modifiers to the menu items;
6. Preview the menu on the POS emulator on the desktop PC;
7. Download the menu database to the handheld device.

To add modifiers, a user clicks on the inside of the Modifiers window, then (1) clicks on Edit>Add Modifier; (2) Presses Ctrl N; (3) right mouse clicks in the Modifiers window, then clicks on Add Modifiers or (4) clicks on the Add icon from the toolbar. If a menu is being built from scratch, the procedure is to enter the Long Name, Short Name, Code and Price in the Modifier dialog box **10** shown in FIG. **2**. The Long Name is the full descriptive name of the item. The Short Name is the abbreviated name that will be displayed on the handheld device. The Code is the numeric or alphanumeric, code for the item. If there is an existing database, the existing database can be browsed and menu items retrieved from the database. Clicking on the Browse button will bring up the existing database of menu items. The item to be added is then selected and "OK" is clicked. The fields will then be filled with the information from the database. Clicking on OK again will add the item as a modifier. To delete a modifier, the modifier is selected and the Delete key pressed on the keyboard. To edit a modifier, either the modifier is double clicked or the Enter key is pressed.

Sub-modifiers represent the last level of modifiers that can be assigned to a menu tree. To add sub-modifiers, the modifier to which sub-modifiers are to be assigned is selected. Then, the focus is set on the sub-modifier window by clicking inside the Sub-Modifier window as follows: (1) clicking on Edit>Add Sub-Modifier; (2) pressing Ctrl N; (3) right mouse clicking in the Sub-Modifiers window, then

clicking on Add Sub-Modifiers or (4) clicking on the Add icon from the toolbar. If a menu is being built from scratch, the procedure is to enter the Long Name, Short Name, Code and Price in a Sub-Modifier dialog box similar to the Modifier dialog box shown in FIG. **2**. As with modifiers, the Long Name is the full descriptive name of the item. The Short Name is the abbreviated name that will be displayed on the handheld device. The Code is the numeric or alpha-numeric code for the item. As before, if there is an existing database, the existing database can be browsed and menu items retrieved from the database. Clicking on the Browse button will bring up the existing database of menu items. The item to be added is then selected and OK clicked. The fields will then be filled with the information from the database. Clicking on OK again will add the item as a sub-modifier. To delete a sub-modifier, the sub-modifier is selected and the Delete key depressed on the keyboard. To edit a sub-modifier, either the sub-modifier is double clicked or the Enter key is pressed.

Menu categories are created from the root. Some examples of categories are Appetizers, Soups, Salads, Entrees, Desserts, etc. The first step is to click on Menu in the menu tree window. Categories are added by (1) clicking on the Add Category icon from the toolbar; (2) clicking on Edit>Add Category or (3) pressing Ctrl+T. As shown in FIG. **3**, Menu Category dialog box **11** then appears in which to enter the Long and Short names for the menu category.

To add menu items to categories, the menu category which is being built is clicked. For example, if items are being added to Appetizers, the Appetizers branch is clicked on. Then the Edit>Add Item is clicked on or Ctrl+N pressed. As before, if a menu is being built from scratch, the procedure is to enter the Long Name, Short Name, Code, Prep Time, Recipe and Price into the Menu Item dialog box **12** shown in FIG. **4**. The Long Name is the full descriptive name of the item. The Short Name is the abbreviated name that will be displayed on the handheld device. The Code is the numeric or alphanumeric code for the item. Prep Time is the time it takes to prepare the meal and Recipe would include preparation methods and ingredients that are used in the preparation of the item. If there is an existing database, the existing database can be browsed and menu items retrieved from the database. Clicking on the Browse button will bring up the existing database of menu items. The item to be added is then selected and OK is clicked. The fields will then be filled with the information from the database. Clicking on OK again will add the item to the category.

Once the menu items have been entered, it may be desired to assign some modifiers to the menu items. For example, it may be desired to assign meat temperature to a steak order. To accomplish this, first the modifier to be assigned is selected, then the menu item on the tree view that is to be assigned the modifier is clicked on and then Edit>Assign Modifier is clicked on. Or, the modifier can simply be dragged and dropped onto the menu item to link them. A dialog box is then displayed asking if this modifier is a required modifier. If it is a required modifier, the display icon will be red but if it is a non-required modifier the display icon will be green. As many modifiers as are applicable can be assigned. If any changes are made to the modifiers, those changes will be automatically reflected throughout the menu tree.

Once the modifiers have been entered, it may be desired to assign sub-modifiers to the modifiers items. For example, it may be desired to add Honey Mustard as a sub-modifier to Dressing. To accomplish this, first the modifier to be assigned a sub-modifier is selected, then the sub-modifier window is clicked on, then Edit>Add Sub Modifier is clicked on, Ctrl+N entered or the Add icon from the toolbar is clicked on. Or, the sub-modifier can simply be dragged and dropped onto the modifier to link them.

When the menu has been completely configured, it can be previewed on a POS emulator on the desktop to verify that the menu is correctly configured before downloading it to the handheld device. To preview, File>Preview Database is clicked on or the Preview Database icon from the toolbar is clicked on. The handheld POS emulator on the desktop can then be run. If the configuration is deemed acceptable, the handheld device is connected to the desktop PC to ensure that a connection has been established; the POS application on the handheld device is exited and File>Download Database is clicked on or the Download Database icon from the toolbar is clicked on. If there is an existing menu database on the handheld device, the system will ask if the existing database should be replaced. Yes is clicked if existing database replacement is desired.

A database function enables the creation of, e.g., a breakfast menu, lunch menu and dinner menu and downloading them to a handheld device. Functions available are (1) creating a new database; (2) opening an existing database; (3) saving a database under a different name. To access these functions, File is clicked on the menu bar.

The preferred embodiment encompasses customized layout, views and fonts. To set the focus on the view it is desired to change, click inside the desired window. The main customizing dialog box is accessed by clicking on View>Customize View. A dialog box **13**, as shown in FIG. **5**, will be displayed including tabs that allow the following options: selection of Columns to display in the list view by choosing and arranging the fields to display in the Modifiers and Sub-Modifiers windows; formatting Columns by specifying the column widths and justification; selecting Filter allows restricting the list to display only the items that meet certain criteria. For example, display of modifiers with codes between 500 and 550. Selecting Sort allows sorting the modifiers or sub-modifiers according to any of the available fields such as Name, Code or Price. Selecting Style facilitates choice of font type, style, size, etc. To change the font in a particular window, click on View>Fonts or right mouse click in the desired window and then click on Fonts. To change the size of the windows, drag the borders of the windows to expand or contract the size of the windows. To change the column widths, simply drag the edge of the column headers to increase or decrease the column widths.

A communications control program monitors and routes all communications to the appropriate devices. It continuously monitors the wireless network access point and all other devices connected to the network such as pagers, remote devices, internet Web links and POS software. Any message received is decoded by the software, and then routed to the appropriate device. No user action is needed during operation of the software once the application has been launched. To launch the communications control module, a Wireless Traffic icon is clicked on the desktop PC. When the program loads, the screen shown in FIG. **6** appears. Messages received are logged in the window **14** shown in FIG. **6** with a time stamp. The messages are also logged to a file on the hard drive. This provides a mechanism to monitor all traffic across the network (possibly useful for troubleshooting, or maintenance, but not necessary for normal operation). The program may be minimized so the screen is not displayed on the desktop, but it must be running for proper communications to exist between all devices on the network.

As stated, the preferred embodiment of the present invention includes the use of and compatibility with GUI technology. A drag-and-drop approach is used for organizing the tree structure **2** in the generated menu. Drag-and-drop is also used for assigning modifiers (modifiers can be dragged from the modifiers window **5** and dropped onto the menu item **4** for assignment). In-cell editing results in fast editing of items in building the menus. Customizable fonts enable users to change font types, style and size. Customizable layouts enable users to resize windows, change icons and display preferences. The inventive approach provides for fully persistent storage between sessions, even if a session is improperly or abruptly terminated. Font and the tree state (i.e., which nodes are expanded/collapsed) are stored between sessions. Layout for modifiers and sub-modifiers list views (filter, columns, formatting, font, etc.) are stored between sessions. The last database used is likewise stored between sessions. Splitter views allow the user to see different views at the same time. Each view is displayed on its own section of the screen. Views can be resized via the keyboard or a mouse by simply dragging the splitter in the middle.

An automated function is provided to import existing POS databases into the inventive menu generation system and, as discussed above with respect to the detailed example of how to use the preferred embodiment, an automated download procedure is provided to transfer the desktop database onto a handheld device and/or Web page. Also as discussed, the preferred embodiment facilitates preview of the handheld device or Web page version of the POS menu on the desktop before downloading and configuration. Customizable desktop menu generation is contemplated, as discussed above, in the form of customizable fonts, columns, layouts, etc. The inventive approach also includes templates for common modifiers that can be assigned to similar menu items. The preferred embodiment also supports multiple databases, thus providing for the creation and storing of different menu databases on handheld devices such as breakfast, lunch or dinner menus. The user can then select the appropriate database to reflect the time of day.

FIG. **7** is a schematic representation of a point of sale interface **15** for use in displaying a page-type menu **16** created using the inventive menu generation approach. As can be seen from FIG. **7**, the page menu is displayed in a catalogue-like point-and-click format whereas the master menu, FIG. **1**, is displayed as a hierarchical tree structure. Thus, a person with little expertise can "page through" to complete a transaction with the POS interface and avoid having to review the entire menu of FIG. **1** to place an order. A PDA or Web page format could appear like FIG. **7** or the display could be configured for particular requirements since fully customizable menu generation and display are contemplated.

The POS interface on the handheld device supports pricing in the database or querying prices from the POS server. The POS device also can be customized with respect to "look and feel" for the particular version. As can be seen in FIG. **7**, the POS interface provides for billing, status and payment with respect to orders. A myriad of options can be provided depending on the application.

Advanced database functions are provided in the preferred embodiment of the invention, including an automated download process onto handheld devices and/or Web sites. In the preferred embodiment, the menu generation system of the present invention uses an API called ActiveX Data Objects ("ADO") for database access. ADO is useful in a variety of settings. It is built on top of OLE DB and can be used to talk to databases and, in the future, any data source with any OLE DB driver. Advanced querying is supported. The database can be queried on virtually all fields. Queries can be built using SQL syntax for experienced users or can be created using a query builder which guides users through the creating process. Advanced error handling is supported. Errors occurring at run time can be trapped. A descriptive message is displayed to alert the user and provide error information. However, the application does not terminate when the errors happen. The source code is easy to maintain and modify, thus allowing for on time delivery of customized versions of the software. The advanced database functions produce well-designed databases that accommodate growth and scalability

The inventive menu generation approach provides a solution for the pervasive connectivity and computerization needs of the restaurant and related markets. The inventive solution includes automatic database management and synchronization, PDA and handheld wireless operating system integration and optimization, wireless communications and internet connectivity, user interface design, and graphics design.

In the preferred embodiment, the menu generation approach of the present invention uses Windows CE® as the operating system for the handheld devices. Windows CE® provides the benefits of a familiar Windows 95/98/NT® look and feel, built-in synchronization between handheld devices, internet and desktop infrastructure, compatibility with Microsoft Exchange®, Microsoft Office 9® and TCP/IP quick access to information with instant-on feature.

Windows CE® provides a basic set of database and communication tools for developer use. However, interfacing with these tools to provide application specific results can be a complex task. In addition to the menu generation described above, a set of software libraries described herein in conformance with the present invention not only enhances the basic Windows CE® functionality by adding new features but also maximizes the full potential of wireless handheld computing devices. Such features include fast synchronization between a central database and multiple handheld devices, synchronization and communication between a Web server and multiple handheld devices, a well-defined API that enables third parties such as POS companies, affinity program companies and internet content providers to fully integrate with computerized hospitality applications, real-time communication over the internet with direct connections or regular modem dialup connections and support for batch processing that can be done periodically throughout the day to keep multiple sites in synch with the central database.

The synchronous communications control module discussed above provides a single point of entry for all hospitality applications to communicate with one another wirelessly or over the Web. This communications module is a layer that sits on top of any communication protocol and acts as an interface between hospitality applications and the communication protocol. This layer can be easily updated to work with a new communication protocol without having to modify the core hospitality applications. The single point of entry works to keep all wireless handheld devices and linked Web sites in synch with the backoffice server (central database) so that the different components are in equilibrium at any given time and an overall consistency is achieved. For example, a reservation made online is automatically communicated to the backoffice server which then synchronizes with all the wireless handheld devices wirelessly. Similarly, changes made on any of the wireless handheld devices will

be reflected instantaneously on the backoffice server and the other handheld devices. In various embodiments, the reservation might be converted into one or more messages (e.g., text messages and/or instant messages), and/or text-to-voice functionality might be employed to allow direct interaction via any telephone.

The software applications for performing the functions falling within the described invention can be written in any commonly used computer language. The discrete programming steps are commonly known and thus programming details are not necessary to a full description of the invention.

A simple point-to-point wireless capability is contemplated which permits simple digital messages to be sent from the wireless handheld devices to a receiver in a beeper and/or valet parking base-station. The POS interface of FIG. **7** is representative of the display on a typical wireless device used in conformity with the invention. A simple protocol is used to acknowledge receipt of the message and thus simultaneous communication is not necessary, which reduces the cost of the wireless link. The range of the wireless link is determined by the characteristics of the radio transceiver. Adding a wireless link allows paging of beeper equipped customers directly from the operator interface on the wireless handheld devices and communication to and from various input/output transmitters and receivers to update the status of the order, reservation or other information and thus further reduce the workload on the operator and enable operations to proceed much faster. This link could also be hardwired or otherwise implemented using any two-way messaging transport. According to various embodiments of the present invention, messaging (e.g., wireless text messaging and/or wireless instant messaging) and/or text-to-voice functionality may be employed, for instance, in appointment, waitlist, and/or reservation operations. Such functionality might, in various embodiments, involve messaging (e.g., wireless messaging), text-to-voice, and/or two-way interactivity, and/or may involve communication via landline telephones, cellular telephones, and/or wireless devices.

Such functionality may be implemented in a number of ways. So as to illustrate by way of example, employing such functionality in the making of appointments and/or reservations will be discussed. It is noted that, in various embodiments, reservations functionality might include the use of waitlists. It is further noted that, in various embodiments, waitlist requests (e.g., in restaurants and/or casinos) might be viewed as short-term and/or on-the-spot reservation requests.

A user (e.g., a customer or staff member) desiring to make an online appointment and/or reservation for an entity (e.g., a restaurant, a plumber or other repair service, a hair salon, a healthcare establishment (e.g., a doctor's office, dentist's office, or hospital), or a pet groomer) might, for example, employ a web page (e.g., of a web portal) to specify the desired entity. As another example, the user might employ a web page (e.g., of a web portal) as a means of remote access.

The user might, for example, choose the entity from entities listed by the web page. Such listed entities might, for instance, be ones matching criteria specified by the user. Such criteria might, for example, include location, type, and/or price range. Having specified the entity for which he wished to make an appointment and/or reservation, the user might be able to specify relevant information such as, for instance, name under which the appointment and/or reservation should be made, number of people, desired appointment and/or reservation date, and/or desired appointment and/or reservation time. In various embodiments, the user might be able to specify alternatives for various of such information (e.g., specifications of second and/or third choices for desired appointment and/or reservation time). Specifications might, for instance, be via one or more links and/or other GUI elements provided by the web page.

It is noted that, in various embodiments, the user might be able to specify multiple desired entities. For example, the user might be able to specify that he desires to make an appointment and/or reservation with each of multiple specified entities. As another example, the user might be able to specify that he desires that an appointment and/or reservation be made with only one of multiple specified entities. For instance, in various embodiments the user might be able to rank specified entities, and an appointment and/or reservation could be made on behalf of the user with the highest ranking entity for which an appointment and/or reservation could be successfully made.

To illustrate by way of example, the user might specify three restaurants, ranked "1", "2", and "3", with "1" being the most desirable. In the case where appointment and/or reservation with restaurant "1" was not possible, but appointment and/or reservation with each of restaurants "2" and "3" was possible, appointment and/or reservation could be made on behalf of the user with restaurant "2".

With the user having provided such information, one or more operations could be performed to communicate with the entity in a manner employing automated messaging (e.g., automated wireless messaging). Such automated messaging might, for example, involve an automated telephone call wherein some or all of the information provided by the user is automatically converted to spoken words (e.g., via text-to-voice) and conveyed to the entity. As another example, such automated messaging might involve automated text messaging (e.g., automated wireless text messaging) and/or automated instant messaging (e.g., automated wireless instant messaging) wherein some or all of the information provided by the user is automatically converted to text and/or data and conveyed to the appropriate entity.

For example, a computer (e.g., a server) might act to contact the entity in an automated manner. The computer might, for example, determine the phone number of the entity (e.g., via database lookup) and place an automated telephone call to the entity. As another example, the computer might, alternately or additionally, determine a messaging address and/or telephone number of the entity (e.g., via database lookup) and send a message (e.g., of the sort discussed above) in an automated manner to the entity. In placing such a telephone call and/or sending such a message the computer might, for example, use integrated and/or peripheral telephone access hardware and/or voice synthesis hardware. It is noted that, in various embodiments, the computer might act to provide the webpage to the user. Alternately or additionally, in various embodiments the webpage might be provided by other than the computer. In various embodiments, as this process continues, synchronization (e.g., database synchronization throughout the system network) may be maintained (e.g., as shown in FIG. **10**). It is noted that, in various embodiments, such synchronization may occur at all times.

With the message and/or call being answered at the entity, the computer might perform one or more operations. For example, the computer might convey (e.g., subsequent to automatic conversion of information provided by the user) the desired appointment and/or reservation to the entity. The computer might, in various embodiments, further convey the source of the entity (e.g., the name of a web page and/or

company employed by the user in making the appointment and/or reservation). To illustrate by way of example, the computer might speak:

"Hello, this is your automated reservations assistant. I have a new reservation for you. The reservation is for Mr. Smith, party of 6, for May 1st".

In various embodiments, similar information might be conveyed by the computer via messaging (e.g., via automated wireless messaging).

Having conveyed the desired appointment and/or reservation, the computer might, for instance, seek one or more responses from the entity. The computer might, for example, seek responses entered via touch tone keypad via the call. Such entered response might, for instance, be automatically converted via touch tone recognition technology. As another example, the computer might seek spoken responses via the call. Such spoken responses might, for instance, be automatically converted via voice recognition technology (e.g., of the sort discussed above). As another example, such spoken responses might be automatically converted, captured, and/or stored, and be presented to the user (e.g., via the web page, telephone call, and/or messaging). In seeking responses, the computer might perform one or more operations.

For example, the computer might speak to indicate that "1" should be spoken and/or pressed by an individual affiliated with the entity who answers the phone in the case where the appointment and/or reservation is acceptable, that "2" should be spoken and/or pressed in the case where the appointment and/or reservation is denied, that "3" should be spoken and/or pressed in the case where it is desired that the user seeking the appointment and/or reservation call the entity to make other arrangements, and that "4" should be spoken and/or pressed to relay a voice message instruction to the user. The computer might, in various embodiments, seek similar information via messaging (e.g., automated wireless messaging). Such a relayed voice message might, for instance, be presented to the user in a manner analogous to that discussed above (e.g., via web page, telephone call, and/or messaging). The relayed voice message might, in various embodiments, be automatically converted for such presentation to the user. With the individual affiliated with the entity specifying one of the choices, the computer might, for example, make note of the selection, and/or process and/or store the selection for integration with one or more operations discussed herein (e.g., synchronization). Synchronization might, in various embodiments, be performed as shown in FIG. **10**.

It is noted that, in various embodiments, in the case where the computer was not able to successfully reach the entity and/or receive a valid response from the entity, the computer might keep trying and/or try alternate contact modes. Alternately or additionally the computer might in various embodiments, if appropriate, attempt to contact one or more other entities. As noted above, in various embodiments of the present invention the user might be able to specify that he desires that an appointment and/or reservation be made with only one of multiple specified entities (e.g., with the user ranking the specified entities). The computer might, in various embodiments, attempt to reach (e.g., in a manner discussed above) each of such multiple specified entities seeking appointment and/or reservation. For example, the computer might attempt to reach each of such multiple specified entities in one or more orders corresponding to user ranking (e.g., attempting to reach the highest-ranking entity first). The computer might, in various embodiments, stop attempting to reach such multiple specified entities in the case where an appointment and/or reservation was successfully made. It is noted that such functionality could, in various embodiments, occur without human action on the part of the user and/or a provider of the web page.

The computer might, in various embodiments, act to pursue multiple entities in parallel. In so pursuing entities in parallel the computer might, for example, present to the user results and/or progress of its work (e.g., as appointment and/or reservation availability results), and/or allow the user to select from presented possibilities a desired choice. The multiple entities so pursued might, in various embodiments, be automatically chosen by the computer. For example, the computer might choose the multiple entities in accordance with matches to search criteria (e.g., real-time search criteria). As another example, the computer might, alternately or additionally, choose the multiple entities in accordance with previously established (e.g., stored) user unique lists (e.g., a list of the user's **15** favorite restaurants).

To illustrate by way of example, the user might learn of restaurants for which appointment and/or reservation could be secured (e.g., for a particular date and time), and select from those a desired restaurant. Such communication with the user might, for example, be implemented in a manner analogous to that discussed above.

It is additionally noted that, in various embodiments, multiple modes of contact might be available to the computer for communicating with the entity. For example, the computer might be able to employ one or more telephone calls, web pages, emails, pages, facsimiles, instant messages, and/or text messages conveying (e.g., subsequent to automatic conversion of information provided by the user) the desired appointment and/or reservation, and/or seeking responses from the entity. As another example, the computer might be able to receive and/or interpret (e.g., with automatic conversion of information provided by the entity) one or more telephone calls, web pages, emails, pages, facsimiles, instant messages, and/or text messages conveying the entity's responses. In various embodiments, in the case where one mode of contact was not successful, another mode might then be tried.

In various embodiments, the entity might be able to offer one or more alternate appointments and/or reservations (e.g., in the case where a desired appointment and/or reservation could not be provided). Such functionality might be implemented in a number of ways. The entity might, in various embodiments, be able to specify that such an suggested alternate appointment and/or reservation would be held until a particular date and/or time, and/or that such an suggested alternate appointment and/or reservation would not be held, and that the user was advised to provide a decision regarding the acceptability of the suggested alternate appointment and/or reservation by a specified time and/or date. Accordingly, in various embodiments, in the case where the user did not indicate such an suggested alternate appointment and/or reservation to be acceptable by the termination of the hold, the corresponding inventory (e.g., availability inventory) might be freed up for use by others. The provision of one or more alternate appointment and/or reservation times, dates, and/or other information by an entity might, for example, be via touch tone keypad, voice, preset availability, and/or messaging. In various embodiments, one or more databases and/or computers might come to know of the results of communicating with the entity, one or more statistics might be stored, updated, and/or generated, and/or one or more reports might be stored, updated, and/or generated (e.g., as shown in FIG. **10**). Accordingly, for instance, one or more records of appointments and/or reservations and/or avail-

abilities for the entity might be updated. Some or all of such results, statistics, and/or reports might, in various embodiments, be accessible (e.g., via web page and/or via text-to-voice) by, for instance, entities and/or system administrators. In various embodiments, a password and/or identifier (e.g., an access code) might need to be provided. Additionally, in various embodiments, management alerts to various criteria (e.g., preset criteria) might be generated. Such alerts (e.g., late appointments and/or a patent being late for a required action in a hospital) might, for example, be automatically communicated to the appropriate management staff of the appropriate entity when corresponding criteria were met. Communication of such alerts might, for instance, be performed in a manner analogous to that discussed above (e.g., via automated telephone call employing text-to-voice, automated text messaging, and/or automated instant messaging).

The user seeking the appointment and/or reservation could, in various embodiments, come to know of the results of communicating with the entity (e.g., subsequent to automatic conversion of information provided by the entity). For example, the user might be informed by way of web page, email, page, telephone call (e.g., employing text-to-voice), facsimile, instant message, and/or text message. In various embodiments, a password and/or identifier (e.g., an access code) might need to be provided. In embodiments where one or more alternate appointments and/or reservations were suggested by the entity, the user might be able to indicate the acceptability of those alternate appointments and/or reservations. The entity could then, in various embodiments, be made aware of the user's response. Such functionality for communicating with the user and/or entity might, for instance, be implemented in a manner analogous to that discussed above (e.g., automatic conversion might be employed).

A computer operating to communicate with the entity as discussed herein might, for example, be dedicated to performing such operations. As another example, such a computer might be one performing other tasks (e.g., acting as a web server). It is noted that, in various embodiments, one or more rules may be followed in communicating with the entity and/or the user. For example, a rule might specify that the entity and/or the user is not to be telephoned and/or be sent messages before and/or after certain hours of the day. As another example, a rule might specify that one mode of contact (e.g., telephone call) is to be employed as a means of contact for certain hours of the day, while a second mode of contact (e.g., instant messaging) is to be employed as a means of contact for other hours of the day.

It is noted that, according to various embodiments of the present invention, an entity might be able to update inventory (e.g., available tables and/or seats). Accordingly, for instance, the entity might be able to indicate an increase and/or decrease in inventory. In various embodiments, a password and/or identifier (e.g., an access code) might need to be provided.

Such functionality might be implemented in a number of ways. For example, telephone call, web page, email, facsimile, instant message, and/or text message might be employed. To illustrate by way of example, an individual affiliated with the entity might call a telephone number and be greeted with text-to-voice speech prompting for code and password to be entered via touch tone keypad and/or be spoken. The text-to-voice speech might then prompt the user to employ touch tone keypad and/or voice in increasing or decreasing inventory (e.g., availability inventory), and/or employ touch tone keypad and/or voice in specifying one or more new inventory values. Such functionality might, in various embodiments, be implemented by a computer such as one, for instance, operating in a manner analogous to that discussed above.

It is noted that, in various embodiments, an entity might be able to indicate that one or more portions of inventory (e.g., availability inventory) be set aside for one or more particular purposes. For example, an entity might be able to specify that a portion of inventory be set aside for walk-ins, and/or that a portion of inventory be set aside for conventional telephone appointments and/or reservations.

It is additionally noted that, in various embodiments, a computer interacting with a user desiring to make an online appointment and/or reservation (e.g., as discussed above) might take into account such inventory information in interacting with the user. For example, the user might be prevented from specifying a desired appointment and/or reservation date and/or time known by the computer to correspond to inventory that was not available.

In various embodiments, synchronization might be performed. Such synchronization might, for instance, be of the sort discussed herein (e.g., as shown in FIG. **10**). For example, synchronization might occur between one or more computers that operate to communicate with the entity, one or more computers that operate to communicate with the user, one or more web servers, one or more web sites, one or more cell phones (e.g., smartphones) and/or PDAs, and/or one or more backoffice servers (central databases). To illustrate by way of example, appointments and/or reservations data, and/or inventory data might be synchronized. It is noted that such computers, servers, and/or web sites may, for example, employ software programmed to employ one or more of the operations discussed above.

It is noted that via various of the operations discussed above, the need for personal computers and/or terminals (e.g., network-connected computers and/or terminals) at entity locations (e.g., restaurants) may be eliminated. For example, in various embodiments a telephone (e.g., a landline or cellular telephone) may be the only equipment needed by an entity (e.g., a restaurant or salon).

It is further noted that, in various embodiments, various of the operations discussed above may be implemented in a manner that enhances existing systems (e.g., web-based systems) such as, for instance, existing systems for reservation, appointment, orders, and/or waitlisting.

The functionality discussed above may be employed in a number of ways. For example, in various embodiments the functionality discussed above might be employed in ways including reservations, appointments, and/or waitlisting for entities such as, for example, restaurants, hotels, casinos, hair salons, pet groomers, and/or repair services (e.g., plumbers).

Shown in FIG. **10** is an exemplary system diagram relating to embodiments of the present invention wherein, for example, various of the functionality discussed above (e.g., messaging, text-to-voice, and communications with landline telephones, cellular telephones, and wireless devices) is depicted.

A further aspect of the invention is the use of the menus generated in accordance with the described technique to place orders from wireless remote handheld devices or from remote locations through the internet. The World Wide Web is a distributed hypermedia computer system that uses the internet to facilitate global hypermedia communication using specified protocols. One such protocol is the Hypertext Transfer Protocol ("HTTP"), which facilitates communication of hypertext. Hypertext is the combination of information and links to other information. In the context of the

Web, hypertext is defined by the Hypertext Mark-up Language ("HTML"). The links or hyperlinks in a HTML document reference the locations of resources on the Web, such as other HTML documents. Another language used in creating documents for use on the Worldwide Web, to display on computer screens, or to create speech style sheets for use in, e.g., telephones, is the Extensible Mark-Up Language ("XML"). XML is a "metalanguage", i.e., a language for describing languages which was developed to eliminate the restrictions of HTML.

The Web is a client-server system. The HTML documents are stored on Web server computers, typically in a hierarchical fashion with the root document being referred to as the home page. The client specifies a HTML document or other source on the server by transmitting a Uniform Resource Locator ("URL") which specifies the protocol to use, e.g., HTTP, the path to the server directory in which the resource is located, and filename of the resource. Users retrieve the documents via client computers. The software running on the user's client computer that enables the user to view HTML documents on the computer's video monitor and enter selections using the computer's keyboard and mouse is known as a browser. The browser typically includes a window in which the user may type a URL. A user may cause a URL to be transmitted by typing it in the designated window on the browser or by maneuvering the cursor to a position on the displayed document that corresponds to a hyperlink to a resource and actuating the mouse button. The latter method is commonly referred to simply as "clicking on the hot-spot" or "clicking on the hyperlink". The hyperlink methodology is contemplated for use in accordance with the preferred embodiment to transmit orders via the internet.

Web server application software exists that enables a user to shop for and order merchandise. Such systems are sometimes referred to as electronic merchandising systems or virtual storefronts. Systems that enable a user to choose among several retailers' goods are sometimes referred to as electronic malls. An electronic retailer's or electronic mall operator's Web server provides HTML forms that include images and descriptions of merchandise. The user may conventionally search for an item by entering a key word search query in a box on a form. When a user selects an item, the server may provide a linked form that describes that item in further detail. The user may also conventionally enter ordering information into boxes on the form, such as the type and quantity of the item desired. The information entered by the user is transmitted to the server. The user may select multiple items in this manner and then enter a credit card number to pay for the purchases. The retailer processes the transaction and ships the order to the customer. As can be appreciated, ordering merchandise can also be done from menus. The generation of menus of items or merchandise for sale over the internet is readily accomplished by the menu generation approach of the present invention.

Searching for items that the user is interested in purchasing is insufficient in prior merchandising systems. Database management programs use index searching to facilitate rapid searching of large amounts of data. The creator of the database may instruct the program to use specified fields in the database as indexed or key fields. The program locates all terms in the database that appear in the indexed fields and stores them in an index table. Each entry in the index table includes a term and corresponding pointer to the location in the database where the term is found. If a user initiates a search for a term that is present in the index table, the program can locate the instances of that term in the database with exceptional speed. Users who are familiar with the particular database they are searching will generally know which fields are indexed and will know the format of the data in those fields. For example, a user of a database containing the inventory of a bookstore may know that users can search for the names of authors of books and that a user who wishes to do so should enter the author's last name first. A user having such knowledge will therefore be able to search efficiently. Users of electronic merchandising systems, however, are generally end-consumers who have no knowledge of a merchant's database. If, as is very likely, such a user initiates a search for a term that is not present in the index table, the program must sequentially search through all records in the database. Sequential records are typically linked by pointers. Using pointers in this manner is very demanding on server resources, resulting not only in an exceptionally slow search, but also creating a bottleneck for other processes that the server may be executing. The menu generation approach of the present invention can be used to create customized menus from a database that includes every item of merchandise the vendor has for sale. In this manner, customers can scan the generated menu much more readily than they could view the entire database and the necessity of having familiarity with the database is eliminated as well, reducing the need for resource intensive pointers.

While the preferred embodiment of the invention is for the generation of restaurant menus and the like, the broad scope of the invention is far greater. For example, menus generated in accordance with the invention can be used in the desktop computing environment in association with the operating system or application programs. One such use is to facilitate the creation of user personalized file structures for general desktop use. Another use is to facilitate the location of customized menus from master menus for use in association with application software to make the execution of the application software more efficient by, e.g., eliminating the necessity of querying or checking every tree branch in the master menu file structure in response to user input or other criteria and to create handheld/PDA compatible versions of the software.

While the preferred embodiment of the invention includes the selection of items from a master menu wherein the master menu is displayed using a graphical user interface, it is to be appreciated that any means for displaying the master menu to the user and generating another menu in response to and comprised of the selections made is encompassed by the contemplated invention. The invention encompasses the selection of nontextual symbols, characters, icons and the like, in addition to text, from a hierarchical tree menu or the like for generation of another menu comprised of such items.

It is also within the scope of the invention to generate menus automatically in response to predetermined criteria. For example, in the restaurant menu generation embodiment, a modified menu can be generated to comply with a particular specification or group of criteria such as, e.g., "dinner", "low cholesterol", "low fat", "fish", "chicken", or "vegetarian". In this embodiment, only items from the master menu that satisfy specified parameters will be included in the generated menu. The selection process could involve selection of master menu items based on tags or identifiers associated with the items or by checking every master menu item against a dictionary of items acceptable for inclusion in the modified menu. It should also be appreciated that the invention encompasses any combination of automatic and manual user selection of the items comprising, the generated menu. For example, a user might

specify criteria which would further control automatic selection or the user could manually select some items with automatic selection of others. The menu generation aspect of the invention is equally applicable to table-based, drive-thru, internet, telephone, wireless or other modes of customer order entry, as is the synchronous communications aspect of the invention.

The inventive concept encompasses the generation of a menu in any context known to those skilled in the art where an objective is to facilitate display of the menu so as to enable selection of items from that menu. The restaurant menu generation embodiment is but one example of a use for the inventive concept. Likewise, displaying menus generated in accordance with the invention on PDAs and Web pages to facilitate remote ordering are but a few examples of ways in which such a menu might be used in practice. Any display and transmission means known to those skilled in the art is equally usable with respect to menus generated in accordance with the claimed invention.

In the more general situation, menus can be generated in accordance with the present invention in a variety of situations. For example, the usable file structure for a particular data processing application can be dictated by the user or an application program prior to or during the execution of the application program. Efficiencies with respect to computational speed and equipment, e.g., storage and processor, usage can thus be achieved along with the facilitation of display of the generated menu.

While the best mode for carrying out the preferred embodiment of the invention has been illustrated and described in detail, those familiar with the art to which the invention relates will recognize various alternative designs and embodiments which fall within the spirit of practicing the invention. The appended claims are intended to cover all those changes and modifications falling within the true spirit and scope of the present invention.

What is claimed is:

1. An intelligent web server computer with multi-modes of contact, multi-communications protocols, multi-user and parallel operational capabilities for use in completing remotely initiated hospitality food/drink delivery or pick up ordering tasks comprising;

at least one said web server computer with web server software;

at least one hospitality food/drink ordering software application for delivery or pick up orders integrated with the at least one said web server computer;

an advanced master database comprising data and parameters of the at least one hospitality food/drink ordering software application integrated with the at least one said web server computer and with a usable menu file structure dictated prior to task execution and is accessible via its own database API and with one or more predefined formats stored within it and which intelligently learns, updates and stores multiple communication modes of contact and related operational parameters for hospitality entities and for remote hospitality users along with their prior attributes or preferences, if any and then intelligently applies them;

Middleware/Framework Communications Control Software (MFCCS) which enables via its centralized system layer architecture the at least one said web server computer to communicate with two or more remote wireless handheld computers and for multiple modes of contact, multiple communications protocol functionality, integrated with the master database and with the at least one hospitality food/drink ordering software application;

at least one external software API, which enables the full integration of the at least one hospitality food/drink ordering software application and the MFCCS with one or more non hospitality applications via the internet;

the external software API integrating with and leveraging the advanced master database to enable the importing of food/drink menus including required and non-required modifiers which are then automatically reflected throughout the master menu tree file structure, improving efficiency while eliminating the necessity of continually querying or checking every tree branch in the master menu tree file structure when responding to remote user requested tasks and/or other inputs;

wherein the at least one said web server computer is integrated with the MFCCS, the hospitality food/drink ordering software and is programmed with instructions enabled to intelligently choose and apply multiple and different modes of contact and/or different communications protocols, if applicable with the said hospitality entities and/or said remote users associated with the user requested hospitality food/drink delivery or pick up ordering application tasks and is enabled to support the completion of those tasks.

2. The intelligent web server of claim **1** further enabled to assign and apply sub-modifiers to the required or non required modifiers.

3. The intelligent web server of claim **1**, further enabled to include meal preparation times in the food/drink ordering.

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FORM 19. Certificate of Compliance with Type-Volume Limitations **Form 19**
July 2020

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATIONS

Case Number: 2026-1248

Short Case Caption: Ameranth, Inc. v. DoorDash, Inc.

Instructions: When computing a word, line, or page count, you may exclude any items listed as exempted under Fed. R. App. P. 5(c), Fed. R. App. P. 21(d), Fed. R. App. P. 27(d)(2), Fed. R. App. P. 32(f), or Fed. Cir. R. 32(b)(2).

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Signature: /s/ Richard C. Weinblatt

Name: Richard C. Weinblatt