

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KIOSOFT TECHNOLOGIES LLC

and

TECHTREX, INC.

Petitioners

v.

PAYRANGE, INC.

Patent Owner

Patent 11,488,174

**DECLARATION OF SAFWAN ZAHEER IN SUPPORT OF PETITION
FOR POST-GRANT REVIEW OF U.S. PATENT NO. 11,488,174**

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EX1009
U.S. Patent No. 11,488,174

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Post-Grant Review of U.S. Patent No. 11,488,174

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I, Safwan Zaheer, declare as follows:

I. Introduction

1. I have been asked by KioSoft Technologies LLC and TechTrex, Inc. (“Petitioners” and, collectively, “KioSoft”) to provide my opinions in the above-captioned post-grant review proceeding involving U.S. Patent No. 11,488,174 (“the ’174 patent,” EX1001), which is titled “Method and System for Performing Mobile Device-to-Machine Payments.” Except as otherwise indicated, I have personal knowledge of the facts and opinions set forth in this declaration and believe them to be true. If called upon to do so, I will testify competently thereto.

2. I am being compensated on an hourly basis for the time I spend in connection with the proceeding. My compensation is not dependent in any way on the substance of my opinions or on the outcome of this proceeding. I have no financial interest in the outcome of this matter or any other litigation between Petitioners and PayRange, Inc.

II. Qualifications and Experience

3. A copy of my *curriculum vitae* is provided as Exhibit 1010.

4. I obtained a Bachelor of Science in Electrical Engineering from Texas A&M University in 1998, a Master of Engineering in Electrical Engineering from Texas A&M University in 2000, and a Master of Science in Engineering and Management from the Massachusetts Institute of Technology (MIT) in 2008.

5. From 2001-2010, I was the Senior Product Manager of Mobile Products and a Wireless Engineer of the International Standards Development groups at Lucent Technologies/ Alcatel-Lucent (now Nokia).

6. From 2010-2011, I was a management consultant at Peppers & Rogers Group, providing consulting services to global firms in the telecom and internet industries.

7. From 2012-2015, I was employed by Barclays US as the Director of Digital Payments Product, where I led the development and launch of an innovative mobile payment wallet that enabled payment transactions between a mobile device and a point-of-sale (POS) at a merchant location to purchase goods or products.

8. From 2015-2016, I was the Director of Digital Payments at Accenture, and from 2016-2019 Head of FinTech at KPMG. During my time at both firms, I controlled and led several digital payments, transformation, strategy and product development services to financial services, technology, and retail clients, increasing company brand reputation and repeat business.

9. In 2021, I was the Executive Vice President & General Manager at LendingPoint, responsible for the POS Lending and Payments business. In that role, I led the launch of a payments and lending capability inside of Invisalign's national mobile app enabling customers to get credit through an application within the mobile app for dental treatment.

10. I am currently the Managing Director of HundredX, an advisory firm in the payment and FinTech space. In that role, I helped to launch T-Mobile MONEY, T-Mobile's revolutionary Neobank.

11. I am also a named inventor on the following patents or applications: US Patent Appl. No. 13/647997 (US), UK Appl. No. 1209590.7 titled "Mobile Wallet System"; US Patent Appl. No. 13/725061 titled "Mobile Commerce Business System and Method for Sharing Merchant Content and creating Customer Index"; and US Patent No. 7,200,115: "A Method of Managing Non-acknowledgement responses in CDMA Wireless System."

III. Summary of My Opinions

12. To assist and orient the reader in reviewing this declaration, I have provided a summary of my main opinion below. A person of ordinary skill in the art ("POSITA") at the time of the alleged invention would have found the subject matter of claims 1-20 of the '174 patent (the "Challenged Claims") to be obvious in view of the prior art. A POSITA would have also found each of the Challenged Claims, whether on an element-by-element basis or as a whole, to be well-understood, routine, and conventional.

13. The specific grounds of unpatentability in which I render an opinion are identified below:

Ground	Statute(s)	Challenge	Challenged Claim(s)
1	§101	Non-statutory Subject Matter	1-20
2	§103	Obviousness by U.S. Patent Application Publication No. 2014/0074723 to Kamat (“Kamat,” EX1006) in view of U.S. Patent No. 9,898,884 to Arora <i>et al.</i> (“Arora,” EX1007) and U.S. Patent Application Publication No. 2011/0153495 to Dixon <i>et al.</i> (“Dixon, EX1008)	1-20

IV. Materials Considered

14. In formulating my opinions, I have relied upon my training, knowledge, and experience that are relevant to the ’174 patent. I have specifically considered the following documents, in addition to all other documents cited in this declaration:

Exhibit No.	Description
1001	U.S. patent No. 11,488,174 to Patel (“’174 patent”)
1002	Prosecution History of the ’174 patent
1003	U.S. Patent Application Publication No. 2004/0117262 to Berger <i>et al.</i> (“Berger”)
1004	U.S. Patent Application Publication No. 2013/0030931 to Moshfeghi (“Moshfeghi”)
1005	U.S. Patent Application Publication No. 2014/0074714 to Melone <i>et al.</i> (“Melone”)
1006	U.S. Patent Application Publication No. 2014/0074723 (“Kamat”)
1007	U.S. Patent No. 9,898,884 to Arora <i>et al.</i> (“Arora”)
1008	U.S. Patent Application Publication No. 2011/0153495 to Dixon <i>et al.</i> (“Dixon”)

1011	Bluetooth Specification 1.2
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V. Relevant Legal Standards

15. I am not a lawyer. In forming my opinions, I have relied upon various legal principles, as explained to me by Petitioners' counsel. My understanding of these principles is summarized below.

16. I understand that a patent claim defines the scope of an alleged invention. I further understand that a claimed invention must be new, useful, and non-obvious over the prior art as of its earliest filing date for it to be patentable. I have been asked to assume that the date upon which I should base my analysis is December 18, 2013. I understand that in this proceeding, Petitioners have the burden of proving that the Challenged Claims would have been unpatentable over the prior art by a preponderance of the evidence. I understand that "a preponderance of the evidence" is evidence sufficient to show that a fact is more likely true than not.

17. In determining the patentability of a claim, I understand that the first step is to understand the claim from the perspective of a POSITA to determine its meaning and scope. With that understanding, I have considered the claims at issue against the prior art from the perspective of a POSITA.

18. I understand that a patent or other publication must first qualify as prior art before it can be used to invalidate a patent claim. I understand that documents

and materials that qualify as prior art can be used to render a claim unpatentable as anticipated under 35 U.S.C. § 102 or as obvious under 35 U.S.C. § 103.

A. Level of Ordinary Skill

19. I have been advised that a POSITA is a hypothetical person who is presumed to have known the relevant art at the time of the invention. I further understand that a POSITA is also a person of ordinary creativity and that in many cases a POSITA will be able to fit the teachings of multiple patents or printed publications together. I also understand that the factors that may be considered in determining the level of ordinary skill in a particular field include: the level of education and experience of those working in the field, the types of problems encountered in the field, and the sophistication of the technology at the time of the invention, which I have been asked to assume is December 18, 2013. I understand that all of the above factors may be present in a particular case. I understand that a POSITA would have knowledge from the teachings of the prior art, including the art discussed below.

20. It is my opinion that, on or before December 18, 2013, a POSITA relating to the technology of the '174 patent would have had an education background of, or practical experience providing an equivalent to, a Bachelor of Science in Electrical Engineering, Computer Science, Information Technology, or a

related/equivalent field and at least 3 years of academic or industry experience in electronic payment systems.

21. Well before December 18, 2013, my level of skill in the art was at least that of POSITA. I am qualified to provide opinions concerning what a POSITA would have known and understood as of December 18, 2013, and, unless otherwise stated, my analysis, opinions, and conclusions herein are made from the perspective of POSITA as of that date. I reserve the right to change my opinion if other facts are provided as the proceedings continue.

B. Claim Construction

22. I have been advised that claim terms are generally given their plain and ordinary meaning in light of the specification. I further understand that the plain and ordinary meaning may not apply when a patentee acts as his own lexicographer and sets out a definition for the term or when the patentee disavows the full scope of the claim term either in the specification or during prosecution.

23. I have been advised that in this proceeding, the United States Patent and Trademark Office (“PTO”) interprets the claims of an unexpired patent, such as the ’174 patent, under the same standards used in a United States District Court. This includes interpreting the claims through the lens of a POSITA in view of the entire patent. Accordingly, in formulating my opinions, I have reviewed the claims of the ’174 patent as I perceive a POSITA would have understood them at the time of the

earliest claimed priority date of the '174 patent, after reading the entire '174 patent specification.

24. I have been advised that claim construction is ultimately a question of law. Accordingly, I understand that a tribunal may choose to construe certain terms to provide clarity to the proceeding should any dispute arise between the parties over how a term should be construed. If the tribunal chooses to construe any term, then I reserve my right to review and potentially modify any opinions below in view of such constructions.

25. I have read each word in the claims, and the claims as a whole, of the '174 patent in light of the specification, applying the plain and ordinary meaning of each such word as POSITA would understand it.

26. In formulating my opinions, I reviewed the claims of the '174 patent as I perceive a POSITA would have understood them as of December 18, 2013, after reading the entire '174 patent specification.

1. “preemptively”

27. The term “preemptively” appears in the claim limitation “*the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine.*” EX1001, 33:16-19, 34:50-53, 36:15-18. I understand that the Petitioners have proposed in a patent litigation matter that the term “preemptively” be construed to mean: “before

authorizing an amount of funds for use in conjunction with the cashless transaction at that automatic retail machine.” I have taken this proposed construction into consideration.

2. “trigger condition”

28. It is my opinion that the term “*trigger condition*” found in the claim element “*detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine*” in the claims of the ’174 patent would have been understood by a POSITA to mean: “Received Signal Strength Indicator (RSSI) value above a predetermined baseline value.”

29. In reading the claims of the ’174 patent, I read each word in each claim, and each claim as a whole, using the plain and ordinary meaning each such word would have had to a POSITA on or before December 18, 2013.

30. In reading the claim “*trigger condition*” found in the claim element “*detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine,*” which claim element I will refer to as the “Trigger Condition term,” the meaning of the combination of words “*trigger condition*” is unclear to me based on the words alone as they appear in claims 1, 12, and 19.

31. I have been advised that the '174 patent specification acts as a sort of dictionary for the words in the claims of the patent. In reading the '174 patent specification I found that the words “*trigger condition*” are used throughout the patent specification consistently in relation to a Received Signal Strength Indicator (“RSSI”) threshold. *See*, for example, EX1001, FIG. 7 (“Trigger Payment Zone”), 14:45-49 (“Mathematical computation (In-Range Heuristics) is conducted to derive the optimal RSSI threshold at which point payment should be triggered by an application 140 on a mobile device 150”), 21:14-21 (“...if the payment trigger threshold is having wide variances and so deemed unstable...”), 23:62-67 (“...a fixed threshold at which payment is triggered can be problematic”), 29:59-62 (“...an event threshold is triggered based on heuristics performed by the mobile device”).

32. I also found the words “trigger condition” to appear in dependent claims 6 and 17, which recite “wherein detecting the trigger condition comprises: determining whether the payment zone threshold criterion is satisfied; and in accordance with a determination that the payment zone threshold criterion is satisfied, detecting the trigger condition without user input from a user at the mobile device.” EX1001, 34:1-8, 35:36-43.

33. Reading each word, and each of claims 6 and 17 as a whole, I found the words “trigger condition” in claims 6 and 17 to relate to the RSSI threshold. Reading claims 6 and 17 in light of the patent specification, I found the trigger condition to

comprise determining whether the payment zone threshold criterion is satisfied, and in accordance with that determination, detecting when the RSSI threshold is reached without user input from a user at the mobile device. *Id.*, 34:1-8, 35:36-43. My understanding is based at least in part on claims 1, 6, 12, and 17, FIG. 7 (“Trigger Payment Zone”), column 14, lines 45-49 (“Mathematical computation (In-Range Heuristics) is conducted to derive the optimal RSSI threshold at which point payment should be triggered by an application 140 on a mobile device 150”), column 31, lines 14-21 (“...if the payment trigger threshold is having wide variances and so deemed unstable...”), column 23, lines 62-67 (“...a fixed threshold at which payment is triggered can be problematic”), and column 29, lines 59-62 (“...an event threshold is triggered based on heuristics performed by the mobile device”).

34. I also found the words “trigger condition” to appear in dependent claims 7 and 18, which recite “wherein detecting the trigger condition comprises: detecting a user input from a user of the mobile device; and in response to detecting the user input, detecting the trigger condition to perform the cashless transaction with the automatic retail machine.” EX1001, 34:9-15, 35:43-50.

35. Reading each word, and each of claims 7 and 18 as a whole, I found the words “trigger condition” in claims 7 and 18 to relate to the RSSI threshold. Reading claims 7 and 18 in light of the patent specification, I understand these claims specify that the trigger condition detecting step recited in claims 1 (*id.*, 33:27-29) and 12 (*id.*

34:61-63), which is included in claims 7 and 18, respectively, requires the activity of detecting the trigger condition to perform the cashless transaction with the automatic retail machine. My understanding is based at least in part on claims 1, 7, 12 and 18, FIG. 7 (“Trigger Payment Zone”), column 14, lines 45-49 (“Mathematical computation (In-Range Heuristics) is conducted to derive the optimal RSSI threshold at which point payment should be triggered by an application 140 on a mobile device 150”), column 31, lines 14-21 (“...if the payment trigger threshold is having wide variances and so deemed unstable...”), column 23, lines 62-67 (“...a fixed threshold at which payment is triggered can be problematic”), and column 29, lines 59-62 (“...an event threshold is triggered based on heuristics performed by the mobile device”).

36. After reading the entirety of the '174 patent, I was unable to find any description or example related to the “*trigger condition*” other than an RSSI value above a predetermined baseline value. My finding is based on the patent’s usage of *trigger condition* in claims 1, 6, 7, 12, 17-19, FIG. 7, 14:45-49, 21:14-21, 23:62-67, 29:59-62.

C. Subject Matter Eligibility

37. I understand that in order to receive a patent an inventor must invent or discover a new and useful process, machine, manufacture, or composition of matter.

38. I understand that claims directed to laws of nature, natural phenomenon, and abstract ideas are not patent eligible.

39. I understand that when a patent claim is directed to an abstract idea, the claim is invalid unless the claim contains an “inventive concept” which must be an element or some combination of elements that ensures the patent claim amounts to significantly more than a patent claim on the abstract idea itself. I understand that an inventive concept cannot be a well-understood, routine, and conventional activity previously known to the industry. I also understand that a “wholly generic computer implementation” is not generally sufficient to provide an inventive concept. I understand that the elements of a claim must be considered both individually and also as an ordered combination in determining whether they include an inventive concept.

40. I understand that it is insufficient for patent-eligibility if the additional elements merely append to the claim well-understood, routine, and conventional activities previously known to the industry, specified at a high level of generality.

D. Obviousness

41. I understand that the claims of a patent must be non-obvious in order to be eligible for patent protection under 35 U.S.C. §103. I understand that a patent claim may be invalid under 35 U.S.C. § 103 if the differences between the claimed invention and the prior art are such that the claimed invention, as a whole, would have been obvious to a POSITA in view of a prior art reference or combination of prior art references before the earliest filing date of the claimed invention.

42. I understand that obviousness is determined from the perspective of POSITA and that the asserted claims of the patent should be read from the point of view of such a person at the time the claimed invention was made. Additionally, I understand that a POSITA is presumed to know and be familiar with the relevant prior art in the field of endeavor covered by the patent in suit or reasonably pertinent to the particular problem faced by the inventor.

43. I understand that prior art used in an obviousness analysis must be analogous—and that there are two criteria for determining whether prior art is analogous and thus would be assumed to be known to a POSITA: first, whether the art is from the same field of endeavor as the invention, regardless of the problem addressed, and, second, if the reference is not within the same field of endeavor as the invention, whether the reference still is reasonably pertinent to the particular problem with which the inventor was faced.

44. I further understand that the field of endeavor of a patent is not limited to the specific point of novelty, the narrowest possible conception of the field, or the particular focus within a given field. I also understand that a reference is reasonably pertinent if, even though it is in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering the problem.

45. I understand that an analysis of whether a claimed invention would have been obvious should be considered in view of (i) the scope and content of the prior art, (ii) any differences between the prior art and the claimed invention, (iii) the level of ordinary skill in the relevant art, and (iv) secondary considerations of non-obviousness (discussed below). I also understand that a prior art reference should be viewed as a whole.

46. I understand that a prior art reference can disclose a claimed feature either because that feature is expressly described in the prior art reference, or because that feature is inherent in the disclosure of the prior art reference. I understand that something is inherent in a prior art reference only if the missing descriptive matter must necessarily be present. I also understand that inherency cannot be established by probabilities or possibilities, and the mere fact that something may result from a given set of circumstances is not enough for inherency.

47. I understand that, for a patent to be obvious, a POSITA must have had (in addition to a motivation to combine) a reasonable expectation of success in practicing the claimed invention based on the prior art. Whether a skilled artisan would have had a reasonable expectation of success is determined based on the degree of unpredictability in the art as well as the guidance provided by the art.

48. I understand that obviousness can be established by combining or modifying the teachings of the prior art to achieve the claimed invention. I understand that the reason to combine prior art references must be shown. This reason to combine can come from a variety of sources, not just the prior art itself or the specific problem the patentee was trying to solve. And I understand that the references themselves need not provide a specific hint or suggestion of the alteration needed to arrive at the claimed invention; the analysis may include recourse to logic, judgment, and common sense available to a POSITA that does not necessarily require explanation in any reference. It is also my understanding that when there is a reason to modify or combine the prior art to achieve the claimed invention, there must also be a reasonable expectation of success in so doing.

49. I understand that a combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. I understand that when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a POSITA has good

reason to pursue the known options within his or her technical grasp. If this leads to the anticipated outcome, then that outcome is likely a product not of innovation, but of ordinary skill and common sense, and therefore is considered obvious according to patent laws.

50. I understand that when a POSITA would have reached the claimed invention through routine optimization, the invention may be deemed obvious. I understand that such routine optimization can involve testing an element or parameter that is termed a “results-effective” variable (that is, a variable that achieves a recognized result). I understand that routine optimization involves using only routine techniques and ordinary skill of a POSITA.

51. I understand that courts have held that when there is a “design need” or “market demand” and there are a “finite number” of solutions, it would have been obvious for a POSITA to try such solutions. When the general conditions of a claim are disclosed in the prior art, I understand it is not inventive to discover the optimum or workable ranges by routine experimentation.

52. I understand that a dependent claim (that is, each of claims 2-11, 13-18, and 20 of the '174 patent) contains all of the elements of the independent claim from which it depends (as well as any elements of any dependent claim from which another dependent claim depends), in addition to the additional elements recited in the dependent claim language itself.

53. I understand that when considering the obviousness of an invention, a POSITA should also consider whether there are any objective indicia (also known as secondary considerations) that support the non-obviousness of the invention. I understand that objective indicia of non-obviousness include, but are not limited to, commercial success, long-felt but unmet need, failure of others, praise in the industry, and unexpected superior results. I am not aware of any objective indicia that would change my opinion regarding the claims of the '174 patent.

54. As discussed herein, I have concluded that each of the Challenged Claims would have been obvious in view of the prior art references described below.

VI. The '174 Patent

A. Overview of the Alleged Invention

55. The '174 patent is titled “Method and System for Performing Mobile Device-to-Machine Payments” and relates to “mobile-device-to-machine payment processing systems over a non-persistent network.” EX1001, 1:24-27.

56. The '174 patent describes “mobile-device-to-machine payment systems [for processing transactions] over a non-persistent network connection,” EX1001, 1:25-26, and “facilitating a cashless transaction for purchase of at least one product or service by a user from a payment accepting unit that preferably has input mechanisms.” EX1001, 3:52-55.

57. The '174 patent describes that “[t]he mobile-device-to-machine payment processing system disclosed herein allows a user (having a mobile device [] with a mobile application [] thereon) to make a cashless purchase from a payment accepting unit [] (having an adapter module [] associated therewith.” *Id.*, 9:46-53. The '174 patent explains that “[v]ending machines are one type of ‘payment accepting unit,’” and further explains that other types of payment accepting units include parking meters, toll booths, laundromat washer and dryers, and kiosks. *Id.*, 1:54-65.

58. The '174 patent acknowledges that “[v]ending machines (or ‘automatic retailing’ machines), in the broadest sense, have been around for thousands of years.” *Id.*, 1:28-29. However, the '174 patent recognizes that “[m]obile payment is a logical extension,” *Id.*, 2:12, “[a]s the number of people with Internet-connected mobile devices proliferates....” *Id.* 1:60-62.

59. The '174 patent describes “wireless communications” between the mobile device and the payment accepting unit as including conventional “long-range” and “short-range” “communication technology” or “protocol” including:

Communications between user mobile devices 150 and the servers (e.g. a system management server 130 and/or a funding source server 160) take place using long-range communication technology. Communications between user mobile devices 150 and the adapter module 100 of the payment accepting unit 120 take place using “short-

range communication technology” (e.g. Bluetooth (e.g. Bluetooth 4.0, Bluetooth Smart, Bluetooth LE (Low Energy), near-field communication, Ultra Wideband (UWB), RFID, infrared wireless, induction wireless, or any wired or wireless technology that could be used to communicate a small distance (e.g. approximately a hundred feet or closer) that is known or yet to be discovered).... The exemplary communications technology shown in the figures may be replaced with alternative like communications technology and, therefore, specific shown communications technologies are not meant to be limiting. For example WiFi technology could be replaced with another long-range communication technology.

Id., 13:40-62.

60. Figure 5 of the '174 patent (reproduced below) depicts “block schematic[s] that show[] elements of the system.” *Id.*, 6:51-54.

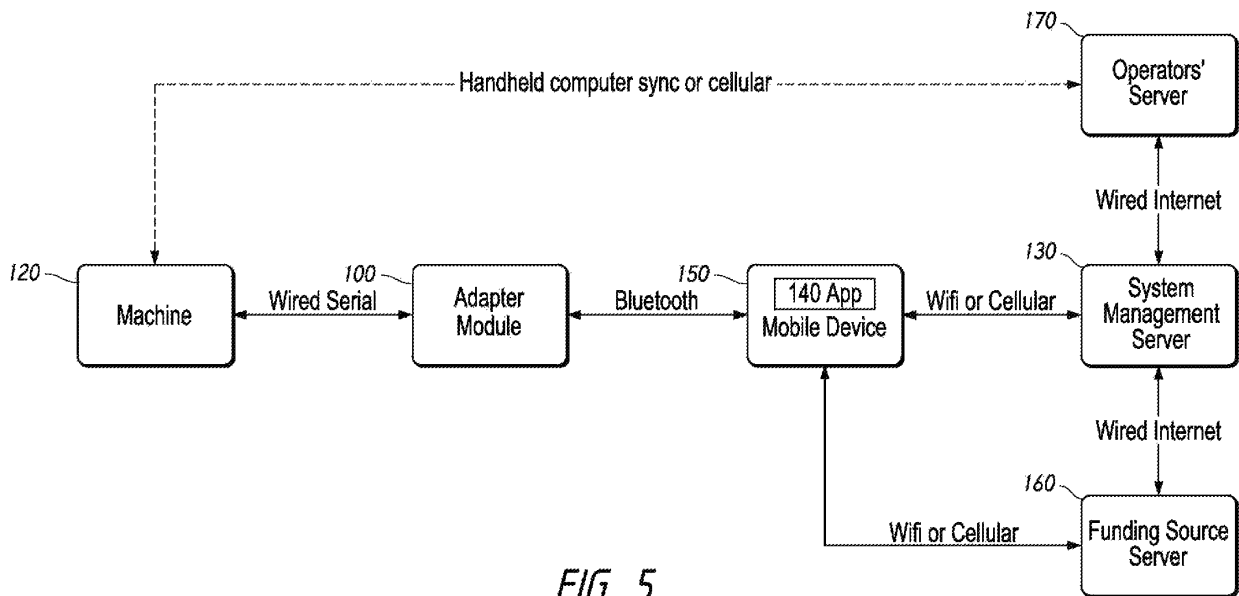


FIG. 5

61. Figure 1 of the '174 patent (reproduced below) depicts a schematic diagram showing a payment accepting unit 120 with an adapter module 100, and “three zones: a first ‘communication zone’ (e.g., ‘Bluetooth range’), a second ‘authorization zone,’ and a third ‘payment zone.’” *Id.*, 6:38–40. With a preloaded application 140 running on a mobile device 150, the device continuously scans for a signal, communication, or transmission

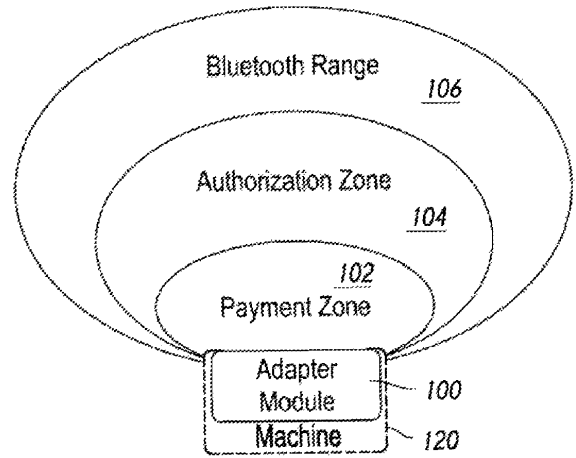


FIG. 1

from the adapter module 100, which constantly advertises its availability via Bluetooth. *Id.*, 29:18–25. The mobile device 150 then tracks and monitors the signal strength until the user is in the authorization zone threshold. *Id.*, 29:25–28. The zone thresholds are determined by an In-Range Heuristics mathematical computation to derive an optimal Received Signal Strength Indicator threshold. *Id.*, 14:45–56.

62. As the user enters the authorization zone, the mobile device 150 creates and sends a request to authorize funds to a system management server 130, using cellular or Wi-Fi communication technology. *Id.*, 29:29–37. The system management server 130 may respond with an authorization grant, and the mobile device 150 retains the authorization grant until it is ready to issue payment to the

adapter module 100. *Id.*, 29:37–44. The authorization grant expires and is purged from the mobile device 150 if it goes unused. *Id.*, 29:47–48.

63. As the user approaches the adapter module 100, the user enters the payment zone 102 and a trigger condition is detected. *Id.*, 29:59–62. If the authorization grant has not expired, the mobile device 150 sends the authorization grant to the adapter module 100 to start a transaction. *Id.*, 30:5–8. The mobile device 150 can send the authorization grant without user interaction. *Id.*, 30:8–10. After the transaction is complete, the adapter module 100 returns to the mobile device 150 the details of the transaction, which then are sent to the system management server 130. *Id.*, 30:34–38.

B. The Patent Prosecution History

64. The application that issued as the '174 patent (Appl. No. 16/934,392, the “'392 application”) was filed on July 21, 2020, and allowed in a first Office Action allowance on September 21, 2022. EX1002, September 21, 2022 Notice of Allowance. In my review of the prosecution history of the '392 application, I did not observe any substantive examination by the patent examiner.

C. The Patent Claims

65. The '174 patent includes twenty claims, including three independent claims, each directed to substantially the same subject matter in a method, a system, and a computer-readable storage medium.

66. Independent claim 1 of the '174 patent recites:

[1.0] A method of payment processing, the method comprising:

[1.1] at a mobile device with one or more processors, memory, and a communications unit, and [1.2] prior to user selection of any items or services provided by an automatic retail machine:

[1.3] receiving via the communications unit a transmission from an electronic payment device of the automatic retail machine, [1.4] the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;

[1.5] sending, to a server, the request via the communications unit of the mobile device;

[1.6] in response to sending the request to the server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;

[1.7] detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine; and

[1.8] in response to detecting the trigger condition, sending to the electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.

EX1001, 33:7-35 (identifying bracketed numbers added).

67. For convenience, I have added the bracketed numbers and will use those bracketed numbers below in my analysis when referring to claim elements.

68. Independent claims 12 and 19 recite the identical steps [1.2]-[1.8] of the abstract idea in apparatus and computer-readable-storage-medium forms, except that steps [19.3] and [19.5] use respective “first transceiver” and “second transceiver” to communicate information instead of the “communications unit” recited in the corresponding steps [1.3], [12.3] and [1.5], [12.5]. *Id.*, 34:36-67 (claim 12 stating in part “[12.0] A mobile device, comprising...”) and 36:1-33 (claim 19 stating in part “[19.0] A non-transitory computer readable storage medium storing one or more programs...”).

69. For convenience, I use the same numbering convention for the corresponding, respective steps [12.2]-[12.8] in claim 12 and steps [19.2]-[19.8] in claim 19. I will also use these bracketed numbers below in my analysis when referring to claim elements.

70. Regarding claim 1 limitation [1.1], each of claims 12 and 19 recites a similar limitation. Particularly, claim 12 recites:

[12.1a] a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode;

- [12.1b] one or more processors; and
- [12.1c] memory storing one or more programs to be executed by the one or more processors, the one or more programs comprising instructions for

(EX1001, 34:37-45).

71. Claim 19 similarly recites:

- [19.1] the one or more programs comprising instructions, which, when executed by a mobile device with one or more processors and a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode, cause the mobile device to perform operations comprising.

Id., 36:2-9.

VII. Technology Background

72. Years before December 18, 2013 (for reference, the first iPhone was released in June 2007), mobile devices such as smart phones and tablet devices were widespread and well known and used features and technologies claimed by the '174 patent, including wireless technology and the ability to interface with the mobile device through a graphical user interface ("GUI").

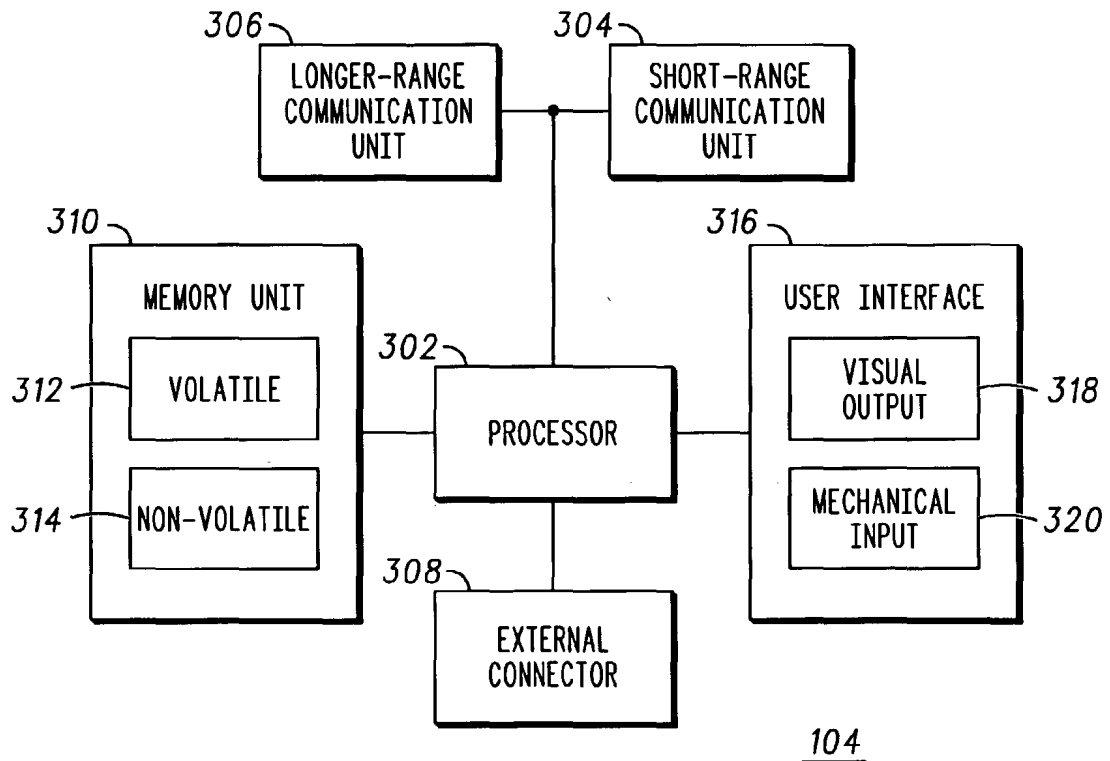
A. Electronic Payment at Unattended Automatic Retail Machines

73. By December 18, 2013, mobile devices such as smart phones and tablet devices were widespread and well-known. It was well known to use such devices to purchase items from offline (or unattended) automatic retail machines such as vending machines.

74. For example, U.S. Patent Application Publication No. 2004/0117262 to Berger (EX1003, “Berger”) describes one such system, including a method and a mobile device (inherently including computer readable medium and computer program) for electronic payment processing. EX1003, ¶¶0024-0026, 0036-0039.

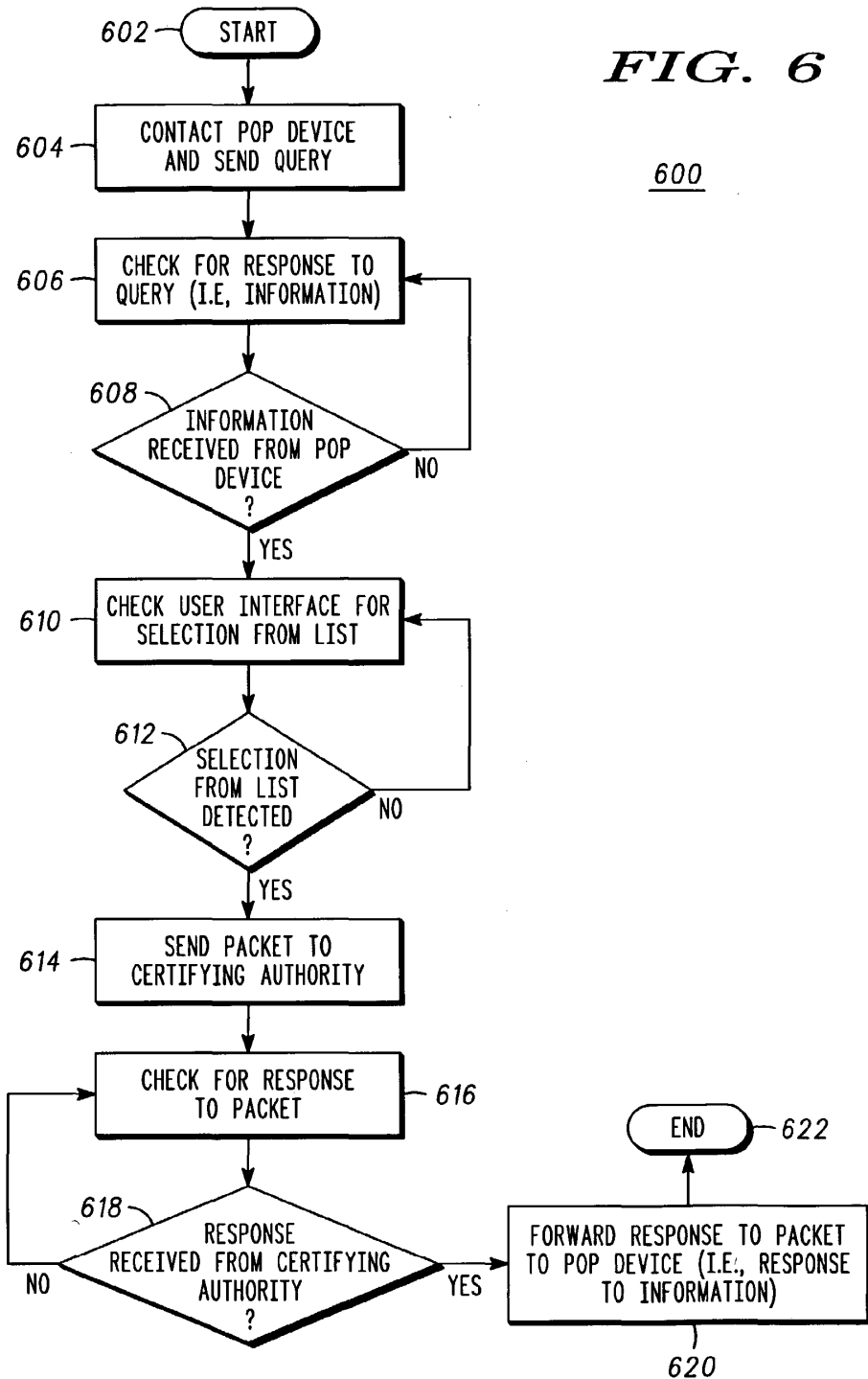
75. Referring to FIG. 1 (reproduced below), Berger teaches a Point-of-Purchase (“POP”) device 102 (unattended automatic retail machine), a mobile device 104, and a certifying authority 108 (server). The POP device 102 may dispense goods or services. EX1003, ¶0015.

76. Referring to FIG. 3 (reproduced below) in Berger, the mobile device 104 includes a communication unit having a short-range transceiver 304 (*id.*, ¶¶0017, 0023) and a long-range transceiver 306 (*id.*, ¶0017), a processor 302 (*id.*, ¶0023), a memory 310 storing one or more programs to be executed by the processor (*id.*, ¶0026).



77. Berger teaches, initially a consumer can use the mobile device 104 to monitor a proximity of the mobile device 104 using, *e.g.*, Bluetooth signal strength for any POP devices 102 and contact one of the POP devices 102. EX1003, ¶¶0017, 0036. The consumer can initiate a financial transaction with the POP device 102 via a short-range wireless link 110. EX1003, ¶0036.

78. FIG. 6 (reproduced below) depicts an example of an operation performed by the mobile device 104 in Berger.



79. Referring to the operation 600, in FIG. 6 above, the mobile device 104:
- receives, via short-range transceiver 304, a transmission from the POP device 102 (Step 608);
 - sends, to the clearing authority 108, the request via the long-range transceiver 306 (Step 614);
 - in response to sending the request to the certifying authority 108, obtains from the certifying authority 108 an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the POP device 102 (Step 616);
 - detecting, by the mobile application executing on the mobile device 104, whether the authorization grant is received to perform the cashless transaction with the POP device 102 (YES at Step 616); and
 - in response to detecting the authorization has been granted, sending to the POP device 102 the authorization to enable completion of the cashless transaction at the device 102/202 (Step 620).

EX1003, ¶¶0037-0039.

80. Although Berger teaches using short-range communication (*e.g.*, Bluetooth) to detect distance and the POP device 102 nearest to the mobile device

104, the reference does not state explicitly that it uses an RSSI threshold in determining when to permit pairing. *See e.g.*, EX1003, ¶¶0032, 0036.

B. RSSI: A Short-Range Communication Feature Routinely Used in Proximity Detection and Hands-Free Payment

81. It was well-known and routine in the same field of endeavor as the '174 patent to use RSSI in mobile devices to detect distance to electronic payment devices and use an RSSI threshold as a trigger condition, such as, for example, for hands-free payment. U.S. Patent Application Publication No. 2013/0030931 to Moshfeghi ("Moshfeghi") describes an example of such a system.

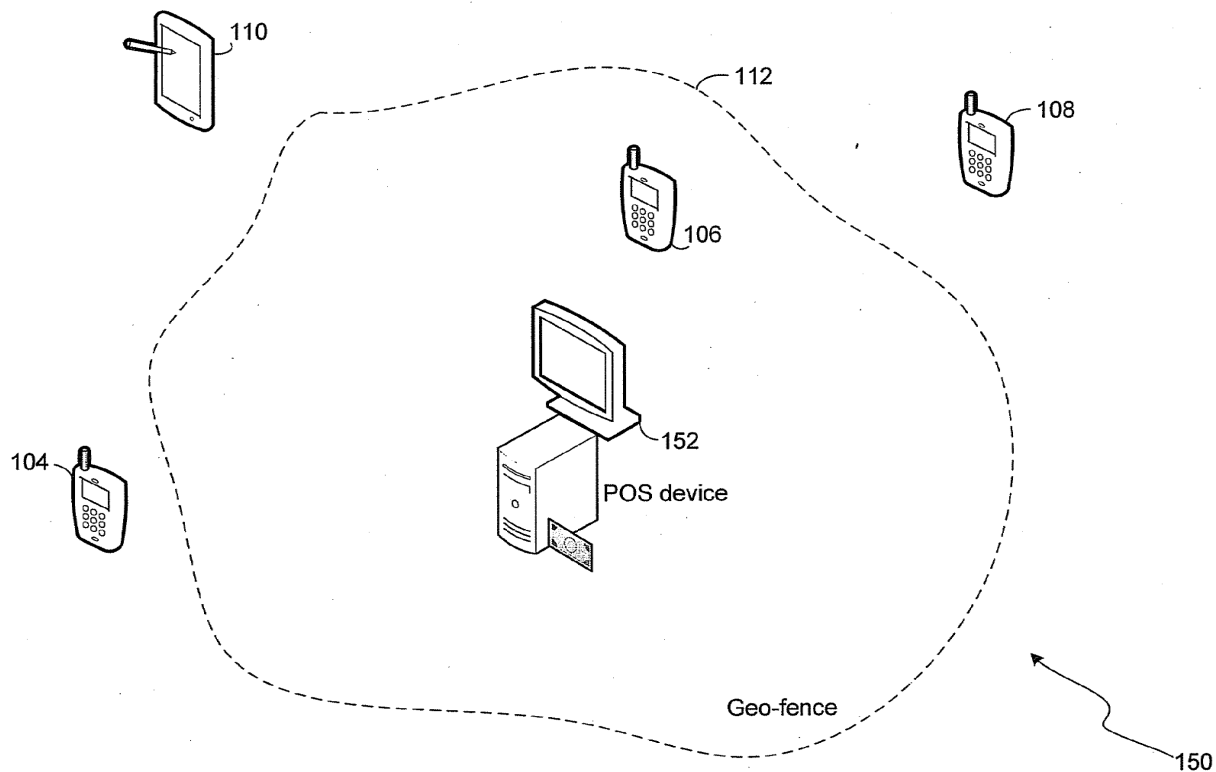
82. Moshfeghi teaches that "[t]he proliferation of mobile devices such as smart phones, netbooks and tablet computers has led to a growing need to obtain accurate location information of such devices." EX1004, ¶0012.

83. In this regard, Moshfeghi teaches using "geo-fences," which the '174 patent calls "authorization zone" and "payment zone" (*e.g.*, EX1001, FIG. 1), as triggering events for pairing and hands-free payment. EX1004, FIG. 1B (reproduced below), ¶0059 ("In instances where the mobile device 106 is within the defined

84. geo-fence 112 of the POS device 152.... The POS device 152 may trigger an authorization request to execute a payment transaction based on the one or more items chosen to be purchased when the mobile device 106 is within the defined geo-fence 112"), ¶0074 ("the geo-fence for a location-based hands-free payment

[(corresponding to ‘payment zone’ in ’174 patent)] may be inside the store or geo-fence 303 and a small distance or radius from the POS device 308, while the geo-fence for sending deal advertisements may cover a larger distance and even include locations outside the store [(corresponding to, *e.g.*, ‘authorization zone’ in ’174 patent)]”).

85. FIG. 1B of Moshfeghi is reproduced below.



86. Moshfeghi teaches that the mobile device 106 can detect the geo-fence by “using received signal strength indicator (RSSI) transition.” *Id.*, ¶0090; *see also, e.g.*, ¶¶0099, 0145, 0151, 0195. A POSITA would understand the RSSI transition to be an RSSI threshold used to define the geo-fence perimeter.

C. Preemptive Authorization of Funds, Before Selection of Product or Service

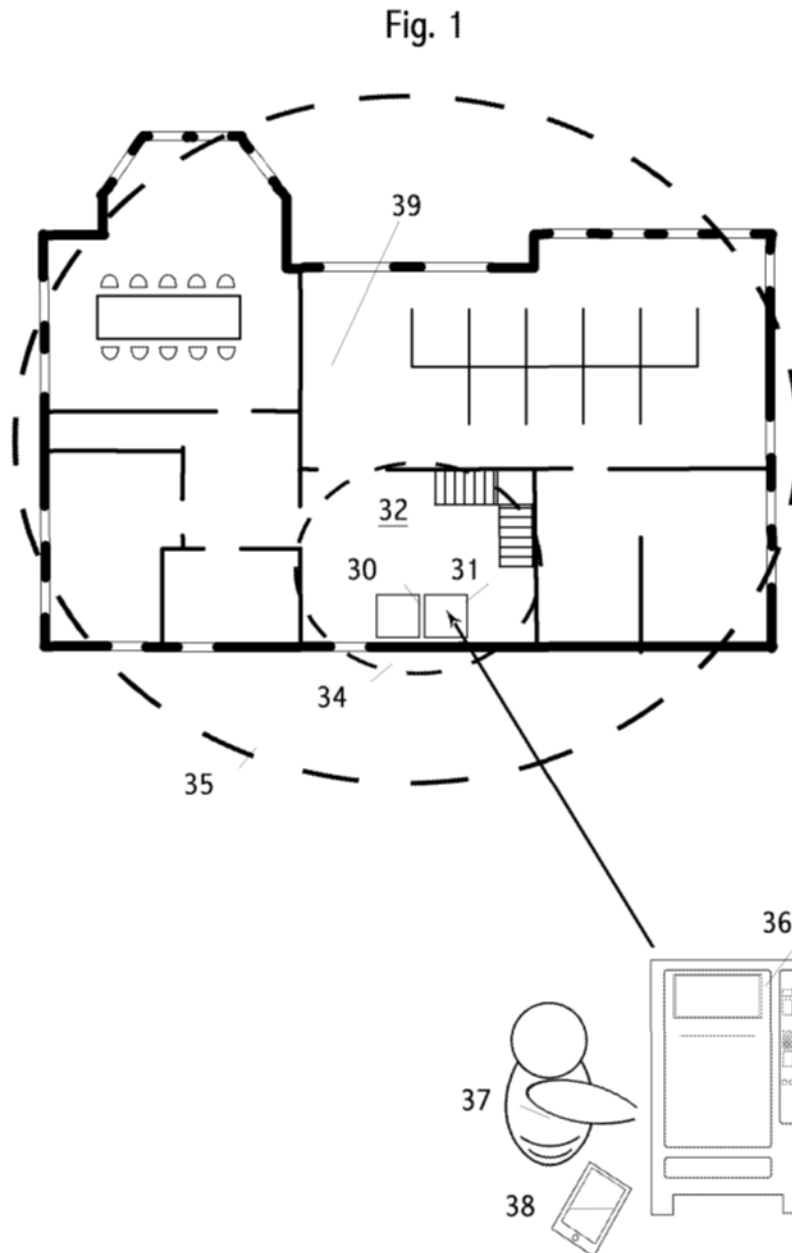
87. It was also well-known and routine in the same field of endeavor as the '174 patent for a mobile device to request preauthorization of funds to be made available for a cashless transaction at a vending machine. U.S. Patent Application Publication No. 2014/0074714 to Melone ("Melone") is illustrative in this regard.

88. Melone describes an electronic payment system that, like Berger and the '174 patent, can leverage mobile devices 106/124 for electronic payment to an unconnected vending machine 104. *See, e.g.*, EX1005, ¶003. Melone teaches the handheld 106 "can present the option for a pre-authorization with third party server 130 before vending machine 104 dispensing." *Id.*, ¶0036. "In this example, mobile device 124 can communicate information regarding pre-authorization to handheld 106 (e.g., via ... Bluetooth, etc.), and handheld 106 can pre-authorize mobile device 124 for the transaction (e.g., via mobile payment server 114 communicating with third party server 130 or third party server 130 directly)." *Id.*

89. U.S. Patent No. 9,898,884 to Arora (EX1007, "Arora") teaches a system and method for vending products to a customer that encompasses a group of vending managed by a vending company. EX1007, Abstract. Arora's system includes an app that runs on the personal, mobile devices of customers to provide "most of the 'customer services' functions normally provided by an informed

and capable store employee in a store, the ‘store’ is now all vending machines available to the customer.” EX1006, 6:24-27. “A typical vending location provides more than one vending machine,” as depicted in FIG. 1. EX1006, 6:50-51, FIG.1.

90. Below, I have reproduced FIG. 1 of Arora



EX1006, FIG. 1.

91. In FIG. 1 (above), Arora teaches an embodiment having pair of vending machines 30, 31 located in a lobby area 32. EX1006, 12:34-40. Arora teaches establishing a plurality of zones with respect to the vending machine(s), including: (1) a “dispensing distance” zone in which the customer is able to contact the vending machine (*id.*, 12:42-45); (2) an “identification distance” zone in which “either the customer is able to recognize a particular machine or the machine is able to recognize a particular customer, or both” (*id.*, 12:45-49); (3) a “within sight” zone in which the customer can see the particular machine (*id.*, 12:54-57, FIG.1, 34); and (4) a “potential buyer” zone in which the customer is within a predetermined range of the machine (*id.*, 12:57-60, FIG. 1, 35).

92. For purpose of defining the various zones and detecting the customer mobile device in those zones, Arora notes that “numerous...technologies are available for such identification” (*id.*, 12:52-54), including short-range wireless technologies such as, for example, NFC, Bluetooth, or other technologies (*id.*, 13:28-31, 27:52-67). For instance, the vending machine(s) can have a short-range, NFC transponder that can communicate with the short-range capability included in conventional customer mobile devices. *Id.*, 13:16-18. “Identification and use of the above four

described ‘transaction distances’” was well-known, routine, and conventional, including the use of the various distance-based zones around a vending machine in controlling the timing and types of information transmitted between the vending machine and customer mobile devices for purposes of performing a purchase transaction at the vending machine. *Id.*, 13:11-13.

93. Arora teaches that, “for various transactions, and for various steps of transactions it is necessary for...the vending machine to identify a particular customer; and for a determination to [b]e made if a customer is within a particular transaction distance[] with a vending machine.” *Id.*, 16:27-33 (emphasis added). Near field communication (NFC) can be “used for both identification and to determine that a customer is within dispensing distance.” *Id.*, 18:13-15. In this regard, “signal strength or signal direction, or both, may be used. *Id.*, 21-28. The customer identification can be an IP address, MAC address, or other identifier of the customer or their mobile device. *Id.*, 20:13-29-31.

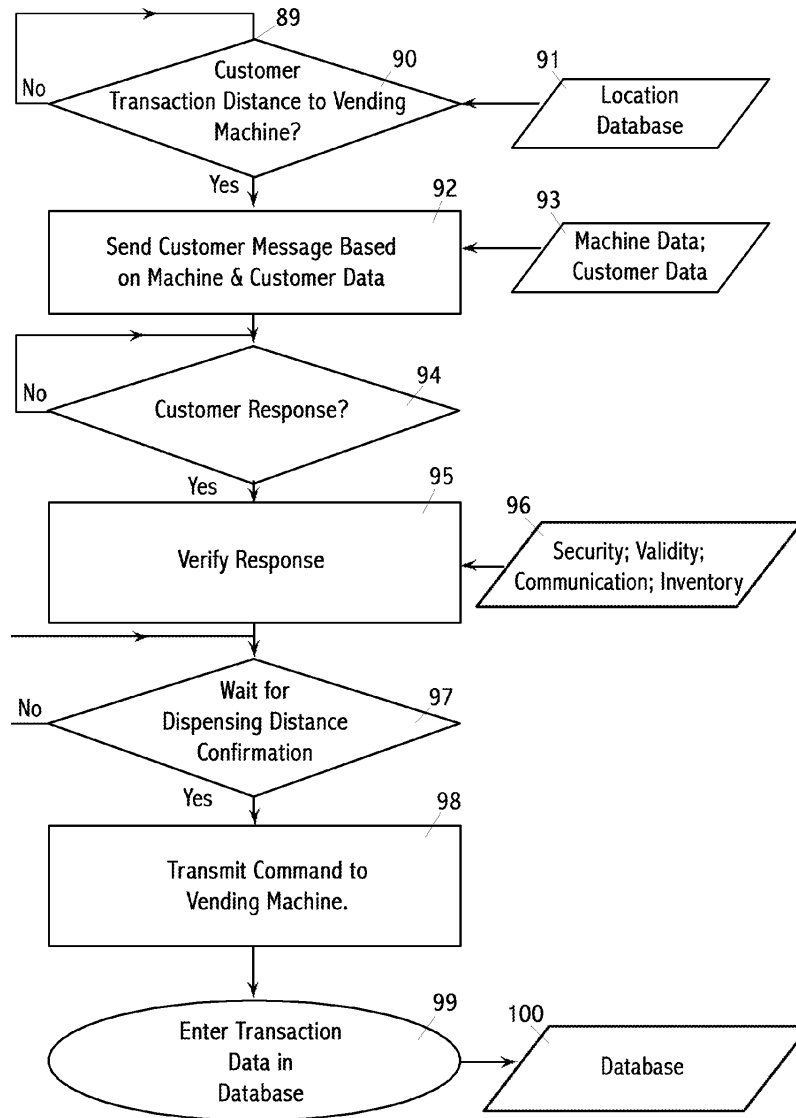
94. In describing conventional electronic payment and vending machines, Arora teaches that, “[i]n traditional electronic purchase transaction[s], a customer first identifies a payment method, which may be a default payment method; then approves the transaction, such may be by selecting a ‘buy,’ ‘purchase,’ or ‘confirm’ button; then the seller approves the

payment; then the transaction is finalized.” *Id.*, 25:22-27. This suggests that conventional automatic retail machines required either prepayment or preauthorization before a purchase can be made, regardless of whether product/service selection occurs before or after preauthorization and payment. According to Arora, conventional automatic vending machines were inconvenient for customers because the step of the merchant approving the payment took time and customers preferred that as soon as they approved the purchase (or payment) of the purchase the transaction completes. *Id.*, 25:27-31.

95. In the embodiment depicted in FIG. 6 (reproduced below), Arora teaches, prior to the customer selecting a product or service: “determining whether or not a customer is within a particular transaction distance of a particular vending machine” (*id.*, 18:40-42); “[w]hen the customer [is] within the transaction distance,” the vending machine can send a message to the mobile device such as the customer’s prior vending history from which a product or service can be selected (*id.*, 18:44-51); a preauthorization request can be sent to a third party for the particular transaction (*id.*, 18:62-64); in response to receiving a message from the mobile device, detecting and determining whether the mobile device is in the “dispensing distance” zone (*id.*, 18:67-19:4); and, in response to detecting the dispensing distance zone criteria is satisfied, sending

to the vending machine an authorization grant to enable completion of the cashless transaction at the vending machine (*id.*, 19:4-5).

96. Below, I have reproduced FIG. 6 of Arora.



EX1006, FIG. 6.

VIII. Subject Matter Eligibility of the Challenged Claims

97. I understand that each of the Challenged Claims are directed to identifying a merchant and enabling completion of a purchase from the merchant. I

have been asked to opine on whether each of the Challenged Claims, considered both individually and also as an ordered combination, include an inventive concept and whether the claim elements append well-understood, routine, and conventional activities to perform the purchase transaction between the merchant and customer.

98. In reading the Challenged Claims in view of the '174 patent specification, I found each claim to be directed to a purchase process that has been carried out between merchants and customers long before December 2013, namely: (1) a customer walking and seeing a merchant location, such as a store or sales booth; (2) walking into to the merchant location; (3) checking their wallet, credit card limit, or bank account balance; (4) approaching the merchant, prepared for a purchase transaction; and (5) when close enough to perform the purchase transaction, determining whether to complete a purchase. I refer to this purchase process below as the “Traditional Purchase Process.” The customer need not select a product or service until they are, for example, within arm’s length of the merchant, since they may need to ask the merchant regarding the products or services the merchant is offering.

99. In reading claim 1, I found the claimed subject matter to be directed to the same purchase process, except that it leverages customers’ existing mobile devices, such as, for example, smartphones and tablet computers, to exchange the necessary information between customer and merchant, without in any way altering

the customers' device or operations, or for that matter the merchant's retail machine or customers' bank or credit card server.

100. The specification of the '174 patent makes clear that the inventor of the patent did not invent any of the elements recited in any of the Challenged Claims, nor was the operation or functionality of any element altered, nor were any of the communications concepts tied to any novel technological environment, but rather cover a broad range of known devices, message formats, mechanisms of communication, and wireless transmission protocols.

101. For example, as noted in the '174 patent, the claimed mobile device, first transceiver, second transceiver, one or more processors, memory, automatic retail machine, electronic payment device, server, communications unit, and application were all well-known, routine, and conventional elements (that is, computers, devices, and software) operating and communicating by well-known, routine, and conventional methodologies. *See*, for example, EX1001, 12:34–57 and 16:64-17:25 (describing the mobile device and application and one or more programs as generic computers and software implementing the method); 17:26-45 and 17:64-18:21 (describing the communications unit and transceivers as generic elements that “include standard means of provision including ‘transmit’ and ‘transmitting,’ ... as long as the ‘communications,’ ‘signals,’ and/or ‘transmissions are ‘received’”); 16:12-18 (describing processors as generic “known” hardware);

16:37-63 (describing the memory as generic “known” hardware); 13:4-16 (describing the electronic payment device and automatic retail machine as being various generic devices); 14:13-15 (describing the server as having a processor and memory); and 13:38–62 (describing using generic communication methodologies to send information between the electronic payment device, mobile device, and server).

102. I reproduce claim 1 below and include identifying bracketed numbers to facilitate reference to the limitations and steps of the claim in my discussions below.

[1.0] A method of payment processing, the method comprising:

[1.1] at a mobile device with one or more processors, memory, and a communications unit, and [1.2] prior to user selection of any items or services provided by an automatic retail machine:

[1.3] receiving via the communications unit a transmission from an electronic payment device of the automatic retail machine, [1.4] the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;

[1.5] sending, to a server, the request via the communications unit of the mobile device;

[1.6] in response to sending the request to the server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;

- [1.7] detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine; and
- [1.8] in response to detecting the trigger condition, sending to the electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.

103. In reading the other two independent claims – that is, claims 12 and 19 – I found each of these claims to recite the same steps [1.2]-[1.8] in apparatus and computer-readable-storage-medium forms, except that steps [19.3] and [19.5], which correspond to steps [1.3] and [1.5] in claim 1 use respective “first transceiver” and “second transceiver” to communicate information instead of the “communications unit.” For convenience, I use the same numbering convention for the corresponding, respective steps [12.2]-[12.8] in claim 12 and steps [19.2]-[19.8] in claim 19

104. In comparing steps [1.3] and [12.3], I found these steps to be the same; and when comparing steps [1.5] and [12.5] I also found these steps to be same. In comparing steps [1.3]/[12.3] and [1.5]/[12.5] to steps [19.3] and [19.5] in claim 19, I found these steps to differ in only that the “first transceiver” or “second transceiver” is used in place of the “communications unit.”

105. Regarding claim 1 limitation [1.1], each of claims 12 and 19 recites a similar limitation. Particularly, claim 12 recites:

- [12.1a] a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode;
- [12.1b] one or more processors; and
- [12.1c] memory storing one or more programs to be executed by the one or more processors, the one or more programs comprising instructions for

106. Claim 19 similarly recites:

- [19.1] the one or more programs comprising instructions, which, when executed by a mobile device with one or more processors and a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode, cause the mobile device to perform operations comprising.

107. It is my opinion, after reading each Challenged Claim and the '174 patent in its entirety, that limitations [1.1], [12.1a]-[12.1c], and [19.1] in claims 1, 12 and 19, respectively, recite nothing more than a common, off-the-shelf smartphone (such as, for example, iPhone 5) or computer tablet that was in wide use well before December 2013. It is also my opinion that each of the Challenged Claims does nothing more than use that common, off-the-shelf mobile device that was in wide use before December 2013 to perform the Traditional Purchase Process

(identified above), without in any way altering the device or its operation, including the wireless technology contained in the device.

108. It is my opinion that the claims of the '174 patent are directed to using a well-understood, routine, and conventional mobile device containing short-range and long-range wireless technology that was in wide use before December 2013, and operating the mobile device in the well-understood, routine, and conventional manner that such mobile devices were operated, according to well-understood, routine, and conventional methodologies.

109. In reading the entirety of the patent, I found the '174 patent explains that in “general, a mobile device 150 may be a user’s personal mobile device 150,” and include “known” “smart phones, tablet or laptop computers.” *Id.*, 12:35-53. The '174 patent, for instance, references the iPhone 5. *Id.*, 25:12. The '174 patent further describes that the “mobile device 150 (with a mobile application 140 thereon) acts as a communication bridge between the adapter module 100 (associated with payment accepting unit 120) and the server 130.” EX1001, 13:38-40.

110. It is my opinion that each of the Challenged Claims, considered on an element-by-element basis and as an ordered combination, would have been considered by a POSITA to be well-understood, routine, and conventional as of December 18, 2013.

111. Each of independent claims 1, 12, and 19 essentially recites a process involving a customer entering a store, the store checking the customer's available credit (or calling a bank to do so) and when the customer decides, enabling a purchase to be completed using conventional and generic wireless and mobile technology.

112. As I discussed above, by December 18, 2013, a POSITA was well-aware of at least each of the concepts already discussed by Berger (EX1003), Moshfeghi (EX1004), Melone (EX1005), and Arora (EX1006), and recognized in the '174 patent background discussion, at, for example, EX1001, 1:28-3:44 and 31:25-32:43. In addition, as I discuss later, each Challenged Claim would have been obvious to a POSITA, thus further supporting my opinion that the Challenged Claims were well-understood, routine, and conventional.

113. I will now discuss each of the Challenged Claims, starting with the independent claims. For convenience, I have reproduced below the independent claims of the '174 patent side-by-side, with the bracketed numbering I will use when referring to those elements:

a. Independent Claims 1, 12, and 19 as a whole.

Claim 1	Claim 12	Claim 19
[1.0] A method of payment processing, the method comprising:	[12.0] A mobile device, comprising:	[19.0] 19. A non-transitory computer readable storage medium

[1.1] at a mobile device with one or more processors, memory, and a communications unit, and	[12.1a] a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode; [12.1b] one or more processors; and [12.1c] memory storing one or more programs to be executed by the one or more processors, the one or more programs comprising instructions for,	storing one or more programs, [19.1] the one or more programs comprising instructions, which, when executed by a mobile device with one or more processors and a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode, cause the mobile device to perform operations comprising:
[1.2] prior to user selection of any items or services provided by an automatic retail machine:	[12.2] prior to user selection of any items or services provided by an automatic retail machine:	[19.2] prior to user selection of any items or services provided by an automatic retail machine:
[1.3] receiving via the communications unit a transmission from an electronic payment device of the automatic retail machine,	[12.3] receiving via the communications unit a transmission from an electronic payment device of the automatic retail machine,	[19.3] receiving via the first transceiver a transmission from an electronic payment device of the automatic retail machine,

[1.4] the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;	[12.4] the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;	[19.4] the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;
[1.5] sending, to a server, the request via the communications unit of the mobile device;	[12.5] sending, to a server, the request via the communications unit of the mobile device;	[19.5] sending, to a server, the request via the second transceiver of the mobile device;
[1.6] in response to sending the request to the server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;	[12.6] in response to sending the request to the server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;	[19.6] in response to sending the request to the server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;
[1.7] detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine; and	[12.7] detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine; and	[19.7] detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine; and
[1.8] in response to detecting the trigger	[12.8] in response to detecting the trigger condition, sending to the	[19.8] in response to detecting the trigger condition, sending to the

condition, sending to the electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.	electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.	electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.
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114. In my opinion, each of Claims 1, 12, and 19, each taken as a whole, would have been well-understood, routine, and conventional to a POSITA as of December 18, 2013.

115. Each of Independent Claims 1, 12, and 19 are performed on a generic, conventional mobile device such as a smart phone, which the '174 patent describes includes an iPhone 5. EX1001, 25:12. By December 18, 2013, a POSITA would have understood that such a mobile device would have at least included one or more processors, a memory, a mobile application, and a communications unit containing at least a short-range transceiver and a long-range transceiver. Such a mobile device would have included at least Bluetooth, Cellular and WiFi wireless technology, and would have routinely communicated with one or more servers and automatic retail machines, as demonstrated by Berger (EX1003), Moshfeghi (EX1004), Melone (EX1005), and Arora (EX1007), discussed in Section VII.A-VII.C above, and recognized in the '174 patent background discussion, at, for example, EX1001, 1:28-

3:44 and 31:25-32:43. *See also* EX1001, 12:34-57, 13:4-16, 13:38-62, 14:13-15, 16:12-18, 16:37-17:25, 17:26-45, 17:64-18:2

116. None of Claims 1, 12, or 19 recite any feature, element, or component that was not well-understood, routine or conventional, or that was not included in readily available off-the-shelf mobile devices such as the iPhone 5, for example. Taking the steps of [1.2-1.8], [12.2-12.8], and [19.2-19.8] as a whole, these steps (individually and together) describe activities that would have been well-understood, conventional, and routine. A POSITA would have understood well that taking the conventional mobile device in 2013, or earlier, which would have included a mobile application, and performing the routine, general steps of “**receiving**” transmissions, via the mobile device’s short-range transceiver (or communications unit), contain various types of information and data, “**sending**” various types of information and data to a server via a long-range transceiver (or communication units), “**obtaining**” (or “receiving”) from the server various types of information and data, “**detecting**” distances to wireless-capable devices, by an application executing on the mobile device, including detecting RSSI values (for example, the signal strength “bars” displayed on smartphones), and “**sending**” various types of information and data to wireless device. In my opinion, none of Claims 1, 12, and 19, read as a whole, convey to a POSITA any activities that were not already well-understood, routine, and conventional as of December 18, 2013.

117. Looking at each of the steps of the Claims 1, 12, and 19, individually, it is my opinion that a POSITA would have found each of those steps to be well-understood, routine, and conventional.

b. Claim Limitations [1.0]-[1.1], [12.0]-[12.1c], [19.0]-[19.1]

Claim 1	Claim 12	Claim 19
[1.0] A method of payment processing, the method comprising: [1.1] at a mobile device with one or more processors, memory, and a communications unit,	[12.0] A mobile device, comprising: [12.1a] a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode; [12.1b] one or more processors; and [12.1c] memory storing one or more programs to be executed by the one or more processors, the one or more programs comprising instructions for,	[19.0] A non-transitory computer readable storage medium storing one or more programs, [19.1] the one or more programs comprising instructions, which, when executed by a mobile device with one or more processors and a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode, cause the mobile device to perform operations comprising:

118. In my opinion, each of claim limitations [1.0]-[1.1], [12.0]-[12.1c], and [19.0]-[19.1] were well-understood, routine, and conventional as of December 18, 2013.

119. Claim limitation [1.0] describes a “method of payment processing.” I understand that this portion of the claim is called the “preamble,” and that the preamble usually states a purpose or intended use for an invention. Claim limitation [1.1] cites to a mobile device and elements that would have been necessary for operation of, and found in a conventional mobile device—one or more processors, memory, and a communications unit.

120. Claim limitations [12.1a]-[12.1c] and [19.1] also cite these elements, except that they also recite one or more programs and, instead of a communications unit, they recite a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode. On or before December 18, 2013, the iPhone 5 and other smartphones that were widely in use contained multiple programs and a communications device that contained a short-range transceiver for short-range communication, such as Bluetooth, and a long-range transceiver for long-range communication, such as cellular. All of these elements were conventional and necessary components of a mobile device, and well-understood, routine and conventional to a POSITA. There

is nothing that would not have been well-understood, conventional, or routine to a POSITA in elements [12.1a]-[12.1c] and [19.1].

121. Claim limitation [19.0] adds a “non-transitory computer readable storage medium storing one or more programs.” The purpose of storage on a mobile device includes to store one or more programs to be executed by a mobile device’s processors. There is nothing that would not have been well-understood, conventional, or routine to a POSITA in element [19.0].

c. Claim Limitations [1.2], [12.2], [19.2]

Claim 1	Claim 12	Claim 19
[1.2] prior to user selection of any items or services provided by an automatic retail machine:	[12.2] prior to user selection of any items or services provided by an automatic retail machine:	[19.2] prior to user selection of any items or services provided by an automatic retail machine:

122. In my opinion, each of claim limitations [1.2], [12.2], and [19.2] was well-understood, routine, and conventional as of December 18, 2013.

123. Claim limitations [1.2], [12.2], and [19.2] specify that all of the steps that follow in the financial activity—namely, steps [1.3]-[1.8], [12.3]-[12.8], [19.3]-[19.8]—occur before the customer selects an item or service to purchase. To a POSITA, as of December 18, 2013, it would have made no difference that the steps [1.3]-[1.8], [12.3]-[12.8], [19.3]-[19.8] occur before or after an item or service is selected for purchase.

d. Claim Limitations [1.3], [12.3], [19.3]

Claim 1	Claim 12	Claim 19
[1.3] receiving via the communications unit a transmission from an electronic payment device of the automatic retail machine,	[12.3] receiving via the communications unit a transmission from an electronic payment device of the automatic retail machine,	[19.3] receiving via the first transceiver a transmission from an electronic payment device of the automatic retail machine, ,

124. In my opinion, each of steps [1.3], [12.3], and [19.3] was well-understood, routine, and conventional as of December 18, 2013.

125. Claim steps [1.3], [12.3], and [19.3] merely recite using the communications device (steps [1.3], [12.3]) or the short-range (Bluetooth) transceiver (step [19.3]) contained in the generic, conventional mobile device to receive a transmission from an electronic payment device of the automatic retail machine, all of which was well-known, routine, and conventional, as demonstrated by Berger (EX1003), Moshfeghi (EX1004), Melone (EX1005), and Arora (EX1007), and recognized in the '174 patent background discussion, at, for example, EX1001, 1:28-3:44 and 31:25-32:43. Each of steps [1.3], [12.3], and [19.3] is tantamount to a merchant talking to a customer.

126. It is my opinion that steps [1.3], [12.3], and [19.3] were well-understood, routine, and conventional to a POSITA as of December 18, 2013.

e. Claim Limitations [1.4], [12.4], [19.4]

Claim 1	Claim 12	Claim 19
[1.4] the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;	[12.4] the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;	[19.4] the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;

127. In my opinion, each of claim steps [1.4], [12.4], and [19.4] was well-understood, routine, and conventional as of December 18, 2013.

128. Each of claim steps [1.4], [12.4], and [19.4] recites that the transmission in steps [1.4], [12.4], and [19.4] contains purchase-related information—that is, a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine. It was well known and conventional to include in transmissions from electronic payment devices to mobile devices requests for preemptive authorization to make funds available for a cashless purchase with an automatic retail as demonstrated by Melone (EX1005) and Arora (EX1007). Each of steps [1.4], [12.4], and [19.4] is tantamount to the merchant, when talking to the customer, asking the customer to check their credit limit or bank account balance for adequate funds to make a purchase from the merchant.

f. Claim Limitations [1.5], [12.5], [19.5]

Claim 1	Claim 12	Claim 19
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[1.5] sending, to a server, the request via the communications unit of the mobile device;	[12.5] sending, to a server, the request via the communications unit of the mobile device;	[19.5] sending, to a server, the request via the second transceiver of the mobile device;
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129. In my opinion, each of Claim Limitations [1.5], [12.5], and [19.5] was well-understood, routine, and conventional as of December 18, 2013.

130. Claim steps [1.5], [12.5], and [19.5] merely recite using the communications device (steps [1.5], [12.5]) or the long-range (cellular) transceiver (step [19.5]) contained in the generic, conventional mobile device to send purchase-related information—that is, the request for preauthorization of funds for a purchase—to a generic, conventional server. Transmitting purchase-related information and data, such as that recited in steps [1.5], [12.5], and [19.5], was well known, routine, and conventional, as demonstrated by Berger (EX1003), Moshfeghi (EX1004), Melone (EX1005), and Arora (EX1007). Each of steps [1.5], [12.5], and [19.5] is tantamount to the customer seeking preauthorization from their bank or credit card service provider for funds to make a purchase.

g. Claim Limitations [1.6], [12.6], [19.6]

Claim 1	Claim 12	Claim 19
[1.6] in response to sending the request to the	[12.6] in response to sending the request to the	[19.6] in response to sending the request to the

server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;	server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;	server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;
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131. In my opinion, each of claim steps [1.6], [12.6], and [19.6] was well-understood, routine, and conventional as of December 18, 2013.

132. Steps [1.6], [12.6], and [19.6] recite, in response to sending the request to the server in steps [1.5], [12.5], and [19.5], obtaining from the server purchase-related information—that is, the authorization grant of an amount of funds for use in the purchase. Each of these steps is tantamount to, in response to requesting preauthorization of funds, having the preauthorization request granted by the bank or credit card provider for a purchase from the merchant.

h. Claim Limitations [1.7], [12.7], [19.7]

Claim 1	Claim 12	Claim 19
[1.7] detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine;	[12.7] detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine;	[19.7] detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine;

133. In my opinion, each of claim steps [1.7], [12.7], and [19.7] was well-understood, routine, and conventional as of December 18, 2013.

134. Claim steps [1.7], [12.7], and [19.7] merely recite using a generic application running on the generic, conventional mobile device to perform the cashless transaction with the generic, conventional retail machine, all of which was well-known, routine, and conventional, as demonstrated by Moshfeghi (EX1004), Melone (EX1005), and Arora (EX1007). Each of steps [1.7], [12.7], and [19.7] is tantamount to the customer looking to see if they are close enough to the merchant to make the purchase.

i. Claim Limitations [1.8], [12.8], [19.8]

Claim 1	Claim 12	Claim 19
[1.8] in response to detecting the trigger condition, sending to the electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.	[12.8] in response to detecting the trigger condition, sending to the electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.	[19.8] in response to detecting the trigger condition, sending to the electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.

135. In my opinion, each of claim steps [1.8], [12.8], and [19.8] was well-understood, routine, and conventional as of December 18, 2013.

136. Claim steps [1.8], [12.8], and [19.8] merely recite sending payment-related information to the generic electronic payment device to enable completion

of the purchase at the generic, conventional automatic vending machine, all of which was well-known, routine, and conventional, as demonstrated by Moshfeghi (EX1004), Melone (EX1005), and Arora (EX1007). Each of steps [1.8], [12.8], and [19.8] is tantamount to the customer swiping a credit card at a point-of-sale device for a purchase, or seeing they are close enough to the merchant and, effectively, determining with their mind that a purchase should be made and consummating the purchase.

j. Claims 2, 13, and 20

Claim 2	Claim 13	Claim 20
The method of claim 1, wherein: [2.1] the transmission at least includes authorization zone threshold criterion; and [2.2] after receiving the transmission, initiating a handshake process with the electronic payment device, wherein the handshake process includes: [2.3] sending, to the electronic payment device, mobile device	The mobile device of claim 12, wherein [13.1] the transmission at least includes authorization zone threshold criterion; and [13.2] after receiving the transmission, initiating a handshake process with the electronic payment device, wherein the handshake process includes: [13.3] sending, to the electronic payment device, mobile device	The non-transitory computer readable storage medium of claim 19, wherein [20.1] the transmission at least includes authorization zone threshold criterion; and [20.2] after receiving the transmission, initiating a handshake process with the electronic payment device, wherein the handshake process includes: [20.3] sending, to the electronic payment device, mobile device

information corresponding to the mobile device via a first transceiver of the mobile device; and	information at least including user identification information corresponding to the user of the mobile device via the first transceiver; and	information at least including user identification information corresponding to the user of the mobile device via the first transceiver; and
[2.4] receiving, from the electronic payment device, electronic payment device information, wherein the electronic payment device information at least includes an identifier corresponding to the electronic payment device.	[13.4] receiving, from the electronic payment device, electronic payment device information, wherein the electronic payment device information at least includes an identifier corresponding to the electronic payment device.	[20.4] receiving, from the electronic payment device, electronic payment device information, wherein the electronic payment device information at least includes an identifier corresponding to the electronic payment device.

137. In my opinion, the additional limitations and steps [2.1]-[2.4], [13.1]-[13.4], and [20.1]-[20.4] recited in claims 2, 13, and 20, as well as each of these claims as a whole, were well-understood, routine, and conventional as of December 18, 2013.

138. Each of limitations [2.1], [13.1], [20.1] merely recites that the transmission contains purchase-related information—that is, authorization zone threshold criterion, which was well-known, routine, and conventional, as demonstrated by Moshfeghi (EX1004) and Arora (EX1006), discussed in Sections VII.B and VII.C above.

139. Each of limitations [2.2], [13.2], [20.2] merely recites the necessary and well-understood exchange of information that occurred routinely in conventional short-range pairing processes such as Bluetooth and NFC, which were routinely carried out between customer mobile devices and merchant electronic payment systems, as demonstrated by Berger (EX1003), Moshfeghi (EX1004), Melone (EX1005), and Arora (EX1007).

140. Each of claim steps [2.3], [13.3], [20.3] recite sending mobile device information (which includes user identification information in the case of steps [13.3], [20.3]) that corresponds to the user of the mobile device using the short-range transceiver included in the generic, conventional mobile device to the generic electronic payment device, all of which was well-understood, routine, and conventional, as demonstrated by Berger (EX1003), Moshfeghi (EX1004), Melone (EX1005), and Arora (EX1007).

141. Each of claim steps [2.4], [13.4], [20.3] recites, at the generic, conventional mobile device, receiving electronic payment device information containing an identifier corresponding to the electronic payment device that was necessary for the handshaking process to occur between any two Bluetooth or NFC-capable devices. Each of these steps was well-understood, routine, and conventional, as demonstrated by Berger (EX1003), Moshfeghi (EX1004), Melone (EX1005), and Arora (EX1007).

k. Claims 3 and 14

Claim 3	Claim 14
The method of claim 2, [3.0] wherein sending the mobile device information comprises: [3.1] in accordance with a determination that the authorization zone threshold criterion is satisfied, sending the mobile device information to the electronic payment device via the first transceiver, wherein the mobile device information indicates that the authorization zone threshold criterion is satisfied; and [3.2] wherein the mobile device obtains the request in response to sending the mobile device information.	The mobile device of claim 13, [14.0] wherein sending the mobile device information comprises: [14.1] in accordance with a determination that the authorization zone threshold criterion is satisfied, sending the mobile device information to the electronic payment device via the first transceiver, wherein the mobile device information indicates that the authorization zone threshold criterion is satisfied; and [14.2] wherein the mobile device obtains the request in response to sending the mobile device information.

142. In my opinion, the additional limitations and steps [3.0]-[3.2] and [14.0]-[14.2] recited in claims 3 and 14, as well as each of these claims as a whole, were well-understood, routine, and conventional as of December 18, 2013.

143. Each of limitations [3.0] and [14.0] specify that limitations [2.3] and [13.3] each include limitations [3.1]-[3.2] and [14.1]-[14.2], respectively, all of which were well-known, routine, and conventional, as demonstrated by Moshfeghi (EX1004) and Arora (EX1007), discussed in Sections VII.B and VII.C above.

144. Each of limitations [3.1] and [14.1] recite, when the customer mobile device is in the authorization zone, using the short-range transceiver of the generic, conventional mobile device to send the mobile device information, including information that the authorization zone threshold criterion is satisfied, to the electronic payment device, all of which was well-understood, routine, and conventional, as demonstrated by Moshfeghi (EX1004) and Arora (EX1007), discussed in Sections VII.B and VII.C above.

145. Each of limitations [3.2] and [14.2] recite the generic, conventional mobile device receiving the request in steps [1.4] and [12.4], respectively, in response to sending the mobile device information to the generic electronic payment device. These limitations are tantamount to the customer walking toward and, when within a predetermined distance to the merchant, receiving the request for preauthorization of funds from the merchant.

I. Claims 4 and 15

Claim 4	Claim 15
The method of claim 2, wherein the electronic payment device information further includes an indication that hands-free mode is available and payment zone threshold criterion.	The mobile device of claim 13, wherein the electronic payment device information further includes an indication that hands-free mode is available and payment zone threshold criterion.

146. In my opinion, the additional limitations recited in claims 4 and 15, as well as each of these claims as a whole, were well-understood, routine, and conventional as of December 18, 2013.

147. The limitations in claims 4 and 15 specify that the electronic payment device information received at the generic, conventional mobile device includes an indication that hands-free mode is available and payment zone threshold criterion, all of which was well-known and conventional as both types of information which would have been necessarily included in the information received by the mobile devices operating in handsfree mode to operate, examples of which include the mobile devices of Moshfeghi (EX1004) and Arora (EX1007), discussed in Section VII above.

m. Claims 5 and 16

Claim 5	Claim 16
The method of claim 4, [5.1] wherein the mobile device information further includes device identification information corresponding to a model type of the mobile device; and [5.2] wherein the payment zone threshold criterion is based at least in part on the device identification information.	The mobile device of claim 15, [16.1] wherein the mobile device information further includes device identification information corresponding to a model type of the mobile device; and [16.2] wherein the payment zone threshold criterion is based at least in part on the device identification information.

148. In my opinion, the additional limitations [5.1]-[5.2] and [16.1]-[16.2] recited in claims 5 and 16, as well as each of these claims as a whole, were well-understood, routine, and conventional as of December 18, 2013.

149. Each of limitations [5.1] and [16.1] in claims 5 and 16 specify that the electronic payment device information received at the generic, conventional mobile device further includes device identification information corresponding to a model type of the mobile device, which was well-known and conventional as the information was necessary to determine the distances between the customer mobile device and electronic payment device using standard protocols such Bluetooth or NFC, as demonstrated by Moshfeghi (EX1004). It was also well known and conventional to know the type of mobile device so that the proper calculations would be done for determining, for example, RSSI thresholds, as demonstrated in Moshfeghi (EX1004), discussed in Section VII.B. above, before making a purchase.

150. The '174 patent discusses the well-known nature of Bluetooth devices, and their inherent variances with respect to signal strength, depending on the particular model type of the mobile device. EX1001, 24:35-40.

151. The limitations [5.1] and [16.1] merely state that which was well-known, that the payment zone threshold criterion necessarily had to be based on the mobile device type for proper operation, since it was well-known to a POSITA that Bluetooth signal detection varied between different models of mobile devices that

were in use as of December 18, 2013, as noted by the '174 patent itself at EX1001, 24:35-38. A POSITA would have recognized that these limitations were necessary and implicit in conventional handsfree electronic payment systems, like that of Moshfeghi (EX1004) and Arora (EX1007), discussed in Section VII above.

n. Claims 6 and 17

Claim 6	Claim 17
The method of claim 4, [6.0] wherein detecting the trigger condition comprises: [6.1] determining whether the payment zone threshold criterion is satisfied; and [6.2] in accordance with a determination that the payment zone threshold criterion is satisfied, detecting the trigger condition without user input from a user at the mobile device.	The mobile device of claim 15, [17.0] wherein detecting the trigger condition comprises: [17.1] determining whether the payment zone threshold criterion is satisfied; and [17.2] in accordance with a determination that the payment zone threshold criterion is satisfied, detecting the trigger condition without user input from a user at the mobile device.

152. In my opinion, the additional limitations and steps [6.0]-[6.2] and [17.0]-[17.2] recited in claims 6 and 17, as well as each of these claims as a whole, were well-understood, routine, and conventional as of December 18, 2013.

153. Each of limitations [6.0] and [17.0] specify that limitations [1.7] and [12.7] include limitations [6.1]-[6.2] and [17.1]-[17.2], respectively, all of which

were well-known, routine, and conventional, as demonstrated by Moshfeghi (EX1004) and Arora (EX1007), discussed in Sections VII.B and VII.C above.

154. Each of steps [6.1] and [17.1] recites determining that a payment zone threshold criteria is satisfied, which was known and conventional, examples of which include the generic, conventional mobile devices of Moshfeghi (EX1004) and Arora (EX1007) that detect when the customer is in the payment zone to allow handsfree payment.

155. Each of steps [6.2] and [17.2] merely recite what happens when the generic, conventional mobile device determines it is in the payment zone without user input, which was well-known and conventional, as demonstrated by Moshfeghi (EX1004) and Arora (EX1007), discussed in Sections VII.B and VII.C above.

o. Claims 7 and 18

Claim 7	Claim 18
The method of claim 1, [7.0] wherein detecting the trigger condition comprises: [7.1] detecting a user input from a user of the mobile device; and [7.2] in response to detecting the user input, detecting the trigger condition to perform the cashless transaction with the automatic retail machine.	The mobile device of claim 12, [18.0] wherein detecting the trigger condition comprises: [18.1] detecting a user input from a user of the mobile device; and [18.2] in response to detecting the user input, detecting the trigger condition to perform the cashless transaction with the automatic retail machine.

156. In my opinion, the additional limitations and steps [7.0]-[7.2] and [18.0]-[18.2] recited in claims 7 and 18, as well as each of these claims as a whole, were well-understood, routine, and conventional as of December 18, 2013.

157. Each of limitations [7.0] and [18.0] specify that limitations [1.7] and [12.7] include limitations [7.1]-[7.2] and [18.1]-[1782], respectively, all of which were well-known, routine, and conventional, as demonstrated by Moshfeghi (EX1004) and Arora (EX1007), discussed in Sections VII.B and VII.C above.

158. The subject matter recited in claims 7 and 18 is tantamount to the customer turning on their smartphone and, upon powering up, detecting they are in the payment zone.

159. Each of steps [7.1] and [18.1] recites detecting a user input from a user on the generic, conventional mobile device, which was well-known, routine, and conventional on most, if not all, customer mobile devices as of December 18, 2013.

160. Each of steps [7.2] and [18.2] merely recite that determination by the generic, conventional mobile device whether it is in the payment zone happens in response to user input, which was well-known and conventional, since an example of user input is to turn on the mobile device or open the mobile app, as demonstrated by Moshfeghi (EX1004) and Arora (EX1007), discussed in Sections VII.B and VII.C above.

p. Claim 8

Claim 8

The method of claim 1, further comprising: in response to obtaining the authorization grant, presenting a notification to a user of the mobile device indicating (i) a connection has been established with the electronic payment device, and (ii) the amount of funds for the transaction.
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161. In my opinion, the additional limitations recited in claim 8 were well-understood, routine, and conventional as of December 18, 2013.

162. Considering claim 8 as a whole (including the recitation to claim 1), this claim adds nothing that would not have been well-understood, conventional, or routine, as this claim simply recites displaying that a connection such as a Bluetooth connection has been established with the electronic payment device, and the amount of funds for the transaction, both information types that were routinely and conventionally displayed on customer mobile devices as of December 18, 2013.

q. Claim 9

Claim 9

The method of claim 1, wherein the authorization grant includes an identifier corresponding to the electronic payment device, an identifier corresponding to the mobile device, an amount of funds, an authorization grant token, and an expiration period for the authorization grant token.

163. In my opinion, the additional limitation recited in claim 9 was well-understood, routine, and conventional as of December 18, 2013.

164. Considering claim 9 as a whole (including the recitation to claim 1), this claim adds nothing that would not have been well-understood, conventional, or routine, as this claim simply states that the purchase-related information—the

authorization grant—including the electronic payment device identifier, mobile device identifier, the amount of funds, an authorization grant token, and an expiration period for the authorization grant token, all of are necessary for an electronic payment to happen between a mobile device and electronic payment device, as demonstrated as demonstrated by Moshfeghi (EX1004) and Arora (EX1007), discussed in Sections VII.B and VII.C above.

r. Claim 10

Claim 10
The method of claim 9, wherein at least a portion of the request and the authorization grant token are encrypted with a unique encryption key corresponding to the electronic payment device.

165. In my opinion, the additional limitation recited in claim 10 was well-understood, routine, and conventional as of December 18, 2013.

166. Considering claim 10 as a whole (including the recitations in claim 9), this claim adds nothing that would not have been well-understood, conventional, or routine, as this claim simply states the purchase-related information is encrypted, which was well-known, routine and conventional, as demonstrated as demonstrated by Arora (EX1007), discussed in Sections VII.B and VII.C above.

s. Claim 11

Claim 11
The method of claim 1, wherein the automated retail machine is a vending machine, a parking meter, a toll booth, a laundromat washer or dryer, an arcade

game, a kiosk, a photo booth, a toll booth, or a transit ticket dispensing machine.

167. In my opinion, the additional limitation recited in claim 11 was well-understood, routine, and conventional as of December 18, 2013.

168. Considering claim 11 as a whole (including the recitation to claim 1), this claim adds nothing that would not have been well-understood, conventional, or routine, but merely specifies that the automated retail machine is well-understood, routine, and conventional machine—namely, a vending machine, a parking meter, a toll booth, a laundromat washer or dryer, an arcade game, a kiosk, a photo booth, a toll booth, or a transit ticket dispensing machine.

IX. Obviousness of the Challenged Claims in View of the Prior Art

169. I will now review the prior art upon which I rely to show that the subject matter of the '174 patent claims would have been obvious to a POSITA, at least by the '174 patent's earliest claimed priority date of December 18, 2013.

A. Overview of the Prior Art — Kamat, Arora, and Dixon

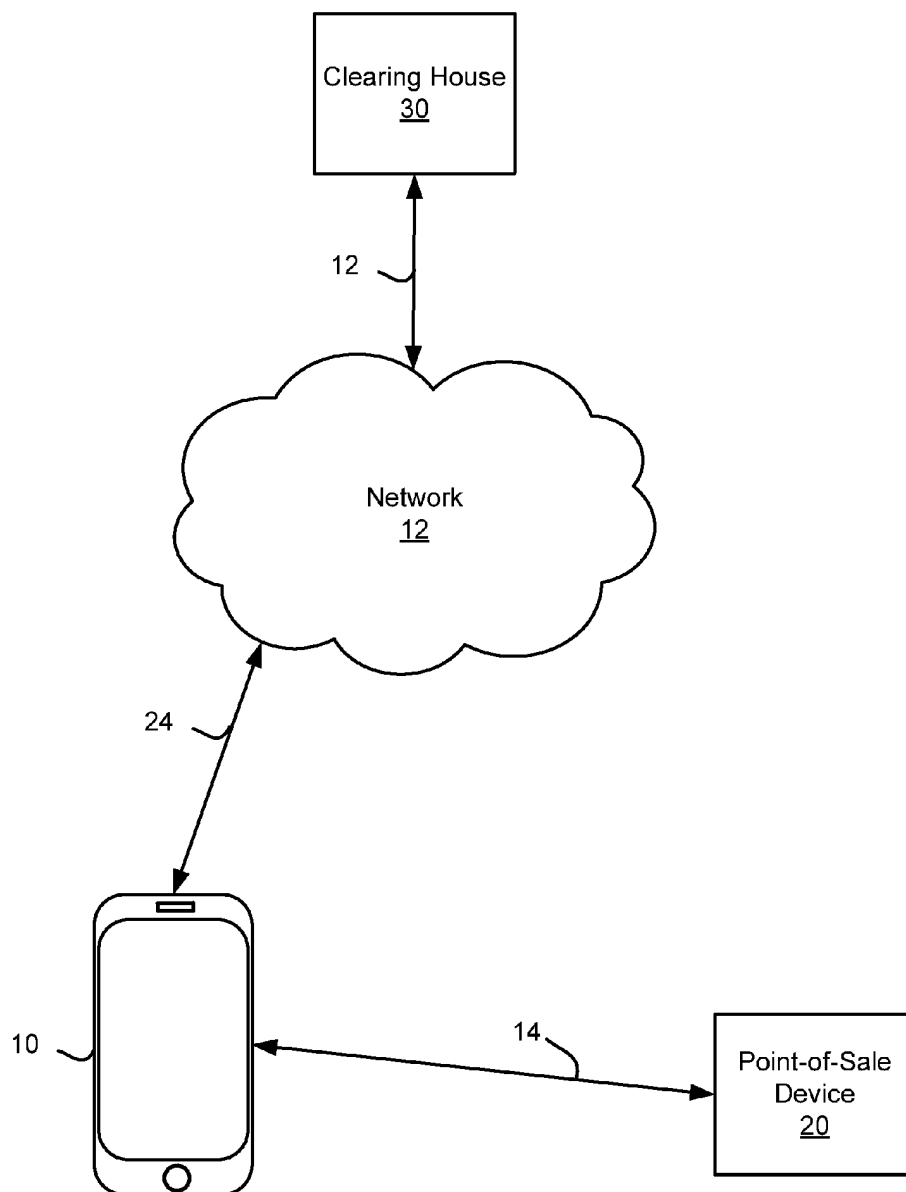
1. U.S. Patent App. Pub. No. 2014/0074723 to Kamat (EX1006)

170. Kamat discloses various embodiments of electronic payment systems and method for communicating payments wireless to unconnected point-of-sale (POS) devices such as vending machines. EX1006, ¶¶5, 47, 61.

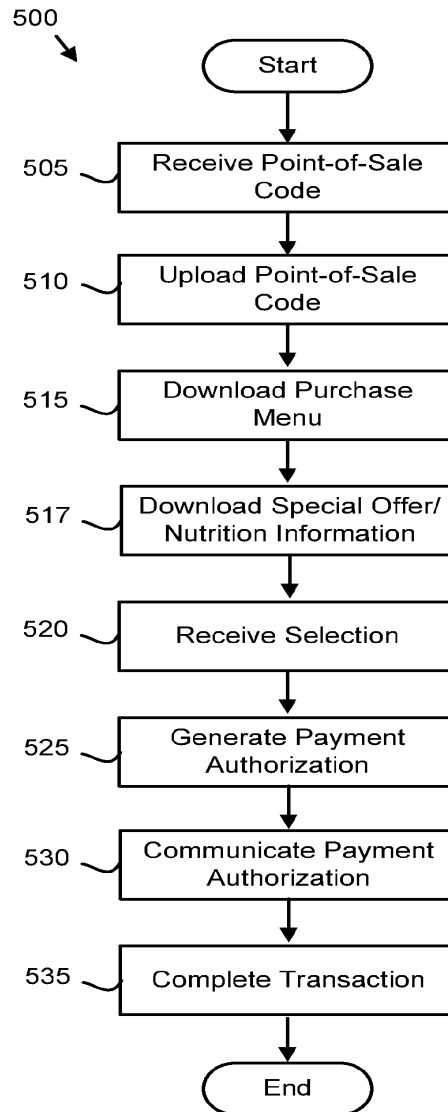
171. Referring to FIG. 1A (reproduced below), Kamat describes an embodiment comprising a mobile device 10, a POS device 20, and a clearing house server 30. *Id.*, ¶¶45-48, 50.

172. The mobile device 10 can be a customer telephone or general-purpose computer containing a processor 305, memory 310, and communications hardware 315, which is necessarily equipped with a short-range transceiver that communicates wirelessly with the POS device 20, and a long-range transceiver that communicates via cellular with the clearing house server 30. *Id.*, ¶¶48-49, 53, 69-70, FIGS. 4, 5.

173. FIG. 1A of Kamat illustrates:



174. Referring to FIG. 8 (reproduced below), Kamat teaches, in step 505, the mobile device receives, via short-range communication, a request to obtain authorization to make funds available for a cashless transaction at the POS device 20. *Id.*, ¶82 (e.g., “encoded point-of-sale code”).



175. The mobile device then sends the request (point-of-sale code) to the clearing house server 30 via long-range communication. *Id.*, ¶¶48, 83, FIG. 1A. In

response, the mobile device receives an authorization grant for the request funds and send the authorization grant to the POS device. *Id.*, ¶¶87-89.

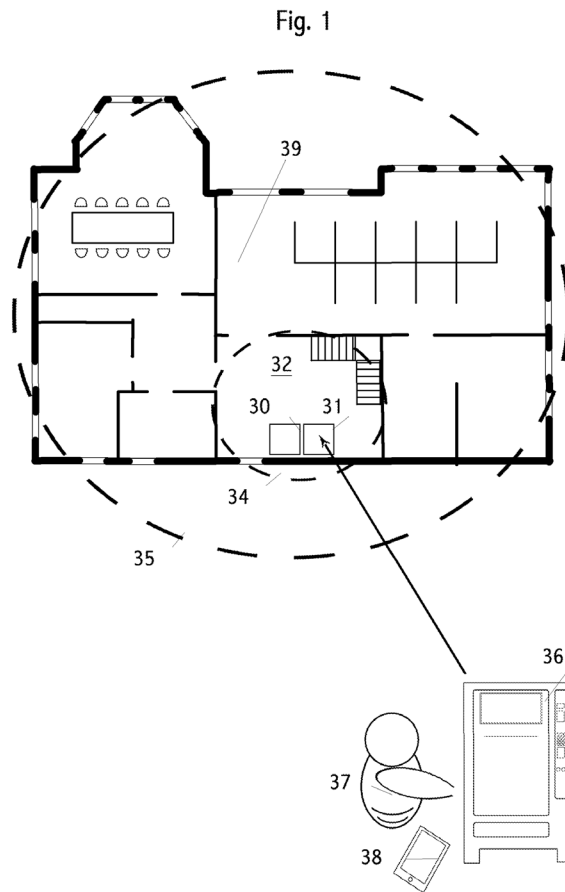
176. The authorization grant may be held by the mobile device until the mobile device receives a user input such as an instruction to make payment. *Id.*, ¶¶77-89.

2. U.S. Patent No. 9,898,884 to Arora (EX1007)

177. Arora teaches a system that allows “a vending customer to use her own mobile electronic device as a second, virtual, or replacement ‘front panel’ for one or more physical vending machines.” EX1007, 2:6-9.

178. Arora’s system includes an app that runs on the personal, mobile devices of customers to provide “most of the ‘customer services’ functions normally provided by an informed and capable store employee in a store, the ‘store’ is now all vending machines available to the customer.” EX1007, 6:24-27.

179. Arora teaches what wall well known—that is, that a “typical vending location provides more than one vending machine.” *Id.*, 6:50-51. Arora illustrates this in FIG. 1 (reproduced below).



180. In FIG. 1, Arora teaches an embodiment having a multiple vending machines 30, 31 located in an area 32. *Id.*, 12:34-40.

181. As depicted in FIG. 1, a plurality of distance-based zones, which Arora refers to as “transaction distances,” are established with respect to the vending machine(s), including: (1) a “dispensing distance” in which the customer is able to contact the vending machine (*id.*, 12:42-45); (2) an “identification distance” in which “either the customer is able to recognize a particular machine or the machine is able to recognize a particular customer, or both” (*id.*, 12:45-49); (3) a “within sight” zone in which the customer can see the particular machine (*id.*, 12:54-57,

FIG.1, 34); and (4) a “potential buyer” zone in which the customer is within a predetermined range of the machine (*id.*, 12:57-60, FIG. 1, 35).

182. To define the various distance-based zones and detect the customer’s location in those zones, Arora notes that “numerous ...technologies are available for such identification” (*id.*, 12:52-54), including short-range wireless technologies such as NFC and Bluetooth (*id.*, 13:28-31, 27:52-67). For this purpose, the vending machines would necessarily have included at least one short-range transceiver to communicate with the short-range capability included in conventional customer mobile devices. *Id.*, 13:16-18.

183. Arora teaches that, “for various transactions, and for various steps of transactions[,] it is necessary for...the vending machine to identify a particular customer[] and for a determination to [b]e made if a customer is within a particular transaction distance[] with a vending machine.” *Id.*, 16:27-33. Near field communication (NFC) can be “used for both identification and to determine that a customer is within dispensing distance.” *Id.*, 18:13-15. In this regard, “signal strength or signal direction, or both, may be used.” *Id.*, 21-28. The customer identification can be an IP address, MAC address, or other identifier of the customer or their mobile device. *Id.*, 20:13-29-31.

184. Recognizing that it takes time for a merchant to payment authorization for a cashless purchase (*id.*, 25:27-28), Arora teaches using the various “transaction

distances” to communicate messages “appropriate to the potential transaction” at which the customer is located (*id.*, 18:44-47).

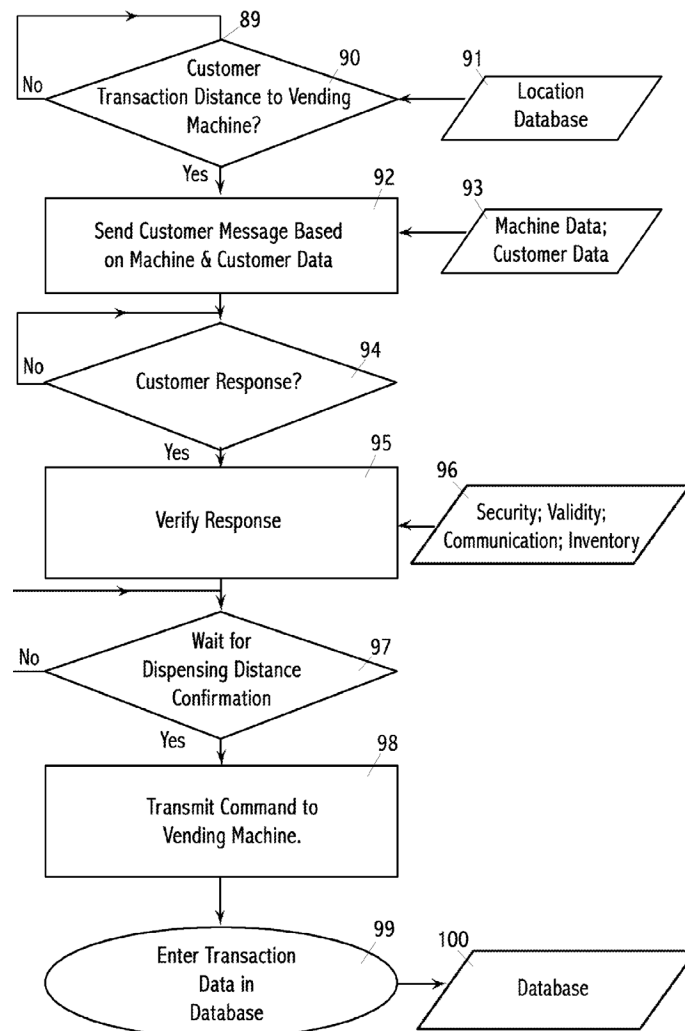
185. To speed up the process, Arora teaches communicating identification, payment authorization, and other information necessary for a purchase transaction before the customer reaches the “dispensing distance,” so that the customer does not have to wait for a purchase authorization, it will have already been completed. *Id.*, 12:45-49, 13:40-43, 18:13-28, FIG. 6 (steps 89-97).

186. Before the customer is within “dispensing distance,” the customer necessarily travels through the “identification distance,” where a handshake process necessarily occurs according to NFC and Bluetooth protocols between the mobile device and vending machine and information such as device identification, purchase authorization information, among other types of information, is necessarily exchanged. *Id.*, 12:45-49, 13:40-43, 18:13-28; *see also* EX1001, 226 (§ 4.2.2. Pairing).

187. In FIG. 6, Arora teaches, prior to the customer selecting a product or service: “determining whether or not a customer is within a particular transaction distance of a particular vending machine” (*id.*, 18:40-42); “[w]hen the customer [is] within the transaction distance,” the vending machine can send a message to the mobile device such as the customer’s prior vending history from which a product or service can be selected (*id.*, 18:44-51); a

preauthorization request can be sent to a third party for the particular transaction (*id.*, 18:62-64); in response to receiving a message from the mobile device, detecting and determining whether the mobile device is in the “dispensing distance” zone (*id.*, 18:67-19:4); and, in response to detecting the dispensing distance zone criteria is satisfied, sending to the vending machine an authorization grant to enable completion of the cashless transaction at the vending machine (*id.*, 19:4-5).EX1007, FIG. 6.

188. FIG. 6 of Arora illustrates:

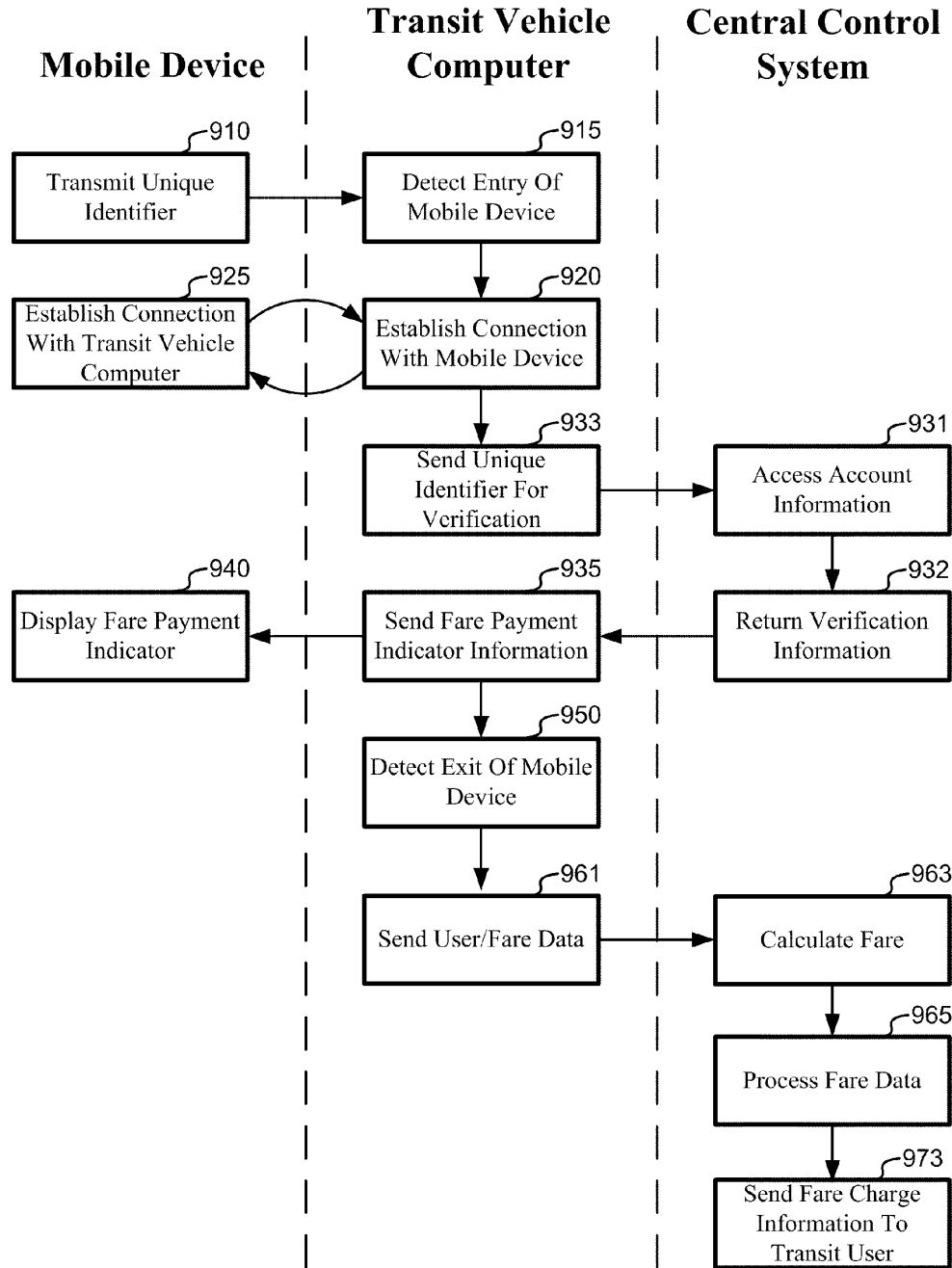


3. U.S. Patent App. Pub. No. 2011/0153495 to Dixon (EX1008)

189. Dixon, also in the same field of endeavor as Kamat, Arora, and the Challenged Claims, teaches methodologies “relate[d] to automatic payment systems using wireless mobile devices.” EX1008, ¶2.

190. Dixon describes a system and methodology that allows customers to user their own mobile devices to purchase products or services, and have the transaction completed as soon as they have approved their purchase of the selected service—for example, by exiting at a particular stop. *Id.*, ¶¶48, 67. This is demonstrated by, for example, the swim-lane diagram depicted in FIG.9B (reproduced below). As seen in the diagram, the purchase transaction is completed as soon as the customer decides to complete the transaction (step 950).

191. FIG. 9B of Dixon illustrates:



192. Referring to FIG. 9B, Dixon teaches a methodology that provides the customer with the convenience of managing purchases of, and cashless payment for, product and services without any delay in completing the purchase transaction from the time the customer decides to complete the purchase.

B. Motivation to Modify Kamat in view of Arora and Dixon

193. In reading Kamat, POSITA would have realized immediately that implementing the disclosed systems and methods in practice would have been problematic without modification, since a “typical vending location provides more than one vending machine.” EX1007, 6:50-51.

194. The POSITA would have understood that, when a customer approaches a location with two or more vending machines, the customer’s mobile device will receive short-range broadcasts from each of the vending machines and resultantly might transact with an unintended machine.

195. Arora teaches a methodology for detecting, selecting, and interacting with a particular one or more of a plurality of vending machines at a given location. For instance, Arora teaches displaying icons 110, 111 that allow the user to select a desired machine where multiple vending machines are co-located. EX1007, 4:60-5:3, 19:31-35, FIG. 7.

196. Since a typical vending location has multiple vending machine (EX1007, 6:50-51), it would have been obvious to a POSITA to modify Kamat in view of Arora and include the multi-machine interaction and selection capability of Arora in Kamat’s system, including Arora’s “transition distance” based-zones that speed up purchase transactions by handling identification, authorization, and other

exchanges of information necessary for cashless payment before a customer reaches the machine. *Id.*, 12:45-49, 13:40-43, 18:13-28, FIG. 6 (steps 89-97).

197. The POSITA would have understood, and expected, that Kamat, as modified in view of Arora, would have resulted in not only the customer's mobile device in Kamat interacting with vending machines as intended, but also reducing purchase transaction times while simultaneously increasing sales by facilitating multi-product, multi-machine purchases at the same time. *Id.*, see also EX1007, 2:17-3:52.

198. Kamat, as modified in view of Arora, would have provided customers with the ability to continue to use their own mobile devices to purchase goods and services at unconnected automatic vending machines, by continuing to have the customers' mobile devices serve as communication bridges between the vending machine and the clearing house server 30. EX1006, FIG. 1A.

199. However, to be able to continue to provide access to unconnected vending machines as taught by Kamat, while simultaneously maximizing convenience and speed of payment processing as taught by Arora (*e.g.*, EX1007, 25:28-35), a POSITA would have understood that it would have been necessary to complete the exchange of all information necessary for the purchase transaction before the customer is within the "dispensing distance" zone taught by Arora.

200. Dixon teaches that all information necessary for completion of a purchase transaction can be done before the customer reaches the point of sale (*e.g.*, EX1008, FIG. 9B, 950).

201. Having Dixon before him, the POSITA would have been motivated to modify Kamat, as modified by Arora, in further view of Dixon, thereby eliminating any delay in completing a transaction when the customer authorizes cashless payment, such as, for example, walking away from the point of sale (*id.*).

202. It is my opinion that it would have been obvious to a POSITA to modify Kamat in view of Arora, in further view of Dixon, which in my opinion would have resulted in the method of payment processing of claims 1-11, the mobile device of claims 12-18, and the non-transitory computer storage medium of claims 19-20 of the '174 patent.

C. Where Each Limitation is Found in the Prior Art

203. It is my opinion that Kamat, as modified in view of Arora and Dixon, would have included each and every limitation, and in the order claimed, in each of the Challenged Claims.

204. It is my opinion that Kamat, as modified in view of Arora and Dixon, would have disclosed or rendered obvious these limitations to a POSITA:

a. Claim Limitations [1.0]-[1.1], [12.0]-[12.1c], [19.0]-[19.1]

Claim 1	Claim 12	Claim 19
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[1.0] A method of payment processing, the method comprising: [1.1] at a mobile device with one or more processors, memory, and a communications unit,	[12.0] A mobile device, comprising: [12.1a] a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode; [12.1b] one or more processors; and [12.1c] memory storing one or more programs to be executed by the one or more processors, the one or more programs comprising instructions for,	[19.0] A non-transitory computer readable storage medium storing one or more programs, [19.1] the one or more programs comprising instructions, which, when executed by a mobile device with one or more processors and a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode, cause the mobile device to perform operations comprising:
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205. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, each of claim limitations [1.0]-[1.1], [12.0]-[12.1c], and [19.0]-[19.1]. *See*, for example, EX1006, FIGS. 1A, 3A-10, and corresponding description in the specification; EX1007, 2:64-11:40,

FIGS. 1-3, 6-7, and corresponding description in the specification; and EX1008 (Dixon), FIGS. 7A-7B, 9A-9C, and corresponding description in the specification.

206. Kamat teaches an electronic payment system and methodology for communicating cashless payments wirelessly to offline or non-internet connected point-of-sale (POS) devices such as vending machines. EX1006, ¶¶5, 47, 61. Referring to FIG. 1A, Kamat describes a mobile device 10, a POS device 20, and a clearing house server 30. Id., ¶¶45-48, 50. The mobile device 10 can be a customer telephone or general-purpose computer containing a processor 305, memory 310, and communications hardware 315, which is necessarily equipped with a short-range transceiver that communicates wirelessly with the POS device 20, and a long-range transceiver that communicates via cellular with the clearing house server 30. Id., ¶¶48-49, 53, 69-70, FIGS. 4, 5.

207. For convenience of reference, FIGS. 4 and 5 of Kamat are reproduced below:

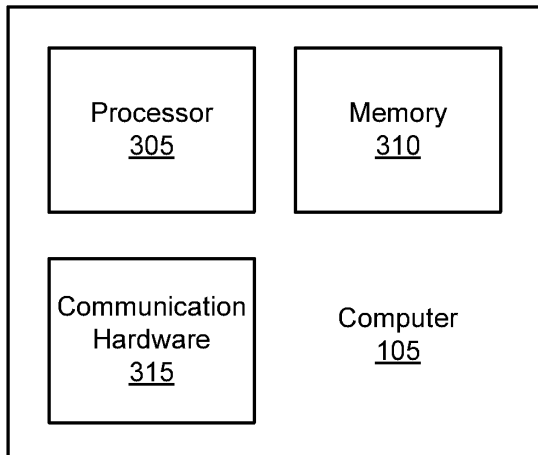


FIG. 4

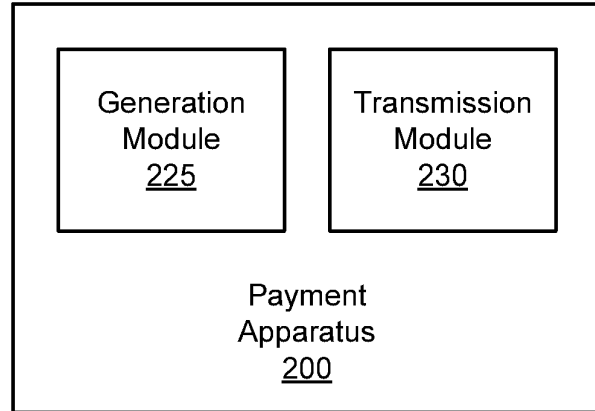


FIG. 5

208. Kamat teaches that the computer 105 and payment apparatus 200 “may be included in the mobile device 10, the POS device 20, and the clearing house server 30. *Id.*, ¶¶69-70.

209. Kamat, as modified in view of Arora and Dixon, would have disclosed implicitly, or at minimum it would have been obvious to a POSITA to include, a first transceiver in the communication hardware 315 of the mobile device 10 of Kamat (as modified in view of Arora and Dixon) for the short-range (e.g., Bluetooth or NFC) communication mode with the POS device 20, and a second transceiver for the long-range (cellular) communication mode. EX1006, ¶¶48-49, 51, 98, FIGS. 4-5; EX1007, 3:64-4:7, 13:14-17, 18:13-20, 27:52-67; EX1008, ¶¶59, 62, 78, 84.

210. Kamat, as modified in view of Arora and Dixon, would have disclosed the non-transitory computer readable storage medium of claim 19. See e.g., EX1006, ¶¶20, 22-28, 38-40, 69-70, 75, 81, 94, 99-100, claim 19.

211. Kamat, as modified in view of Arora and Dixon, would have disclosed this limitation 19.1. See e.g., EX1006, ¶¶20, 22-28, 38-40, 69-70, 75, 81, 94, 99-100, claim 19; EX1007, 18:44-47, FIG. 6 (92).

212. Kamat teaches leveraging a generic, conventional mobile device 10 to connect with the POS device 20 via the first transceiver corresponding to a short-range communication mode, and to connect to the clearing house server 30 via the second transceiver, distinct from the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode. EX1006, ¶¶48, 49. Kamat teaches one or more programs comprising instructions for performing the activities described in the patent, including the process 500 shown in FIG. 8.

213. Kamat teaches that the POS device 20 is not in communication with the network 12 (FIG. 1A) and, therefore, the POS device 20 may be unable to communicate payment information, receive payment confirmations, verify the validity of a payment account, and the like. *Id.*, ¶46.

214. Kamat teaches that the mobile device 10 is leveraged to securely communicate payments between the mobile device 10 and POS device 20. *Id.*, ¶47.

By leveraging the mobile device 10 as a communication bridge between the POS device 20 and third party devices such as the clearing house server 30, the mobile device 10 is used to handle communications, including sending and receiving information, that otherwise would have been handled between the POS device 20 and clearing house server 30 directly, as depicted in other embodiments of Kamat. *Id.*, ¶¶47, FIGS. 1B-1D.

215. Kamat teaches that all communications between the mobile device 10 and POS device 20 can be done via short-range communication using a protocol such as NFC or Bluetooth. EX1006, ¶¶47-49, 52, 74, 82. A POSITA would have understood that a short-range transceiver would necessarily have been included in the mobile device 10 such as, for example, in the communication hardware 315 or transmission module 230. *Id.*, FIGS. 4-5.

216. Kamat teaches that all communications between the mobile device 10 and clearing house server 30 can be done using either long-range communication such as cellular or short range communication using Bluetooth. *Id.*, ¶¶48-49, 52, 74, 82. A POSITA would have understood that a long-range transceiver would necessarily have been included in the mobile device 10 such as, for example, in the communication hardware 315 or transmission module 230. *Id.*, FIGS. 4-5.

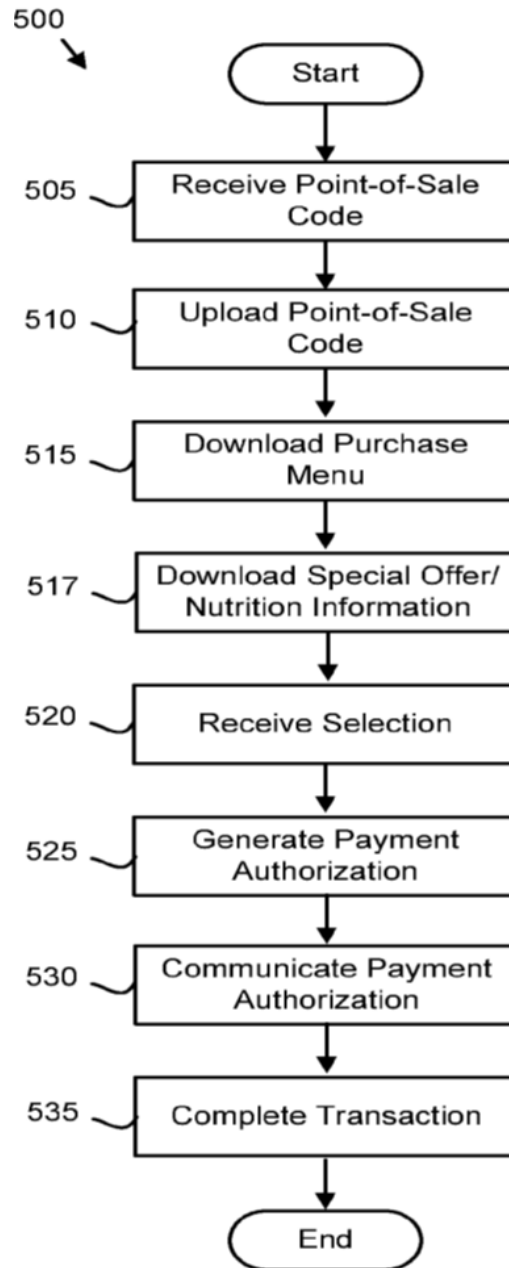
217. Kamat teaches that the memory 310 stores computer readable program code, which a POSITA would have understood to include one or more programs to

be executed by the processor 305, the one or more programs comprising instructions for performing the activities described in Kamat. *Id.*, ¶¶22-41, 69, 70, 75, 80, 94, 98.

218. Kamat teaches the POS device 20 as being a vending machine that includes a short-range wireless transceiver 455. EX1006, FIG. 6.

219. Kamat teaches a method of payment processing. Referring to FIG. 8, Kamat teaches, in step 505, the mobile device receives, via short-range communication, a request to obtain authorization to make funds available for a cashless transaction at the POS device 20. *Id.*, ¶82 (e.g., “encoded point-of-sale code”). The mobile device then sends the request (point-of-sale code) to the clearing house server 30 via long-range communication at step 510. *Id.*, ¶¶48, 83, FIG. 1A. In response, the mobile device receives an authorization grant for the requested funds (step 525) and sends the authorization grant to the POS device. *Id.*, ¶¶87-89. The authorization grant may be held by the mobile device until the mobile device receives a user input such as an instruction to make payment. *Id.*, ¶¶77-89.

220. For convenience, I reproduce FIG. 8 of Kamat below.



221. Kamat teaches, in addition to the claimed mobile device and claimed method of payment processing, a non-transitory computer readable storage medium storing one or more programs with instructions as recited in limitation [19.1], which, when executed by the mobile device 10 causes the mobile device to perform

activities recited in claims 1, 12, and 19. *Id.*, ¶¶20-28, 38-40, 69-70, 75, 81, 94, 99-100, claim 19.

222. Kamat teaches a software application, specifically a computer program product. *Id.*, ¶¶32-38, 41.

223. Arora teaches a method of payment processing (“the basic functions available to the customer include product selection, payment and vending—all without physically touching the vending machine”), including implementing the method on a generic, conventional mobile device such as a customer smart phone (EX1007, 2:9-19, 3:64-66) and a non-transitory computer readable medium, such as the memory in the mobile device, for storing one or more programs for execution the processor in the device. *Id.*, 26:65-27:6.

224. Arora teaches a wireless NFC transponder (a short-range transceiver) in the vending machine to interact and communicate with an NFC transceiver included in the customer mobile device. EX1007, 13:16-19, 18:13-20.

225. Arora teaches a wireless cellular transceiver for long-range communication included in the mobile device, which a POSITA would have understood would have been included in most, if not all, smart phones. EX1007, 3:64-4:7, 27:52-67, FIG. 2.

226. Arora teaches the mobile device can be a smart phone containing a user interface, a processor and a memory capable of executing applications (apps), and wireless electronic communications. *Id.*, 26:65-27:6.

227. Arora teaches the mobile device can be used to interact with one or more vending machines 30, 31 located in the same area. *Id.*, 12:34-40. Arora teaches using a plurality of “transaction distances” to control interaction between the mobile device and vending machines. See *Id.*, 25:3-7 and FIG. 7.

228. The transaction distances can be used as distance-based zones around each vending machine. The “transaction distances” can include: (1) a “dispensing distance” in which payment is enabled and the customer may be able to contact the vending machine (*id.*, 12:42-45, FIG. 6 (steps 97, 98); (2) an “identification distance” in which “either the customer is able to recognize a particular machine or the machine is able to recognize a particular customer, or both” (*id.*, 12:45-49); (3) a “within sight” zone in which the customer can see the particular machine (*id.*, 12:54-57, FIG.1, 34); and (4) a “potential buyer” zone in which the customer is within a predetermined range of the machine (*id.*, 12:57-60, FIG. 1 (35)).

229. To define the various distance-based zones and detect the customer’s location in those zones, Arora teaches that “numerous ...technologies are available for such identification” (*id.*, 12:52-54), including short-range wireless technologies such as NFC and Bluetooth (*id.*, 13:28-31, 27:52-67). A POSITA would have

understood that, for this purpose, the vending machines would necessarily have included at least one short-range transceiver to communicate with the short-range capability included in conventional customer mobile devices. *Id.*, 13:16-18.

230. Arora teaches that Near field communication (NFC) can be “used for both identification and to determine that a customer is within dispensing distance.” *Id.*, 18:13-15. The customer identification can be an IP address, MAC address, or other identifier of the customer or their mobile device. *Id.*, 20:13-29-31. A POSITA would have understood that Arora’s use of the NFC protocol would have required the mobile device 10 to implement the NFC protocol, which included a handshake process with exchanges of information and data between the mobile device 10 and the POS device 20.

231. Arora teaches that “signal strength or signal direction, or both, may be used” to determine customer location with respect to the transaction distance of the vending machine. *Id.*, 18:13-15, 21-28. A POSITA would have understood “signal strength” to include RSSI values. A POSITA would have further understood that RSSI values would be used in both NFC and Bluetooth short-range communication.

232. Arora teaches using the various “transaction distances” to communicate messages “appropriate to the potential transaction” at which the customer is located (*id.*, 18:44-47).

233. To speed up the payment process, Arora teaches communicating identification, payment authorization, and other information necessary to enable immediate purchase transaction completion at the initiative of the customer. *Id.*, 25:27-28. A POSITA would have understood Arora to do this by using at least two transaction distances: the “identification distance” and the “dispensing distance.”

234. A POSITA would have understood the “identification distance” to define the authorization zone around the vending machine, such that when the customer enters the authorization zone—that is, customer is within the identification distance—the mobile device 10 and POS 20 device will initiate a short-range handshake process such as Bluetooth or NFC. EX1007, 3:64-4:7, 12:45-49; 12:60-13:5, 27:52-67.

235. During the NFC or Bluetooth handshake process, the mobile device 10 and POS device 20 are required by the applicable protocol to exchange device and purchase transaction related information before the customer reaches the “dispensing distance,” so that the customer does not have to wait for a purchase authorization, it will have already been completed. *Id.*, 12:45-49, 13:40-43, 18:13-28, FIG. 6 (steps 89-97). In particular, before the customer is within “dispensing distance,” the customer necessarily travels through the “identification distance,” wherein a handshake process necessarily occurs according to NFC and Bluetooth protocols between the mobile device and vending machine and information such as

device identification, purchase authorization information, among other types of information, is necessarily exchanged. *Id.*, 12:45-49, 18:13-28.

236. In the embodiment depicted in FIG. 6, Arora teaches, prior to the customer selecting a product or service: “determining whether or not a customer is within a particular transaction distance of a particular vending machine” (*id.*, 18:40-42); “[w]hen the customer [is] within the transaction distance,” the vending machine can send a message to the mobile device such as the customer’s prior vending history from which a product or service can be selected (*id.*, 18:44-51); a preauthorization request can be sent to a third party for the particular transaction (*id.*, 18:62-64); in response to receiving a message from the mobile device, detecting and determining whether the mobile device is in the “dispensing distance” zone (*id.*, 18:67-19:4); and, in response to detecting that the dispensing distance zone criteria is satisfied, sending to the vending machine an authorization grant to enable completion of the cashless transaction at the vending machine (*id.*, 19:4-5). EX1007, FIG. 6.

237. Dixon teaches a system that allows customers to use their own mobile devices to purchase products or services, and have the transaction completed as soon as the customers have approved their purchase of the selected service—for example, by exiting at a particular stop. *Id.*, ¶¶48, 67. This is demonstrated by, for example, the swim-lane diagram depicted in FIG.9B. As seen in the diagram, the purchase

transaction is completed as soon as the customer decides to complete the transaction (step 950).

b. Claim Limitations [1.2], [12.2], [19.2]

Claim 1	Claim 12	Claim 19
[1.2] prior to user selection of any items or services provided by an automatic retail machine:	[12.2] prior to user selection of any items or services provided by an automatic retail machine:	[19.2] prior to user selection of any items or services provided by an automatic retail machine:

238. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim limitations [1.2], [12.2], and [19.2].

239. Kamat teaches prior to user selection of any items or services provided by an automatic retail machine 20. EX1006EX1006, ¶0042. Kamat discloses that any disclosed functions can be implemented in alternative ways depending on the functionality involvedinvolved. For example, two process blocks shown in succession may, in fact, be executed substantially concurrently, or the blocks may sometimes be executed in the reverse order, depending upon the functionality involved. Other steps and methods may be conceived that are equivalent in function, logic, or effect to one or more blocks, or portions thereof, of the illustrated Figures. EX1006, ¶¶0042.

c. Claim Limitations [1.3], [12.3], [19.3]

Claim 1	Claim 12	Claim 19
[1.3] receiving via the communications unit a transmission from an electronic payment device of the automatic retail machine,	[12.3] receiving via the communications unit a transmission from an electronic payment device of the automatic retail machine,	[19.3] receiving via the first transceiver a transmission from an electronic payment device of the automatic retail machine, ,

240. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim limitations [1.3], [12.3], and [19.3].

241. A POSITA would have understood that all of the information necessary to complete a purchase in Kamat, as modified in view of Arora and Dixon, would have been exchanged between the mobile device and the vending machine before the customers enters the “dispensing distance” of the vending machine. EX1007, 12:45-49, 13:40-43, 18:13-28, 25:28-35, FIG. 6 (steps 89-97); EX1008, FIG. 9B.

242. Arora teaches that “[f]or example, money in excess of the purchase price could be deposited in a machine or charged to a payment method.” EX1007, 9:26-30. Arora further discloses that a feature of vending machines is to “pay ‘automatically,’ meaning without any additional explicit action by the customer immediately before, during or after a purchase transaction from a vending machine. A customer may approve in advance one or more payment methods for an

embodiment.” *Id.*, 25:3-7. This statement would have been understood by a POSITA to suggest funds may be authorized and the necessary steps for a purchase performed, so that the purchase can be completed immediately at the instruction of the customer, or automatically without user interaction.

243. Kamat, as modified in view of Arora and Dixon, would have disclosed the customer mobile device 10 communicates with the POS device 20 (automatic retail machine) via a first, short-range transceiver, through which the mobile device receives transmissions from the electronic payment device 200 included in the POS device 20, which “may be a vending machine...transit kiosk...ticket kiosk...” EX1006, ¶¶47, 49, 70, 82, FIGS. 1, 4-5; *see also* EX1007, 18:44-47, FIG. 6 (92).

244. Dixon teaches “receiv[ing], using the wireless interface, an indication [(transmission)] that the mobile device is on the transit vehicle.” EX1008, claim 34, FIG. 9B (920).

245. Kamat teaches receiving from the electronic payment device 455 a transmission via the short-range transceiver (or communications unit) of the mobile device, to obtain authorization to make funds available for a cashless transaction with the automatic retail machine. EX1006, ¶¶47-49, FIG. 8, step 505. Specifically, Kamat discloses that the mobile device 10 receives the point-of-sale code (authorization request) from the automatic retail machine 20 over the short-range communications 14. EX1006, ¶0051, FIG. 1A. The mobile device 10 may further

communicate the authorization request to the server 30. *Id.* Both the authorization request and the authorization grant may be encrypted. *Id.*

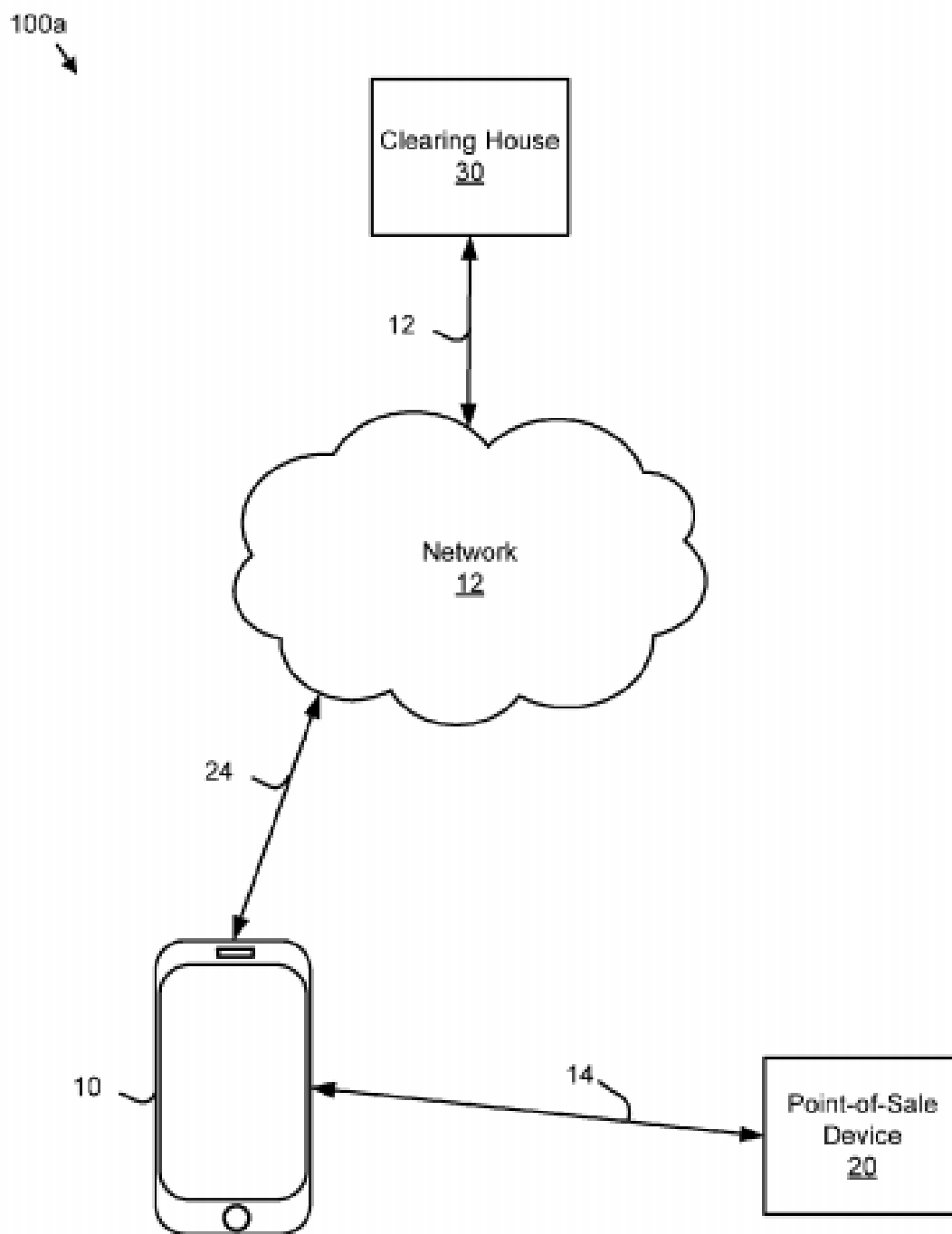


FIG. 1A

d. Claim Limitations [1.4], [12.4], [19.4]

Claim 1	Claim 12	Claim 19
[1.4] the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;	[12.4] the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;	[19.4] the transmission including a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;

246. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim limitations [1.4], [12.4], and [19.4].

247. Kamat, as modified in view of Arora and Dixon, would have disclosed the transmission to include the point-of-sale code (EX1006, ¶¶51, 61-62), which a POSITA would have understood to be the claimed “request,” among other messages.

248. Arora teaches these limitations [1.4], [12.4], and [19.4]. Aaron teaches the mobile device receiving a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine. EX1007, 11:27-30, 25:31-40, 25:3-15.

249. Dixon teaches the transmissions between the mobile device and transit vehicle computer can include a variety of types of information, which a POSITA would have understood would include a request to preemptively obtain authorization

to make funds available for a cashless transaction for a purchase when the customer, for example, exits a particular stop. See e.g., EX1008, FIG. 9B, steps 920 and 925.

e. Claim Limitations [1.5], [12.5], [19.5]

Claim 1	Claim 12	Claim 19
[1.5] sending, to a server, the request via the communications unit of the mobile device;	[12.5] sending, to a server, the request via the communications unit of the mobile device;	[19.5] sending, to a server, the request via the second transceiver of the mobile device;

250. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim limitations [1.5], [12.5], and [19.5].

251. Kamat teaches sending, to a server, the request via the communications unit of the mobile device. EX1006, ¶0051. Kamat discloses that after receiving the authorization request from the automatic retail machine 20, the mobile device 10 may communicate the authorization request to the server 30. *Id.*

252. Kamat, as modified in view of Arora and Dixon, would have disclosed the mobile device 10 to send, to the clearing house server 30 the point-of-sale code (or “request”) via the mobile device’s cellular (long-range) transceiver ¶¶48, 51.

253. Kamat, as modified in view of Arora and Dixon, would have disclosed the mobile device 10 to send, to the clearing house server 30 the point-of-sale code

(or “request”) via the mobile device’s second, cellular (long-range) transceiver ¶¶48, 51.

254. Arora and Dixon each teaches receiving and transmitting various types of information between the mobile device and some type of fund or payment server, and between mobile device and vending machine. See e.g., EX1007, 3:65-4:7, 27:52-28:3, FIG. 2; EX1008, FIG. 9B, step 933; EX1006, ¶ 44-49, 520.

255. Kamat, as modified in view of Arora and Dixon, would have disclosed the non-transitory computer readable storage medium of claim 20, including the computer readable storage medium of claim 12 as discussed above.

256. Arora and Dixon each teaches receiving and transmitting various types of information between the mobile device and some type of fund or payment server, and between mobile device and vending machine. See e.g., EX1007, 3:65 -4:7, 27:52-28:3, FIG. 2; EX1008, FIG. 9B, step 965, ¶ 44-49, 52, 115-120.

f. Claim Limitations [1.6], [12.6], [19.6]

Claim 1	Claim 12	Claim 19
[1.6] in response to sending the request to the server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;	[12.6] in response to sending the request to the server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;	[19.6] in response to sending the request to the server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;

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257. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim limitations [1.6], [12.6], and [19.6].

258. Kamat teaches in response to sending the request to the server, obtaining from the server an authorization grant (“payment authorization”) of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine. EX1006, ¶0051. The payment authorization may be communicated through the mobile device 10 and the short-range communications 14 to the automatic retail machine 20. Upon receipt of the payment authorization, the point-of-sale device 20 may complete the transaction. For example, the automatic retail machine 20 may deliver an item such as food, fuel, service, and the like. Id

259. Kamat, as modified in view of Arora and Dixon, would have disclosed, in response to sending the “request” to the clearing house server 30, obtaining from the server a payment authorization, which a POSITA would have understood to be the claimed “authorization grant,” among other messages. EX1006, ¶51.

260. Arora and Dixon each teaches receiving and transmitting various types of information between the mobile device and some type of fund or payment server,

and between mobile device and vending machine. See e.g., EX1007, 3:65-4:7, 27:52-28-3, FIG. 2; EX1008, FIG. 9B, step 932.

g. Claim Limitations [1.7], [12.7], [19.7]

Claim 1	Claim 12	Claim 19
[1.7] detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine;	[12.7] detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine;	[19.7] detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine;

261. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim limitations [1.7], [12.7], and [19.7].

262. Kamat teaches in response to sending the request to the server, obtaining from the server an authorization grant (“payment authorization”) of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine. EX1006, ¶0051. The payment authorization may be communicated through the mobile device 10 and the short range communications 14 to the automatic retail machine 20. EX1006, ¶0051. Upon receipt of the payment authorization, the point-of-sale device 20 may complete the transaction. *Id.* For example, the automatic retail machine 20 may deliver an item such as food, fuel, service, and the like. *Id.*

263. Kamat, as modified in view of Arora and Dixon, would have disclosed the mobile device 10 to detect, by the application executing on the mobile device 10, a trigger condition to perform the cashless transaction with the POS device 20. For example, Kamat, as modified in view of Arora, would include the hands-free, automatic, cashless payment taught at, e.g., EX1007, 21:65-22:4, 25:3-7, which a POSITA would have understood would occur after a determination is made that the mobile device 10 is within the “dispensing distance” taught by Arora, as depicted at steps 97, 98 in FIG. 6 of Arora—the “dispensing distance” being understood by the POSITA to be the claimed “trigger condition.” *Id.*, FIG. 6.

264. Arora also teaches that the “dispensing distance” can be determined and, therefore, detected, using received signal strength, which according to Arora was well known. EX1007, 18:21-28. A POSITA would have understood the teaching of signal strength by Arora to implicitly include detecting “dispensing distance” based on a received signal strength condition – that is, the received signal strength being above a predetermined baseline or threshold to indicate the mobile device is within a predetermined distance of the vending machine.

265. Dixon teaches various types of detection involving the location of the mobile device to the transit vehicle computer, which a POSITA would have understood to implicitly include received signal strength detection or other measures. See e.g., FIG. 9B, steps 915, 950.

h. Claim Limitations [1.8], [12.8], [19.8]

Claim 1	Claim 12	Claim 19
[1.8] in response to detecting the trigger condition, sending to the electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.	[12.8] in response to detecting the trigger condition, sending to the electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.	[19.8] in response to detecting the trigger condition, sending to the electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.

266. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim limitations [1.8], [12.8], and [19.8].

267. Kamat teaches response to detecting the trigger condition, sending to the electronic payment device 455 the authorization grant to enable completion of the cashless transaction at the automatic retail machine. EX1006, ¶0051. In an embodiment, Kamat discloses that server 30 receives 520 the item selection 213 of the item 240 and the price 250 from the purchase menu 210. The user may select one or more items 240. EX1006, ¶0086. In one embodiment, the user may activate a select button 260 to initiate a transaction. Id. The mobile device 10 may communicate the item selection 213 with the selected item 240 and price 250 to the clearing house 30. Id. The purchase menu 210 may also accept discount codes that may be appended to the special offer 42 and communicated with the item selection

213.the clearing house 30 further generates 525 the payment authorization 215 in response to an item selection 213. EX1006, ¶0087.

268. Kamat, as modified in view of Arora and Dixon, would have disclosed the mobile device 10, in response to detecting the trigger condition (i.e., “dispensing distance” in step 97 of FIG. 6 in Arora), to send to the POS device 20 the authorization grant (i.e., the “payment authorization” in step 530 of FIG. 8 in Kamat) to enable completion of the cashless transaction at the POS device 20. EX1006, ¶51, FIG. 8 (530-535); EX1007, FIG. 6 (97-98).

i. Claims 2, 13, and 20

Claim 2	Claim 13	Claim 20
The method of claim 1, wherein: [2.1] the transmission at least includes authorization zone threshold criterion; and [2.2] after receiving the transmission, initiating a handshake process with the electronic payment device, wherein the handshake process includes:	The mobile device of claim 12, wherein [13.1] the transmission at least includes authorization zone threshold criterion; and [13.2] after receiving the transmission, initiating a handshake process with the electronic payment device, wherein the handshake process includes:	The non-transitory computer readable storage medium of claim 19, wherein [20.1] the transmission at least includes authorization zone threshold criterion; and [20.2] after receiving the transmission, initiating a handshake process with the electronic payment device, wherein the handshake process includes:

[2.3] sending, to the electronic payment device, mobile device information corresponding to the mobile device via a first transceiver of the mobile device; and	[13.3] sending, to the electronic payment device, mobile device information at least including user identification information corresponding to the user of the mobile device via the first transceiver; and	[20.3] sending, to the electronic payment device, mobile device information at least including user identification information corresponding to the user of the mobile device via the first transceiver; and
[2.4] receiving, from the electronic payment device, electronic payment device information, wherein the electronic payment device information at least includes an identifier corresponding to the electronic payment device.	[13.4] receiving, from the electronic payment device, electronic payment device information, wherein the electronic payment device information at least includes an identifier corresponding to the electronic payment device.	[20.4] receiving, from the electronic payment device, electronic payment device information, wherein the electronic payment device information at least includes an identifier corresponding to the electronic payment device.

269. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim limitations [2.1]-[2.4], [13.1]-[13.4], and [20.1]-[20.4].

270. Kamat, as modified in view of Arora and Dixon, would have necessarily (and, therefore, implicitly) included in the transmission (discussed above with respect limitation 1.3) transaction distance criterion for each “transaction distance” taught by Arora, including the “identification distance,” which a POSITA would have understood to be the claimed “authorization zone,” and the “dispensing distance,” which the POSITA would have understood to be the “payment zone.”

EX1006, ¶¶47, 49, 70, 82, FIGS. 1, 4-5; EX1007, 12:41-49, 12:56-57, 13:105, 18:44-47, FIG. 6 (92).

271. Kamat, as modified in view of Arora and Dixon, would have disclosed the mobile device 10 sending the necessary mobile device identification information, via the device's first (short-range) transceiver, to the POS device 20 mobile device, including user identification information. EX1006, ¶¶49-49, 51, 62.

272. Arora and Dixon each teaches using short-range communication protocols such as Bluetooth and NFC for exchanging information between the mobile device and the vending machine or transit ticket computer. See e.g., EX1007, 3:64-4:7, 27:52-67; EX1008, ¶¶59, 62, 78, 84.

273. In order for the mobile device 10 to detect when it has entered either the "identification distance" or the "dispensing distance," it must be provided threshold criterion by the POS device 20 to know when it has crossed the boundary defined by the POS device 20 for the particular "transaction distance."

274. Dixon teaches receiving, by the mobile device, various types of information from the transit vehicle computer, which can include any information related to purchase transaction. See e.g., EX1008, claim 34.

275. Kamat teaches receiving, from the electronic payment device 455, electronic payment device information 455, wherein the electronic payment device 455 information at least includes an identifier corresponding to the electronic

payment device. EX1006, ¶ 0026 (“transaction information may be ... an identifier for the point-of-sale device 20”).

276. Kamat teaches, implicitly, after receiving the transmission, initiating a handshake process with the electronic payment device, since Kamat teaches using short-range communication such as NFC or Bluetooth. EX1006, ¶49, FIG. 8, step 505. Kamat teaches conventional Bluetooth or NFC connection processes that would have inherently included the Bluetooth or NFC protocol. The Bluetooth specification describes the pairing process that would have occurred between the mobile device 10 and POS device 20 of Kamat. EX1011, 226 (§ 4.2.2. Pairing).

277. The Bluetooth Core Specification version 1.2 establishes a foundation for various features, including the handshake process, data exchange, and service discovery. The Bluetooth Core Specification explicitly discloses initiating a handshake process, that includes both exchanging mobile device information, and receiving electronic payment device information. These features are conventional and fundamental in the Bluetooth protocol to establish communication between Bluetooth-enabled devices, such as electronic payment devices and mobile devices. EX1011, 353-363.

278. The handshake process is a fundamental step in establishing any connection between two Bluetooth devices. It ensures that both devices agree on communication parameters and security settings before proceeding with data

exchange. The Bluetooth Core Specification version 1.2 addresses the handshake process through two primary sections: Device Discovery (§ 3.6) and Link Establishment (§ 7.1). EX1011, 353-363.

279. The device discovery process involves identifying nearby Bluetooth devices and determining their capabilities. During this stage, one or both of the electronic payment device and the mobile device (initiator) searches for targets in its vicinity. For example, the electronic payment device sends out inquiry messages to discover nearby devices.

280. After discovering the mobile device, the electronic payment device initiates the link establishment procedure to form a connection. This involves sending a connection request to the mobile device, and upon receiving the request, the mobile device responds with an acknowledgment. Both devices then negotiate connection parameters, such as communication channels and security levels. *Id.*

281. The handshake process was well known, conventional and necessary to establish a secure and reliable connection between the electronic payment device and the mobile device, allowing them to proceed with data exchange.

282. The handshake process would have conventionally required exchanging both mobile device and electronic payment device information. To enable effective data exchange between Bluetooth devices, the Bluetooth Core Specification version 1.2 relies on Logical Link Control and Adaptation Protocol

(L2CAP) and Protocol Multiplexing. Logical Link Control and Adaptation Protocol (L2CAP) (Part A, §§ 1-10) (EX1011, Part 3, 165-258).

283. L2CAP is a fundamental layer in the Bluetooth protocol stack, responsible for managing data transmission between devices. L2CAP establishes logical links between the electronic payment device and the mobile device.

284. These logical links provide a reliable and error-checked channel for exchanging mobile device information, including device capabilities, supported features, and security preferences. The mobile device sends relevant information to the electronic payment device via the established logical link, ensuring reliable communication between the two devices. *Id.*

285. Further, Bluetooth devices support multiple protocols for different purposes. Protocol multiplexing allows simultaneous transmission of various data streams over the same logical link. This enables the electronic payment device and the mobile device to exchange different types of information, such as audio, control commands, and mobile device information, over a single link.

286. Through L2CAP and Protocol Multiplexing, the mobile device can effectively send its information to the electronic payment device, ensuring the latter is aware of the mobile device's capabilities and features.

287. In the Bluetooth Core Specification version 1.2, the exchange of information between Bluetooth devices often involves the Service Discovery

Protocol (SDP) and Service Records. Service Discovery Protocol (SDP). EX1011, Part 3, 260-318.

288. SDP allows Bluetooth devices to discover available services provided by other devices in their vicinity. When the mobile device receives the electronic payment device's service request, it responds by providing relevant service records.

289. These service records contain essential information about the electronic payment device, including its capabilities, supported services, and an identifier unique to the electronic payment device. The identifier serves as a reference for future interactions, ensuring reliable communication and identification between the two devices.

290. The Bluetooth Core Specification version 1.2 defines a comprehensive set of protocols and procedures for enabling effective communication between Bluetooth devices. Initiating a handshake process, exchanging mobile device information, and receiving electronic payment device information are vital steps in establishing secure and efficient interactions between an electronic payment device and a mobile device.

291. Arora specifically incorporates signal strength features in establishing four transaction distances related to communications between a mobile device and the vending machine. EX1007, 18:21-28.

292. Upon detecting a mobile device, the vending machine and/or the mobile device would compare the RSSI value with the predefined threshold. As stated in Arora, the threshold is essential for accurately determining the distance between the mobile device and the vending machine. Id. If the RSSI value exceeds the threshold, the vending machine would conclude that the mobile device is within the designated distance and would authorize a transaction or product dispensing.

j. Claims 3 and 14

Claim 3	Claim 14
The method of claim 2, [3.0] wherein sending the mobile device information comprises: [3.1] in accordance with a determination that the authorization zone threshold criterion is satisfied, sending the mobile device information to the electronic payment device via the first transceiver, wherein the mobile device information indicates that the authorization zone threshold criterion is satisfied; and [3.2] wherein the mobile device obtains the request in response to sending the mobile device information.	The mobile device of claim 13, [14.0] wherein sending the mobile device information comprises: [14.1] in accordance with a determination that the authorization zone threshold criterion is satisfied, sending the mobile device information to the electronic payment device via the first transceiver, wherein the mobile device information indicates that the authorization zone threshold criterion is satisfied; and [14.2] wherein the mobile device obtains the request in response to sending the mobile device information.

293. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim limitations [3.0]-[3.2] and [14.0]-[14.2].

294. A POSITA would have understood that Kamat, as modified in view of Arora and Dixon, would have disclosed the method of claim 3, including the method of claim 2 as discussed above.

295. Kamat, as modified in view of Arora and Dixon, would have disclosed the mobile device 10 sending the necessary information, via the device's short-range transceiver, to the POS device 20. EX1006, ¶¶49-49, 51. A POSITA would have understood the information transmitted by the mobile device 10 of Kamat (in view of Arora) have necessarily included sending information that the mobile device 10 has entered the "identification distance" upon detecting the identification distance criterion has been satisfied so that necessary pairing can take place and exchange of purchase related information be exchanged. EX1007, 12:45-49.

296. Arora and Dixon each teaches using short-range communication protocols such as Bluetooth and NFC for exchanging information between the mobile device and the vending machine or transit ticket computer. See e.g., EX1007, 3:64-4:7, 27:52-67; EX1008, ¶¶59, 62, 78, 84.

297. RSSI is a parameter inherent to Bluetooth and was well-known prior to the earliest priority date. For example, RSSI is an 8-bit signed integer that denotes

whether a received (RX) power level is within or above/below the Golden Receiver Power Range (GRPR). EX1010, 1 (§ II.A-B.). Thus, the Bluetooth specification denotes RSSI to indicate whether it is within, above, or below the GRPR. Id. Since RSSI is a required status parameter of the Bluetooth specification (Id.) and to the extent that an authorization zone threshold criterion means an RSSI reference value, it is my opinion that the feature is inherent for a device (such as Kamat's electronic payment device 455) that communicates via Bluetooth.

k. Claims 4 and 15

Claim 4	Claim 15
The method of claim 2, wherein the electronic payment device information further includes an indication that hands-free mode is available and payment zone threshold criterion.	The mobile device of claim 13, wherein the electronic payment device information further includes an indication that hands-free mode is available and payment zone threshold criterion.

298. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claims 4 and 15.

299. Kamat, as modified in view of Arora and Dixon, would have disclosed, implicitly, or at minimum rendered obvious to a POSITA, the information received by the mobile device 10 from the POS device 20 including an indication that hands-free mode is available and “dispensing distance” criterion is satisfied.

300. Kamat, as modified in view of Arora and Dixon, would have included the automatic (or “hands-free”) payment feature taught by Arora (EX1007, 25:3-7).

A POSITA would have understood that it would have been necessary for the mobile device 10 (of Kamat) to receive both an indication that hands-free mode is available and the “dispensing distance” criterion in order for the mobile device 10 to be able to perform, for example, steps 97-98 in FIG. 6 of Arora to dispense “automatically.” EX. 1007, 25:3-7, FIG. 6.

301. Dixon teaches using short-range communication protocols such as Bluetooth and NFC for exchanging various types of information between the mobile device and transit ticket computer. See e.g., EX1008, ¶¶59, 62, 78, 84.

I. Claims 5 and 16

Claim 5	Claim 16
The method of claim 4, [5.1] wherein the mobile device information further includes device identification information corresponding to a model type of the mobile device; and [5.2] wherein the payment zone threshold criterion is based at least in part on the device identification information.	The mobile device of claim 15, [16.1] wherein the mobile device information further includes device identification information corresponding to a model type of the mobile device; and [16.2] wherein the payment zone threshold criterion is based at least in part on the device identification information.

302. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claims limitations [5.1]-[5.2] and [6.1].

303. Kamat, as modified in view of Arora and Dixon, would have disclosed the method of claim 5, including the method of claim 4 as discussed above.

304. Kamat, as modified in view of Arora and Dixon, would have included implicitly, or it would have been obvious to a POSITA to include, the model type of the mobile device 10 in Kamat,. since it was well known that the signal strength detectability varied between different model types of phones

305. Since the mobile device 10 of Kamat is taught as a generic “mobile telephone,” and Arora suggests using a customer’s own mobile device, all which were known to vary in detecting signal strength depending on hardware used in the device, it would have been obvious to a POSITA to include in the mobile device identification a model type of the mobile device, so that it would have been factored into by the POS device 20 (as modified in view of Arora) when defining the “transaction distances,” which a POSITA would have understood to be based on signal strength. EX1006, ¶48; EX1007, 4:64-67, 18:21-27, 21:58-60; EX1008 ¶60.

306. Kamat, as modified in view of Arora and Dixon, would have implicitly, or it would have been obvious to a POSITA to, base the “dispensing distance” threshold at least in part on the mobile device information, since it was known that signal strength detectability varied between different mobile device models or types, depending on their hardware, and the “transaction distances” taught by Arora are signal strength-based. EX1007, 18:13-27.

307. Dixon teaches using short-range communication protocols such as Bluetooth and NFC for exchanging various types of information between the mobile device and transit ticket computer. See e.g., EX1008, ¶¶59, 62, 78, 84.

m. Claims 6 and 17

Claim 6	Claim 17
The method of claim 4, [6.0] wherein detecting the trigger condition comprises: [6.1] determining whether the payment zone threshold criterion is satisfied; and [6.2] in accordance with a determination that the payment zone threshold criterion is satisfied, detecting the trigger condition without user input from a user at the mobile device.	The mobile device of claim 15, [17.0] wherein detecting the trigger condition comprises: [17.1] determining whether the payment zone threshold criterion is satisfied; and [17.2] in accordance with a determination that the payment zone threshold criterion is satisfied, detecting the trigger condition without user input from a user at the mobile device.

308. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claims limitations [6.0]-[6.2] and [17.0]-[17.2].

309. Kamat, as modified in view of Arora and Dixon, would have disclosed the method of claim 6, including the method of claim 4 as discussed above.

310. Kamat, as modified in view of Arora and Dixon, would have disclosed determining, by the mobile device whether a “dispensing distance” threshold

criterion is satisfied, as taught by Arora in, e.g., FIG. 6, step 89-97. EX1007, FIG. 9B (97); EX1008, FIG. 9B, ¶72, 73.

311. Kamat, as modified in view of Arora and Dixon, would have disclosed determining, by the mobile device whether a “dispensing distance” threshold criterion is satisfied, as taught by Arora in, e.g., FIG. 6, step 97; EX1008 FIG. 9B. ¶72, 73.

312. Kamat, as modified in view of Arora and Dixon, would have included the hands-free, automatic, cashless payment taught at, e.g., EX1007, 21 :65-22:4, 25:3-7, which a POSITA would have understood payment would occur after a determination is made that the mobile device 10 is within the “dispensing distance” taught by Arora, as depicted at steps 97, 98 in FIG. 6 of Arora—the “dispensing distance” being understood by the POSITA to be the claimed “trigger condition.” Id., FIG. 6. Also, as taught by Dixon, where hands-free payments happen in a toll area. EX1008 ¶73.

n. Claims 7 and 18

Claim 7	Claim 18
The method of claim 1, [7.0] wherein detecting the trigger condition comprises: [7.1] detecting a user input from a user of the mobile device; and	The mobile device of claim 12, [18.0] wherein detecting the trigger condition comprises: [18.1] detecting a user input from a user of the mobile device; and

[7.2] in response to detecting the user input, detecting the trigger condition to perform the cashless transaction with the automatic retail machine.	[18.2] in response to detecting the user input, detecting the trigger condition to perform the cashless transaction with the automatic retail machine.
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313. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claims limitations [7.0]-[7.2] and [18.0]-[18.2].

314. Kamat, as modified in view of Arora and Dixon, would have disclosed the method of claim 7, including the method of claim 1 as discussed above.

315. Kamat discloses detecting a user input (e.g., the user may activate a select button 260 to initiate a transaction. The purchase menu 210 may also display purchase totals, contract terms, and the like) signal the automatic retail machine 20 to perform the cashless transaction. EX1006, ¶0055.

316. Kamat, as modified in view of Arora and Dixon, would have implicitly, or it would have been obvious to a POSITA to, to include user interaction with the mobile device such as selecting an “automatic” payment option before enabling “automatic” payment as taught by Arora, EX1007, 25:3-7, to avoid an unintentional purchase.

317. Kamat, as modified in view of Arora and Dixon, would have disclosed the mobile device to, in response to user input, detecting the “dispensing distance” to trigger cashless payment. EX1007, 25:3-7, 14: 29-35; EX1008 FIG 9A-9C.

o. Claim 8

Claim 8

The method of claim 1, further comprising: in response to obtaining the authorization grant, presenting a notification to a user of the mobile device indicating (i) a connection has been established with the electronic payment device, and (ii) the amount of funds for the transaction.
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318. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim 8.

319. Kamat, as modified in view of Arora and Dixon, would have disclosed the method of claim 8, including the method of claim 1 as discussed above.

320. Kamat, as modified in view of Arora and Dixon, would have implicitly, or it would have been obvious to a POSITA to, to display an indication that a connection has been established and the amount of funds for transaction on the mobile device display in response to obtaining the authorization grant, as it was well known to display both types of information to inform users. EX1006 user interaction with the mobile device such as selecting an “automatic” payment option. EX1006, ¶¶51-52, FIGS. 2A-2D; EX1007, 5:47-50, 15:51-53, 20:7-12.

p. Claim 9

Claim 9

The method of claim 1, wherein the authorization grant includes an identifier corresponding to the electronic payment device, an identifier corresponding to the mobile device, an amount of funds, an authorization grant token, and an expiration period for the authorization grant token.

321. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim 9.

322. Kamat, as modified in view of Arora and Dixon, would have disclosed the method of claim 9, including the method of claim 1 as discussed above.

323. Kamat, as modified in view of Arora and Dixon, would have disclosed implicitly, or it would have been obvious to a POSITA to include, in the “payment authorization” (i.e., authorization grant sent to the POS device (EX1006, FIG. 8, step 530) sent by the mobile device 10 to the POS device 20 all information necessary to complete the purchase transaction, including mobile device identifier, amount to be paid, authorization grant token, and an expiration period for the authorization grant token, as all of these types of information would have been necessary for the POS device 20 in processing the cashless

324. Kamat teaches that the authorization grant includes an identifier corresponding to the electronic payment device 455, an identifier corresponding to the mobile device, an amount of funds, an authorization grant token, and an expiration period for the authorization grant token. EX1006, ¶¶62-66, 77-79. The

authorization grant token, which is the payment authorization 215 itself, is generated by the clearing house 30 by appending an account alias 815 to the point-of-sale code 205 received from the mobile device 10. *Id.* This account alias 815 uniquely identifies the user account 800 associated with the mobile device 10 without revealing sensitive account information. *Id.* The payment authorization 215 is then encrypted and sent back to the mobile device 10 via the long-range communications 14. *Id.* It includes critical transaction details, such as the point-of-sale code 205, the transaction identifier 890, the transaction amount 870, and the timestamp 860. *Id.* Although Kamat does not explicitly state the payment authorization's expiration period 215, it can be inferred that the authorization grant token is time-sensitive due to the real-time nature of system 100 and the need for secure and timely transactions. Presumably, the payment authorization 215 has a limited validity period to prevent unauthorized use and ensure transaction authenticity. *Id.* It is my opinion that in a practical application of Kamat, in view of Arora and Dixon, the payment authorization having limited validity would have included an expiration date. In addition, the user account 800 linked to the mobile device 10 contains an account identifier 805, payment information 810, and transaction records 830. The account identifier 805 serves as a unique identifier for the user account 800, while the payment information 810 includes relevant details for settling transactions, such as bank account information or credit card details. The transaction records 830 are

essential for documenting the details of each transaction associated with the user account 800.

q. Claim 10

Claim 10
The method of claim 9, wherein at least a portion of the request and the authorization grant token are encrypted with a unique encryption key corresponding to the electronic payment device.

325. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim 10.

326. Kamat, as modified in view of Arora and Dixon, would have disclosed the method of claim 10, including the method of claim 9 as discussed above

327. Kamat, as modified in view of Arora and Dixon, would have disclosed encrypting the point-of-sale code (“request”) and the payment authorization (“authorization grant token”) with a key corresponding to the particular POS device 20 to protect the information, especially since Kamat, as modified in view of Arora and Dixon, would have used a public short-range protocol such Bluetooth. EX1006, ¶¶51-54, 63, 87; EX1007, 18:57-64, 27:52-28-3; EX1008, ¶77.

328. Kamat teaches that at least a portion of the request and the authorization grant token are encrypted with a unique encryption key corresponding to the electronic payment device 455. EX1006, ¶¶ 0051, 0054.

r. Claim 11

Claim 11

The method of claim 1, wherein the automated retail machine is a vending machine, a parking meter, a toll booth, a laundromat washer or dryer, an arcade game, a kiosk, a photo booth, a toll booth, or a transit ticket dispensing machine.
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329. Kamat, as modified in view of Arora and Dixon, discloses explicitly or implicitly, or at minimum would have rendered obvious, claim 11.

330. Kamat, as modified in view of Arora and Dixon, would have disclosed the method of claim 11, including the method of claim 1 as discussed above.

331. Kamat, as modified in view of Arora and Dixon, would have disclosed the POS device 20 to be “a vending machine, a food vendor kiosk, a transit kiosk, a service kiosk, a parking kiosk, a ticket kiosk, a rental kiosk, a fuel kiosk, and the like.” EX1006, ¶47; see also EX1007, FIG. 3; EX1008, FIG.3 (212).

X. Other Evidence Relevant to Obviousness

332. As I noted above, I understand that the obviousness inquiry requires me to consider whether there is any “objective evidence of non-obviousness.” Petitioners’ counsel has informed me that this type of evidence helps guard against what the courts have called “hindsight bias” when looking backwards in time at a purported invention. Counsel has informed me that the types of evidence that can fall into this category are, for example, commercial success, long-felt but unmet

need, failure by others to solve similar problems facing a POSITA, or other factors that indicate non-obviousness.

333. Counsel has also informed me that for any such evidence to be applicable, the evidence must also bear some “nexus” to a claim, and in particular, to what is purportedly novel about the claim. Any evidence of non-obviousness that has been presented so far has not altered my opinions on obviousness. I reserve the right to reconsider my opinions, as set forth above, if any further such evidence is brought to my attention.

XI. Conclusion

334. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required, I will appear for cross-examination within the United States during the time allotted.

335. I hereby declare that all statements made herein are of my own knowledge and are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on this day of August 1st, 2023, at Glen Mills, Pennsylvania.



Safwan Zaheer