

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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CSC SERVICEWORKS, INC.,  
Petitioner,  
v.  
PAYRANGE, INC.,  
Patent Owner.

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IPR2023-01449  
U.S. Patent No. 11,481,772

**PETITION FOR *INTER PARTES* REVIEW  
UNDER 35 U.S.C. § 312 AND 37 C.F.R. § 42.104**

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**PETITIONER’S EXHIBIT LIST**

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|----------|-------------------------------------------------------------|
| Ex.1001  | U.S. Patent No. 11,481,772                                  |
| Ex.1002  | Prosecution History of U.S. Patent No. 11,481,772           |
| Ex.1003  | Declaration of Dr. B. Clifford Neuman                       |
| Ex.1004  | U.S. Patent No. 7,458,510 to Zhou                           |
| Ex.1005  | U.S. Patent App. Pub. No. 2003/0130902 to Athwal            |
| Ex.1006  | U.S. Patent No. 10,210,501 to Low et al.                    |
| Ex.1007  | U.S. Patent No. 9,898,884 to Arora et al.                   |
| Ex.1008  | U.S. Patent No. 8,255,323 to Casey et al.                   |
| Ex.1009  | U.S. Patent No. 8,958,846 to Freeny                         |
| Ex.1010  | U.S. Patent Application Publication No. 2010/0082485 to Lin |
| Ex. 1011 | Curriculum Vitae of Dr. B. Clifford Neuman                  |

## **I. INTRODUCTION**

CSC ServiceWorks, Inc. (“Petitioner”) respectfully requests the Board institute *Inter Partes* Review of and cancel claims 1-6 and 8-20 (“the Challenged Claims”) of U.S. Patent No. 11,481,772 (“the ‘772 Patent,” Ex.1001).

## **II. GROUNDS FOR STANDING**

Petitioner certifies that the ‘772 patent is eligible for *Inter Partes* Review (“IPR”) and that Petitioner is neither barred nor estopped from requesting IPR challenging the patent claims. 37 C.F.R. § 42.104(a).

## **III. NOTE**

Petitioner cites to exhibits’ original page numbers. **Emphasis** in quoted material has been added. Claim terms are presented in *italics*.

## **IV. SUMMARY OF THE ‘772 PATENT**

The ‘772 patent, titled “Method and System for Presenting Representations of Payment Accepting Unit Events,” issued on October 25, 2022. Ex.1001, codes (45), (54). The ‘772 patent explains that the concept of payment on a machine, or a “payment accepting unit,” has been known for “thousands of years.” Ex.1001 at

1:45-46. By the earliest priority date of the '772 patent, the concept of payment on machines was well known and used in commercial applications such as “vending machines,” “parking meters, toll booths, laundromat washers and dryers, arcade games, kiosks, photo booths, toll booths, [and] transit ticket dispensing machines.” Ex.1001 at 1:54-65.

The '772 patent presents representations of payment accepting unit events on the display of a mobile device. Ex.1001 at Abstract, 37:27-30. Figures 27A-27B are illustrative and reproduced below:

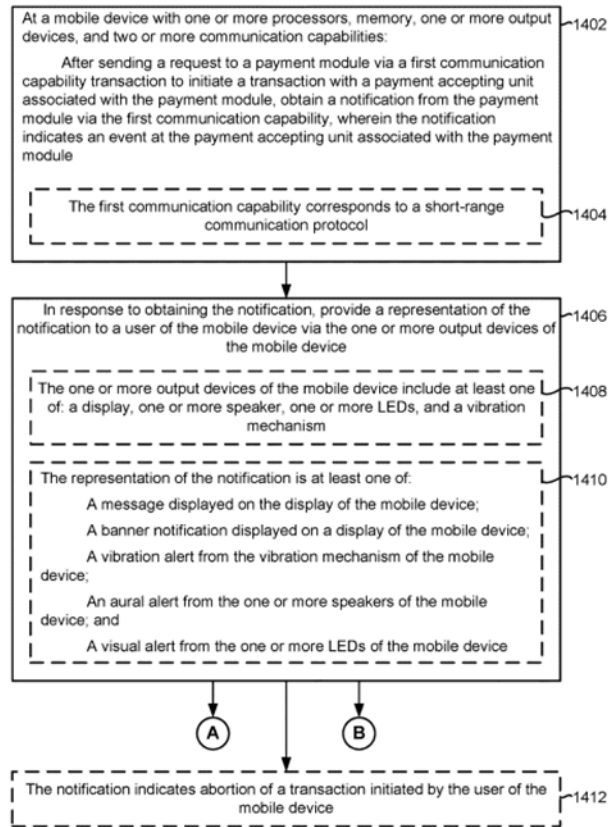


Figure 27A

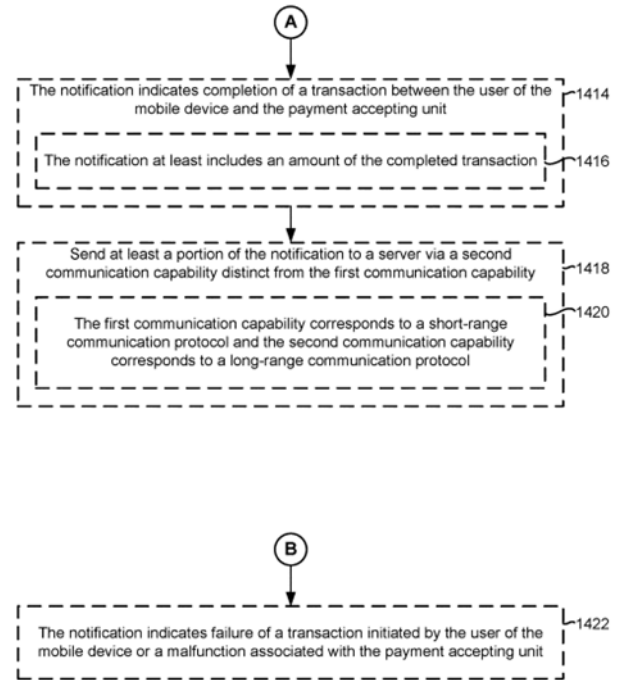


Figure 27B

**Ex.1001, Figs. 27A-27B.**

Figure 27A is a flowchart diagram for presenting representations of payment accepting unit events. Ex.1001 at 37:27-33. “In some implementations, the method 1400 is performed by the mobile device 150...or a component thereof (*e.g.*, the application 140).” Ex.1001, 37:30-35. The mobile device sends a request to a payment module to initiate a transaction with a payment accepting unit (*e.g.*, a

vending machine). *Id.* at 37:43-50. “After sending [the] request...the mobile device obtains (1402) a notification from the payment module via the first communication capability, where the notification indicates an event at the payment accepting unit associated with the payment module.” *Id.* Next, “the mobile device provides (1406) a representation of the notification to a user of the mobile device via the one or more output devices of the mobile device.” *Id.* at 38:4-7. The mobile device may provide this representation visually, aurally, or tactilely. *Id.* at 38:24-41. The representation may indicate *inter alia* that a transaction is complete or has been aborted. *Id.* at 38:4-16, 38:51-39:8, 39:22-34.

As shown below, the functionalities and concepts claimed by the ‘772 patent were previously known in the art. Ex.1003 ¶¶26-28.

## **V. PROSECUTION HISTORY**

The ‘772 patent application was filed as Application Number 17/654,732 on March 14, 2022. Ex.1001, codes (21), (22). The ‘772 patent claims priority through a chain of continuations and continuations-in-part to Provisional Application Number 61/917,936, filed on December 18, 2013. *Id.*, codes (63), (60). The prior art relied upon here pre-dates the earliest alleged priority date of the ‘772 patent.

During prosecution of the application issuing as the ‘772 patent, the Applicant faced only one rejection, which was based on non-statutory double patenting with respect to U.S. Patent Nos. 9,659,296 and 10,891,614, as well as provisionally over U.S. Patent Application No. 17/147,305 (which issued on November 15, 2022 as U.S. Patent No. 11,501,296). Ex.1002 at 1329-35. The Applicant filed a terminal disclaimer to overcome the double patenting rejection. *Id.* at 1310-13. In the Reasons for Allowance, the Examiner stated that the prior art failed to teach or suggest the limitations of “identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device, the identifying based at least in part on an identifier corresponding to the one or more payment accepting units, wherein the one or more payment accepting units are payment operated machines that accept payment for dispensing of products and/or services,” and “displaying a user interface of the mobile payment application on the display of the mobile device, the user interface being configured to display a visual indication of the one or more payment accepting units and accept user input to (i) receive selection by a user of the mobile device of an available payment accepting unit of the one or more payment accepting

units and (ii) trigger payment by the mobile payment application for a transaction initiated by the user of the mobile device with the available payment accepting unit of the one or more payment accepting units.” *Id.* at 17-19.

As discussed below, these steps and concepts were previously known in the art. Ex.1003 ¶¶26-28.

## **VI. LEVEL OF ORDINARY SKILL IN THE ART**

A person of ordinary skill in the art (“POSITA”) of the ‘772 patent in December of 2013 would have had a bachelor’s degree in electrical engineering, computer engineering, computer science, or equivalent training, and approximately three years of experience with electronic payment systems, vending machine technologies, or distributed network systems. Additional education can substitute for less work experience, and vice versa. Ex.1003 ¶¶18-20.

## **VII. CLAIM CONSTRUCTION**

Petitioner submits that for the purposes of this proceeding, the terms of the challenged claims should be given their plain and ordinary meaning, and no terms require specific construction.<sup>1</sup>

## **VIII. RELIEF REQUESTED AND THE REASONS FOR THE REQUESTED RELIEF**

Petitioner asks that the Board institute a trial for *Inter Partes* Review and cancel the Challenged Claims in view of the analysis below.

## **IX. DISCRETIONARY DENIAL WOULD BE INAPPROPRIATE**

### **A. Discretionary denial under the *Fintiv* factors is not appropriate**

Under the “*Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation*,” dated June 21, 2022 (Interim Guidance”), “the PTAB will not discretionarily deny institution of an IPR or PGR in view of parallel district court litigation where a petitioner stipulates not to pursue

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<sup>1</sup> Petitioner does not concede that any term in the challenged claim meets the statutory requirements of 35 U.S.C. § 112, or that the challenged terms recite patentable subject matter under 35 U.S.C. § 101.

in a parallel district court proceeding the same grounds as in the petition or any grounds that could have reasonably been raised in the petition.” Interim Guidance, 7. Referred to as a *Sotera* stipulation, “[t]his clarification avoids inconsistent outcomes between the PTAB and the district court and allows the PTAB to review grounds that the parallel district court litigation will not resolve.” *Id.*, 7-8. The Interim Guidance is “binding agency guidance” to the Board. *Id.*, 3.

Consistent with this guidance, Petitioner stipulates that, if the instant IPR is instituted, it will not pursue against the ‘772 patent in the parallel district court proceeding the same grounds as in the petition or any grounds that could have reasonably been raised in the petition.

Furthermore, (1) the parallel district court litigation between PayRange Inc. (“PayRange” or “Patent Owner”) and CSC that is currently pending in the District of Delaware is at an early stage of the litigation and no Claim Construction Order has been entered. (*See PayRange Inc. v. CSC ServiceWorks, Inc.*, 1:23-cv-00278-MN (D.Del.) (“PayRange Litigation”)); (2) Petitioner intends to seek a stay of the PayRange Litigation pending IPR; and (3) the Petition presents compelling evidence of unpatentability in light of the combinations of prior art references, such that, if

unrebutted in trial, would lead to a conclusion that the Challenged Claims are unpatentable by a preponderance of the evidence. Interim Guidance, 4-5. Accordingly, the Board should not discretionarily deny institution under *Fintiv*.

**B. Discretionary denial under *General Plastic* is not appropriate**

The General Plastic factors also weigh heavily against discretionary denial. While there has been one prior PGR challenging the ‘772 patent, CSC is a different petitioner than the petitioner in that proceeding. *See* PGR2023-00042. Furthermore, CSC was not involved in any prior suit involving the petitioner in PGR2023-00042. The Board routinely finds that General Plastic does not apply to the circumstances here, where the petitioner was sued independently, was sued on largely different products, and has no significant relationship with the prior petitioner. *See, e.g., NetNut Ltd. v. Bright Data Ltd.*, IPR2021-00465, Paper 11 at 8-11 (Aug. 12, 2021). Further, no patent owner preliminary response has been filed in PGR2023-00042, and the grounds advanced in this petition differ from those presented in that proceeding. For example, the primary reference relied on in this petition, Zhou, is not relied on in PGR2023-00042.

**C. Discretionary denial under 35 U.S.C. § 325(d) is not appropriate**

Denial under § 325(d) is not warranted because the challenges presented in this petition are neither cumulative nor redundant to the prosecution of the ‘772 patent. Under § 325(d), discretionary denial is only warranted when the same, or substantially the same, prior art or arguments were previously presented to the Office in a proceeding pertaining to the challenged patent. *See Advanced Bionics, LLC v. MED-EL Elektromedizinische Gerate Gmbh*, IPR2019-01469, Paper 6, p. 7 (P.T.A.B. Feb. 13, 2020). This factual inquiry is guided by six factors set forth in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (P.T.A.B. Dec.15, 2017) (precedential as to § III.C.5, first paragraph). Each factor is addressed below:

**1. Factors (a) The Similarities and Material Differences Between the Asserted Art and the Prior Art Involved During Examination and (c) the Extent to Which the Asserted Art was Evaluated During Examination, Including Whether the Prior Art was the Basis for Rejection**

During prosecution, the ‘772 patent faced only non-statutory double-patenting rejections based on U.S. Patent No. 9,659,256; U.S. Patent No. 10,891,614; and then co-pending Application No. 17/147,305. The Examiner simply stated that “the prior

art taken alone or in combination failed to teach or disclose the limitations of claims 1, 13 and 15,” citing two publications: U.S. Pub. No. 2018/0374076 to Wheeler, filed June 21, 2018, and published December 27, 2018, and U.S. Pub. No. 2018/0197167 to Ganesan, filed January 11, 2017, and published July 12, 2018, each of which have earliest possible priority dates after the December 18, 2013, earliest possible priority date of the ‘772 patent. Ex.1002, p.1333. The original claims of the ‘772 patent were not amended. Ex.1002, pp. 1314-1318.

Zhou, Athwal, Low, and Arora were submitted on August 21, 2022, as part of an IDS containing a total of 415 references. Ex.1002, pp. 165-175. The Examiner signed the voluminous IDS “considered” on August 31, 2022—10-days after it was submitted—Ex.1002, pp. 31-42.

Thus, while Zhou, Athwal, Low, and Arora may constitute the “same art” under factor (a), this does not appreciably weigh against institution, as the Examiner’s consideration of those references was limited to signing off on an IDS, and the Examiner “merely signed the [IDS] without explaining why he disagreed with the [prior art at issue].” *Apple, Inc. v. Seven Networks, LLC*, IPR2020-00285, Paper 10, p. 30 (P.T.A.B. July 28, 2020) (declining to exercise discretionary denial

under § 325(d)); *see also Samsung Electronics Co., Ltd. et al. v. Power 2B, Inc.*, IPR2021-01190, Paper 11, p.19 (P.T.A.B. Jan. 6, 2022). Further, Casey, Lin, and Freeny were not of record during prosecution and do not constitute the “same art” previously presented to the Office.

Factor (c) strongly favors institution. Zhou, Athwal, Low, and Arora were not substantively evaluated—either alone or in combination with Casey, Lin, and/or Freeny—during examination of the ‘772 patent. None of them formed the basis for a rejection. Indeed, Zhou, Athwal, Low, and Arora were only listed in an IDS during prosecution. *See Lyft, Inc. v. RideShare Displays, Inc.*, IPR2021-01602, Paper 7, pp. 14-15 (P.T.A.B. Apr. 11, 2022) (declining to exercise discretion when a reference was not discussed by the Patent Owner or Examiner during prosecution).

**2. Factors (b) The Cumulative Nature of the Asserted Art and the Prior Art Evaluated During Examination and (d) the Extent of the Overlap Between the Arguments Made During Examination and the Manner in which Petitioner Relies on the Prior Art**

The combination of Zhou, Athwal, and Low has not been considered by the Examiner or this Board. There were no anticipatory or obviousness-based rejections levied against the ‘772 patent during prosecution. Accordingly, the references cited

by Petitioner cannot be cumulative of the art considered by the Examiner and/or cited in an Office Action. Further, this Petition asserts unpatentability based on obviousness grounds, which does not overlap with the double-patenting rejection asserted during prosecution of the '772 patent. Thus, factors (b) and (d) strongly weigh in favor of institution.

**3. Factors (e) Whether Petitioner has Pointed Out Sufficiently How the Examiner Erred in its Evaluation of the Asserted Prior Art and (f) the Extent to Which Additional Evidence and Facts Presented in the Petition Warrant Reconsideration of the Prior Art or Arguments**

Petitioner has sufficiently shown that the Examiner did not evaluate, or erred in its evaluation, of the asserted Zhou, Athwal, Low, Arora, Casey, and Freeny references. The arguments set forth in this Petition provide substantial evidence that was not considered by the Examiner and has not been considered by the Board. Thus, the Board's consideration of the prior art and arguments is warranted, and factors (e) and (f) strongly favor institution.

**X. IDENTIFICATION OF HOW THE CLAIMS ARE UNPATENTABLE**

**A. Challenged Claims**

Petitioner challenges claims 1-6 and 8-20 of the '772 patent.

**B. Statutory Grounds for Challenges**

| <b>Grounds</b> | <b>Claims</b> | <b>Basis</b>                                                                                                                                                                          |
|----------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1             | 1-6, 8, 12-20 | 35 U.S.C. § 103; these claims are obvious over <b>Zhou</b> and <b>Athwal</b> further in view of <b>Low</b> .                                                                          |
| #2             | 9             | 35 U.S.C. § 103; this claim is obvious over <b>Zhou</b> and <b>Athwal</b> further in view of <b>Low</b> and even further in view of <b>Arora</b> .                                    |
| #3             | 10            | 35 U.S.C. § 103; this claim is obvious over <b>Zhou</b> and <b>Athwal</b> further in view of <b>Low</b> and even further in view of <b>Casey</b> .                                    |
| #4             | 11            | 35 U.S.C. § 103; this claim is obvious over <b>Zhou</b> and <b>Athwal</b> further in view of <b>Low</b> and even further in view of <b>Arora</b> , <b>Casey</b> , and <b>Freeny</b> . |

U.S. Patent No. 7,458,510 to Zhou (“**Zhou**,” Ex.1004) was filed on April 19, 2005, and issued on December 2, 2008. Zhou is thus prior art under at least 35 U.S.C. § 102(a)(1).

U.S. Patent Pub. No. US 2003/0130902 to Athwal (“**Athwal**,” Ex.1005) was filed on November 4, 2002, and published July 10, 2003. Athwal is thus prior art under at least 35 U.S.C. § 102(a)(1).

U.S. Patent No. 10,210,501 to Low *et al.* (“**Low**,” Ex.1006) was filed on July 25, 2013. Low is thus prior art under at least 35 U.S.C. § 102(a)(2).

U.S. Patent No. 9,898,884 to Arora *et al.* (“**Arora**,” Ex.1007) was filed on April 4, 2013. Arora is thus prior art under at least 35 U.S.C. § 102(a)(2).

U.S. Patent No. 8,255,323 to Casey *et al.* (“**Casey**,” Ex.1008) was filed on January 9, 2009, and issued on August 28, 2012. Casey is thus prior art under at least 35 U.S.C. § 102(a)(1).

U.S. Patent No. 8,958,846 to Freeny (“**Freeny**,” Ex.1009) was filed on August 23, 2006. Freeny is thus prior art under at least 35 U.S.C. § 102(a)(2).

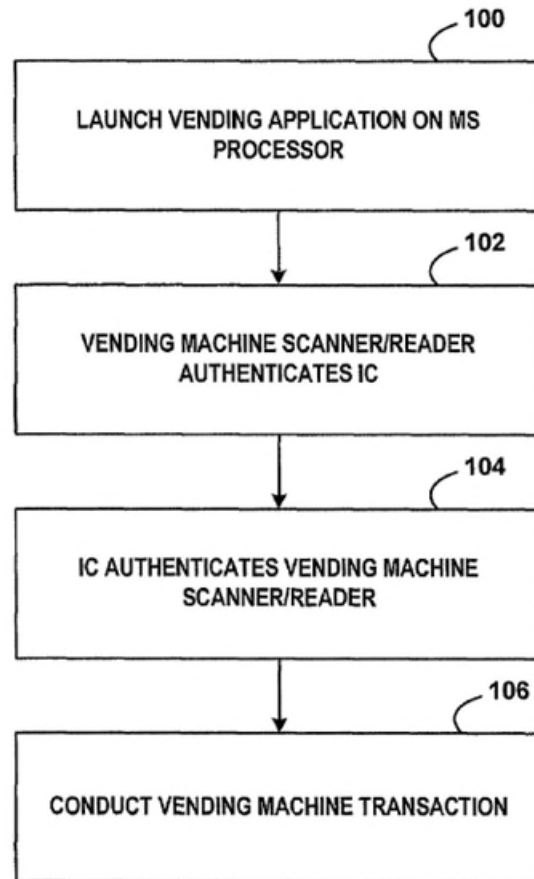
U.S. Patent Application Publication No. 2010/0082485 to Lin *et al.* (“**Lin**,” Ex.1010) was filed on September 30, 2008, and published on April 1, 2010. Lin is thus prior art under at least 35 U.S.C. § 102(a)(1).

**C. Ground 1: Claims 1-6, 8, and 12-20 are obvious under 35 U.S.C. § 103 over Zhou and Athwal further in view of Low.**

**1. Summary of Zhou**

Zhou relates to using wireless communications devices to authenticate and effect transactions with automated vending machines. Ex.1004 at Abstract, 1:7-11. Zhou discloses a method “for conducting a transaction between a wireless

communication device, such as a cell phone, personal digital assistant, pocket personal computer, and the like, and a vending machine.” *Id.* at 2:15-18. Figure 3, excerpted below, details a preferred process:

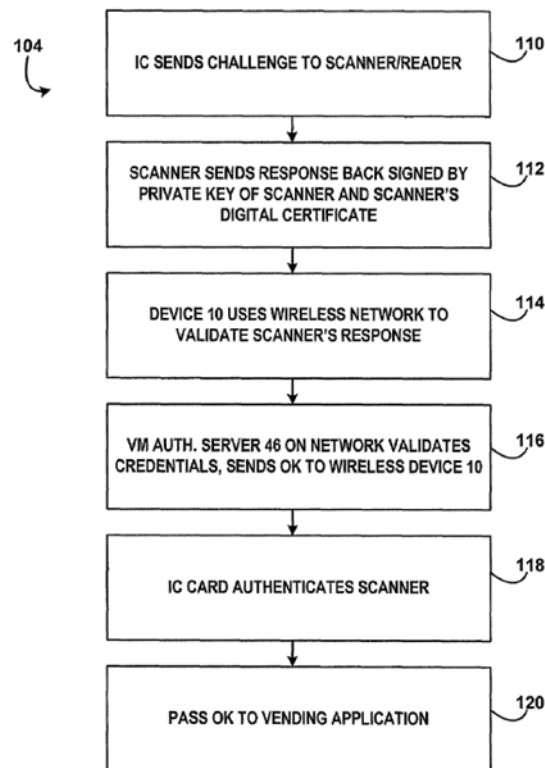


**Ex.1004, Fig.3.**

First, Zhou teaches launching a “vending machine application” on the processor of a mobile device once said mobile device enters into close proximity of

a vending machine. *Id.* at 5:29-31. Next, “the vending machine scanner/reader 16 performs an authentication of the IC card 14.” *Id.* at 5:42-53. After the vending machine authenticates the IC card, “the wireless device (and more specifically the IC card 14 in this example) authenticates the vending machine 12.” *Id.* at 5:54-59.

Figure 4 is illustrative of this authentication step:



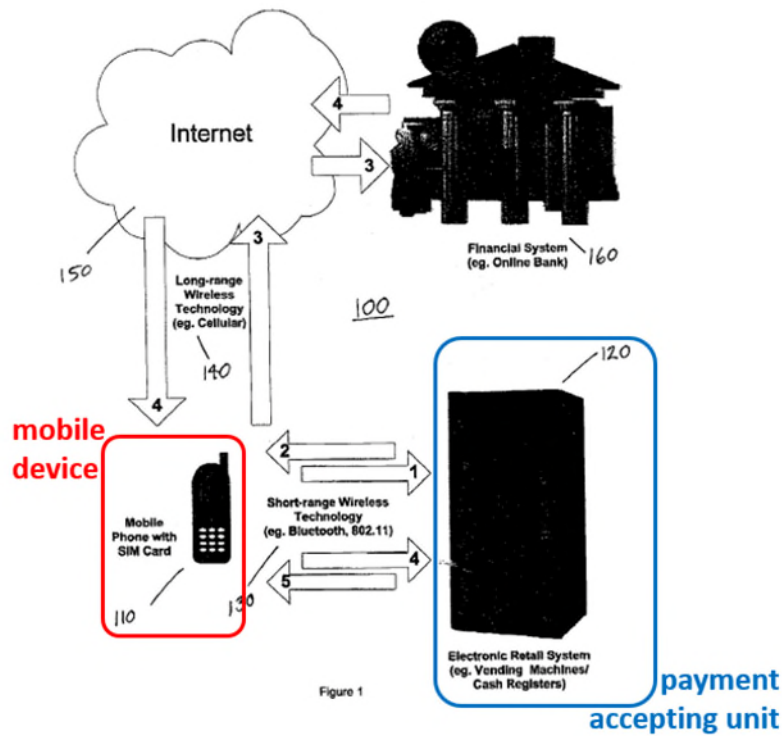
**Ex.1004, Fig.4.**

As shown in Figure 4, the IC card “sends a challenge message to the scanner/reader 16.” *Id.* at 6:28-30. The scanner/reader then responds with credential

information, which the wireless device passes to a “vending machine authorization server 46” for validation. *Id.* at 6:37-49. The authorization server validates the vending machine and responds to the wireless device, indicating the vending machine is “OK or NOT OK.” *Id.* at 6:58-67. The response message is “display[ed] to the user.” *Id.* at 7:1-3. These messages include “VENDING MACHINE NOT APPROVED” and “VENDING MACHINE APPROVED[.]” *Id.* at 7:3-10.

## **2. Summary of Athwal**

Athwal relates to the field of electronic commerce, for instance, electronic commerce transactions conducted with short-range mobile communications systems including mobile or cellular telephones (“mobile devices”) and electronic retail systems for providing goods/services to customers (“payment accepting units,”) such as vending machines and kiosks. Ex.1005, Abstract; [0002]; [0004]. Athwal describes an electronic retail system utilizing short-range wireless technology (e.g., Bluetooth, 802.11, etc.) to establish a data connection via a customer’s mobile phone to authenticate and complete electronic commerce transactions. Ex.1005, [0005]; [0014].



**Athwal, Fig. 1, annotated.**

As shown above in Fig. 1, Athwal describes an electronic commerce system 100 that includes a mobile communication device (MCD) 110 communicating with an electronic retail system (ERS) 120 via short range wireless technology (SRWT) 130 and communicating with a financial system 160 via long range wireless technology (LRWT) 140 over a network (e.g., the Internet) 150. Ex.1005, [0015]. A customer first searches for all available ERS in their vicinity via their MCD.

Ex.1005, [0017]. The ERS's respond to a Wireless Electronic Signal ("WES") inquiry sent by the MCD with a WES that includes the ERS name, available products, and prices. *Id.* The MCD displays this information to the customer, who selects the desired product or service from the appropriate ERS. *Id.* As shown by arrows 1 and 2 in Fig. 1, the MCD and ERS exchange information via WES, such as the customer request to perform a transaction, confirmation of the availability of the desired product/service, an electronic "bill" for the amount of the purchase, payment account information, and authorization information. Ex.1005, [0017-18].

Athwal teaches that, prior to delivering the good/service to the customer, the ERS contacts a third-party payment system (e.g., financial system 160) via a LRWT data connection from the ERS to the financial system created using the SRWT and the customer's MCD in order to transfer the required funds from the customer account to the ERS account. Ex.1005, [0019]; [0022]. For instance, a secure LRWT 140 connection is established (see arrows 3 in Fig. 1) from MCD 110 to financial system 160. Ex.1005, [0027]. Software on the ERS uses the secure data connection provided by the MCD to request a funds transfer (at financial system 160) for the price of the good/service. Ex.1005, [0028]. Financial system 160 notifies the ERS

that the transaction has been completed (see arrows 4 in Fig. 1.). At arrow 5 in Fig. 1, the ERS notifies the MCD to close the secure LRWT data connection 140 and provides feedback to the MCD about whether or not the funds transferred correctly. Ex.1005, [0028-29]. If the funds were correctly transferred, the ERS provides an electronic receipt to the MCD and delivers the product/service to the customer. Ex.1005, [0030-35].

### **3. Summary of Low**

Low relates to “wireless electronic payments to non-Internet connected machines through user devices.” Ex.1006, 1:16-20. Low discloses a non-Internet connected machine (*i.e.*, a vending machine), having “capability of wireline or wireless communication with user device 110, for example using microwave, radio frequency, infrared, Bluetooth, and near field communication.” Ex.1006, 2:10-16; 4:57-64. The “user device” is a “consumer device, such as a smart phone or computing tablet.” Ex.1006, 2:10-16. The machine communicates with the user’s device via an “electronic payment module” having a “storage and communication interface to store and communicate a machine identifier and other transaction information, as well as processing (including decrypting) information for dispensing

purchased items from [the] vending machine.” Ex.1006, 4:64-5:3; *see also* 5:54-61; 6:9-16. A product dispensing module including input mechanisms allows a user to make selections of desired items to purchase and dispense. Ex.1006, 5:19-30. The electronic payment module of the vending machine communicates with the user device to enable electronic payments without physical money. Ex.1006, 5:44-46.

#### **4. Reasons to Combine Zhou and Athwal**

For the reasons set forth below, a POSITA would have been motivated to combine the teachings of Zhou with those of Athwal. It would have been obvious, beneficial, and predictable for Zhou’s method of authenticating vending machines in advance of providing sensitive information to incorporate Athwal’s various teachings with regard to methods for conducting e-commerce. Ex.1003 ¶49. Implementing the features of Athwal would have improved the security and efficiency, and reduced the cost, of Zhou’s method for conducting transactions with automated vending machines. Ex.1003 ¶¶50-51.

One of ordinary skill in the art would have considered the teachings of Athwal when considering the teachings of Zhou. Both Zhou and Athwal relate to methods of conducting wireless transactions with automated vending machines. *See* Ex.1004,

1:7-11 (“This invention relates generally to the field of methods and devices for conducting transactions with automated vending machines[.]”); Ex.1005 ¶ [0002] (“The invention relates to the field of electronic commerce, and more specifically to electronic commerce transactions conducted with short-range mobile communications systems including mobile or cellular telephones.”). In particular, both describe methods to communicate payment requests and authorizations between a vending machine and a mobile device, and between a mobile device and a remote server or processor. Ex.1004, 5:29-6:62; Ex.1005 ¶¶ [0014], [0023]-[0028]. Accordingly, both Zhou and Athwal are analogous art to the ‘772 patent. Ex.1003 ¶¶43-44.

Athwal identifies and solves known issues associated with the cost of conducting transactions with electronic retail systems such as vending machines. Ex.1005 ¶ [0020]. For example, Athwal explains “the cost of maintaining a wired or wireless data connection for the ERS 120 to conduct transactions often exceeds the cost of the ERS 120. This reduces the effectiveness of electronic commerce and makes many transactions unfeasible and unprofitable for ERS merchants.” *Id.* Athwal also acknowledges using long-range communication to request a secure

funds transfer, explaining, “This secure connection can be created using any number of encryption methods currently available that are deemed to be sufficient for commercial transactions” and “The ERSS using the secure data connection provided by the MCD 120, requests a f[u]nds transfer from the Financial System 160, in the amount of the price of the good/service, from the customer’s account to an ERS account.” *Id.* at ¶¶ [0027]-[0028]. A POSITA would have been motivated to modify the method of Zhou in view of Athwal’s teachings to achieve a reduction in the cost of transactions with vending machines and promote efficiency by including a request for funds alongside the request for authorization disclosed by Zhou. Ex.1003, ¶50.

Likewise, it would have been obvious to incorporate Athwal’s disclosure of identifying all nearby vending machines into the method described in Zhou. Ex.1003, ¶51. Applying the authentication method of Zhou to multiple vending machines within a certain proximity allows a consumer to quickly sort trustworthy vending machines from among a plurality of vending machines and to conduct transactions only with verified machines. Ex.1003, ¶51. A POSITA would have been motivated to modify the method of Zhou in view of Athwal’s teachings to promote efficiency. Ex.1003, ¶51.

Further, a POSITA would have had a reasonable expectation of success in making this combination because Zhou describes wireless vending machines, and Athwal describes methods capable of reducing the cost associated with wireless vending machine transactions. Ex.1003 ¶52.

Accordingly, the combination of Zhou and Athwal represents applying a known technique (using a mobile device to communicate with a financial system via long-range wireless technology) to a known method ready for improvement (Zhou's method of requesting authorization before beginning a transaction) to yield predictable results (including a request for funds along with the request for authorization). Ex.1003 ¶¶52-54.

## **5. Reasons to Combine Zhou and Low**

For the reasons set forth below, a POSITA would have been motivated to combine the teachings of Low with the disclosure of Zhou. It would have been obvious, beneficial, and predictable for a POSITA to incorporate Low's user interface allowing a user to select one or more of a plurality of vending machines with which to conduct a transaction. Ex.1003 ¶55. Implementing this functionality

would promote consumer convenience and improve the efficiency of Zhou’s method for transacting with automated vending machines. Ex.1003 ¶56.

One of ordinary skill in the art, would have considered the teachings of Low when considering the teachings of Zhou. Ex.1003 ¶45. Zhou and Low relate to methods of conducting wireless transactions with automated vending machines. *See* Ex.1004, 1:7-11; Ex.1006, 1:16-20. Both describe methods of facilitating communications between a vending machine and a mobile device. Ex.1004, 2:15-23; Ex.1006, 2:10-28. Accordingly, both Zhou and Low are analogous art to the ‘772 patent. Ex. 1003 ¶45

It would have been obvious to incorporate Low’s disclosure of a user interface allowing a user to select specific vending machines with which to transact. Ex.1003 ¶56. Applying this teaching to Zhou would allow a user to see all nearby vending machines and choose to institute authentication for some nearby vending machines. Ex.1003 ¶56. A consumer could start authenticating only machines containing goods and/or services they wish to purchase. Ex.1003 ¶56. A POSITA would have been motivated to combine the teachings of Low with those of Zhou to promote efficiency and convenience. Ex.1003 ¶¶56-57.

Further a POSITA would have had a reasonable expectation of success in combining Low's selection of a subset of available nearby vending machines with Zhou, because Zhou already discloses that Zhou will recognize nearby vending machines in close proximity. Ex. 1003 ¶57.

Accordingly, the combination of Zhou and Low represents applying a known technique (selection of a particular vending machine) to a known method ready for improvement (Zhou's authentication method) to yield predictable results. Ex.1003 ¶¶57-58.

## **6. Claim 1**

***[1(pre)] A method of presenting representations of payment accepting unit events, comprising:***

To the extent the preamble is limiting, Zhou discloses or renders obvious this limitation. Ex.1003, ¶¶67-68. Zhou discloses a method for transacting with a vending machine (*i.e., a payment accepting unit*) via a wireless communications device (*i.e., a mobile device*). Ex.1004 at Abstract. Zhou also describes that the “vending machine application presents to the user via the device 10 display various screen displays and prompts to facilitate a transaction with the vending machine.” Ex.1004, 5:32-34. A POSITA would have understood facilitating transactions with

a vending machine via screen displays to constitute *presenting representations of payment accepting unit events*. Ex.1003, ¶¶67-68.

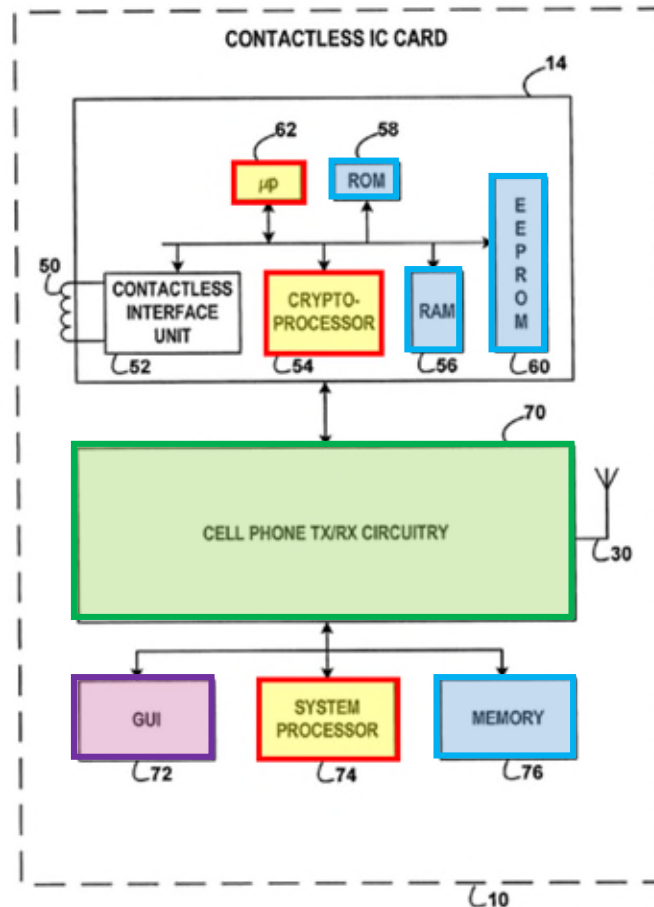
Further, Zhou describes presenting on the display of the user's wireless device indications of whether the vending machine has been authenticated (*i.e., presenting representations of payment accepting unit events*) following an authentication process. Ex.1004, 7:1-14. Thus, Zhou discloses or renders obvious *a method of presenting representations of payment accepting unit events* in this additional way. Ex.1003, ¶¶67-68.

***[1(a)] at a mobile device with one or more processors, memory, one or more output devices including a display, and one or more radio transceivers:***

Zhou discloses or renders obvious this limitation because it describes using a wireless communication device (*i.e., mobile device*) to transact with a vending machine. Ex.1003 ¶69.

**First**, Zhou discloses or renders obvious *a mobile device with one or more processors*. Ex.1003 ¶70. Specifically, Zhou discloses a “wireless communications device 10” with “a main system processor 74” which “may be any state of the art processor commonly used for wireless devices....” Ex.1004, 4:52-62. The wireless communication device of Zhou incorporates a “contactless IC card 14” that “may

include...a crypto-processor for encryption and decryption of messages” and “will also typically include its own microprocessor 62 for executing program instructions[.]” Ex.1004, 4:53-54, 5:3-16; see Fig. 2 (reproduced below).

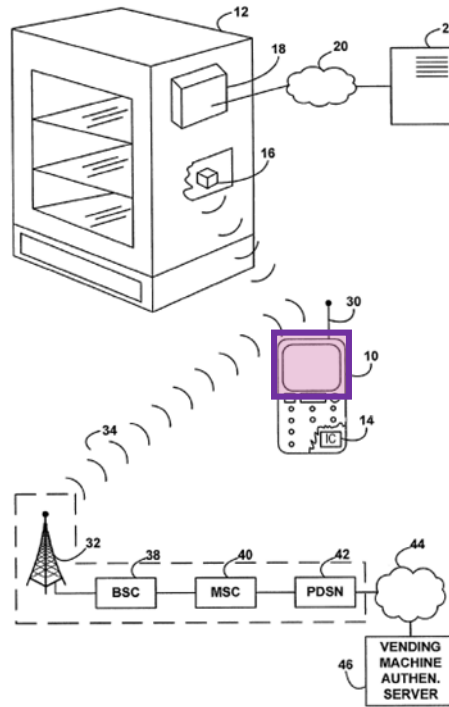


**Ex.1004, Fig. 2 (annotated).**

**Second**, Zhou discloses or renders obvious a mobile device with *memory*.  
Ex.1003 ¶71. The wireless communication device described in Zhou includes “a

memory 76 storing program instructions for execution by the system processor.” Ex.1004, 52-60. Moreover, the IC card incorporated into the wireless communication device may include “memory devices 56, 58 and 60 for storing program instructions, data and device identification information.” Ex.1004, 5:6-13; *see* Fig. 2 (reproduced above).

**Third**, Zhou discloses or renders obvious a mobile device with *one or more output devices including a display*. Ex.1003 ¶72. Zhou’s wireless communication device includes a “graphical user interface module 72 for presentation of information on the display of the device 10 and receiving user input via the screen display or manual buttons or keys....” Ex.1004, 4:52-60; *see* Fig. 2 (reproduced above); *see also* Fig. 1 (reproduced below).



**Ex.1004, Fig. 1 (annotated).**

**Fourth,** Zhou discloses or renders obvious a wireless device with *one or more radio transceivers*. Ex.1003 ¶73. “The wireless communications device 10 includes a first contactless communications means 14 for communication with a corresponding second contactless communication means 16 included in the vending machine 12. The first contactless means 14 may take the form of a contactless IC card, RFID transponder, a transmitter/receiver in accordance with WiFi, Bluetooth, 802.11 or other standard....” Ex.1004, 3:63-4:2; *see also id.*, 2:24-30, 3:8-14, 7:60-

67. Further, “[t]he device 10 includes...conventional cellular telephone circuitry represented by transmit/receive circuitry 70....” Ex.1004, 4:52-60; *see* Fig. 2 (reproduced above).

Thus, Zhou discloses or renders obvious this limitation as claimed. Ex.1003 ¶74.

***[1(b)] identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device, the identifying based at least in part on an identifier corresponding to the one or more payment accepting units, wherein the one or more payment accepting units are payment operated machines that accept payment for dispensing of products and/or services;***

Zhou, either alone or in view of Athwal, renders obvious this limitation. Ex.1003 ¶75.

**First**, Zhou discloses or renders obvious *identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device*. Ex.1003 ¶¶76-77. Zhou teaches that “the user of the wireless device 10 comes into close proximity with the vending machine and launches a vending machine application on the processor 74 of FIG. 2. The vending machine application presents

to the user via the device 10 display . . . and prompts to facilitate a transaction with the vending machine.” Ex.1004, 5:29-34.

Zhou also explains that the wireless communications device (or components thereof) authenticate (*i.e., identify*) the vending machine: “At step 104, the wireless device 10 (and more specifically the IC card in this example) authenticates the vending machine 12.” Ex.1004, 5:54-59. This authentication “preferably involves obtaining vending machine credential information.” Ex.1004, 5:61-63. A POSITA would have understood that by displaying prompts to facilitate a transaction with a vending machine near a *mobile device* and authenticating said vending machine by obtaining “credential information,” Zhou *identifies the one or more payment accepting units in proximity to the mobile device that are available to accept payment*. Ex.1003 ¶77.

This limitation is further rendered obvious by Zhou in view of Athwal. Ex.1003 ¶79. Athwal describes using a mobile communications device (“MCD”) to search for all nearby Electronic Retail Systems (“ERS”), including vending machines: “Currently, a customer will initiate an electronic transaction by first performing a search for all available ERS 120 in their vicinity from their MCD 110.

The MCD 110 will send a WES [Wireless Electronic Signal] ‘inquiry’ to all electronic devices 120.” Ex.1005 ¶[0017]. In response to this inquiry, “[a]ll ERS 120 will respond with WES that convey detailed information such as their name, available products and prices. The MCD 110 will display this information to the customer . . . .” Ex.1005 ¶[0017]. A POSITA would have understood searching for and receiving name, product, and price information from available nearby vending machines to constitute *identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device*. Ex.1003 ¶79.

**Second**, Zhou discloses or renders obvious that *the identifying [is] based at least in part on an identifier corresponding to the one or more payment accepting units*. Ex.1003 ¶78. As discussed above, Zhou discloses authenticating (*i.e.*, *identifying*) a vending machine by obtaining “vending machine credential information.” Ex.1004, 5:54-63. Zhou explains this credential information includes *inter alia*, a vending machine’s “digital certificate.” Ex.1004, 5:66-6:1. A POSITA would have understood that a “digital certificate” is an example of and comprises an *identifier corresponding to the one or more payment accepting units*, because the

purpose of a digital certificate is to bind a public key to a name or other such identifying information. Ex.1003 ¶78.

Alternatively, this limitation would have been obvious over Zhou in view of Athwal. Ex.1003 ¶79. As discussed above, Athwal discloses a mobile communications device requesting and receiving information from all nearby Electronic Retail Systems, such information including, “their name, available products and prices.” Ex.1005 ¶[0017]. A POSITA would have understood that a name associated with a specific vending machine is an *identifier corresponding to the one or more payment accepting units*. Ex.1003 ¶79.

**Third**, Zhou discloses or renders obvious that the *payment accepting units are payment operated machines that accept payment for dispensing of products and/or services*. Ex.1003 ¶80. Specifically, Zhou describes its disclosed vending machines (*i.e., payment accepting units/payment operated machines*) as being “any automated machine for vending or providing goods or services with a consumer in exchange for payment, including ATMs, automated kiosks, conventional vending machines, etc.” Ex.1004, 2:15-23; *see also id.* at 1:12-20, 5:35-38.

Thus, because Zhou discloses an application that authenticates nearby vending machines, and a POSITA would have found it obvious to incorporate Athwal's disclosure of identifying all available nearby vending machines into Zhou's application, Zhou and Athwal disclose or render obvious this limitation as claimed. Ex.1003 ¶80.

***[1(c)] displaying a user interface of the mobile payment application on the display of the mobile device, the user interface being configured to display a visual indication of the one or more payment accepting units and accept user input to (i) receive selection by a user of the mobile device of an available payment accepting unit of the one or more payment accepting units and (ii) trigger payment by the mobile payment application for a transaction initiated by the user of the mobile device with the available payment accepting unit of the one or more payment accepting units;***

Zhou, in combination with Athwal, or, alternatively, Zhou, in combination with Athwal and Low renders obvious this limitation. Ex.1003 ¶81.

**First**, Zhou discloses or renders obvious *displaying a user interface of the mobile payment application on the display of the mobile device*. Ex.1003 ¶82. For example, the wireless communications device of Zhou includes a “graphical user interface module 72 for presentation of information on the display of the device 10 and receiving user input via the screen display . . . .” Ex.1004, 4:52-58. As discussed above in relation to limitation ***[1(pre)]***, Zhou also teaches a vending machine

application (*i.e.*, *mobile payment application*) displaying information to a user and facilitating transactions with a vending machine via screen displays and prompts presented on a graphical user interface (*i.e.*, *user interface*). *See* Ex.1004, 5:32-34; *see also id.* at 7:1-3 (“At step 120, the response message from the vending machine authentication server 42 is passed to the vending machine application for display to the user.”).

**Second**, Zhou (alone or in combination with Athwal) discloses or renders obvious *the user interface being configured to display a visual indication of the one or more payment accepting units*. Ex.1003 ¶¶83-84. Zhou displays various messages (*i.e.*, *visual indications*) relating to the authentication status of a vending machine, such as “VENDING MACHINE NOT APPROVED” Ex.1004, 7:1-14. A POSITA would have understood that displaying such messages pertaining to specific vending machines constitutes *display[ing] a visual indication of [] one or more payment accepting units*. Ex.1003 ¶83.

Alternatively, this limitation would have been obvious over Zhou in view of Athwal. Ex.1003 ¶84. As discussed above at **[1(b)]**, Athwal discloses a mobile communications device (“MCD”) sending a WES inquiry to all nearby Electronic

Retail Systems (“ERS”) and receiving “detailed information such as their name, available produces and prices” in response. Ex.1005 ¶[0017]. “The MCD 110 will display this information to the customer and the customer will select the desired product or service from the appropriate ERS 120.” Ex.1005 ¶[0017]. A POSITA would have understood that displaying the name of an ERS on an MCD as described in Athwal is *display[ing] a visual indication of the one or more payment accepting units*. Ex.1003 ¶84.

**Third**, Zhou discloses or renders obvious the user interface *accept[ing] user input*. Ex.1003 ¶85. Zhou explains, “[t]he device 10 includes a contactless IC card 14, and conventional cellular telephone circuitry represented by transmit/receive circuitry 70, graphical user interface module 72 for presentation of information on the display of the device 10 and **receiving user input via the screen display or manual buttons or keys**, a main system processor 74, and a memory 76 storing program instructions for execution by the system processor.” Ex.1004, 4:52-60 (emphasis added). Accordingly, Zhou discloses a user interface configured to *accept user input*. Ex.1003 ¶85.

**Fourth**, Zhou discloses or renders obvious *receiv[ing] selection by a user of the mobile device of an available payment accepting unit of the one or more payment accepting units*. Ex.1003 ¶86. Zhou gives a user the option to complete or discontinue a transaction depending on whether a vending machine has been properly authorized. Ex.1003 ¶86. Zhou explains, “[i]f the user sees a VENDING MACHINE NOT APPROVED response (or the like) displayed on the display of their device, they thus are notified of the security risk and able to abort the vending processing prior to transmission of sensitive financial or credit card information.” Ex.1004, 7:1-8. But, if “VENDING MACHINE APPROVED (or the like) is displayed, the user of the device 10 can proceed to complete the transaction.” Ex.1004, 7:8-10. A POSITA would have understood that choosing to conduct a transaction with an authenticated vending machine constitutes *receiv[ing] selection by a user of the mobile device of an available payment accepting unit of the one or more payment accepting units*. Ex.1003 ¶86.

To the extent Zhou does not disclose or render obvious *receiv[ing] selection by a user of the mobile device of an available payment accepting unit of the one or more payment accepting units*, Athwal may be relied on in combination with Zhou.

As discussed above, Athwal describes a user receiving “name, available products and prices” from nearby vending machines and selecting a desired good/service from a particular vending machine. Ex.1005 ¶[0017]. “The MCD 110 will then send a WES to the appropriate ERS 120 indicating a customer request to perform a transaction.” Ex.1005 ¶[0017]. A POSITA would have understood that choosing a product corresponding to a specific vending machine is *select[ing] an available payment accepting unit of the one or more payment accepting units*. Ex.1003 ¶87.

Moreover, Low may be relied on in combination with Zhou and Athwal to disclose this limitation. Ex.1003 ¶88. Specifically, Low discloses that “a consumer device, such as a smart phone or computing tablet, communicates with a non-Internet connected unmanned device/machine via wireless communication...The non-Internet connected machine (NICM) transmits a machine identifier to the user device...in some embodiments, multiple machines may send their unique identifiers, such that **the user is able to select one or more machines to purchase from.**” Ex.1006, 2:11-28 (emphasis added). Allowing a user to select one or more vending machines from among “multiple machines” constitutes *receiv[ing] selection by a*

*user of the mobile device of an available payment accepting unit of the one or more payment accepting units.* Ex.1003 ¶88.

Thus, Zhou in view of Athwal in further view of Low render obvious *receiv[ing] selection by a user of the mobile device of an available payment accepting unit of the one or more payment accepting units* as claimed. Ex.1003 ¶88.

**Fifth**, Zhou, alone or in combination with Athwal, discloses or renders obvious *trigger[ing] payment by the mobile payment application for a transaction initiated by the user of the mobile device with the available payment accepting unit of the one or more payment accepting units*. Zhou explains that if a vending machine is authenticated, “the IC card can provide a prompt to the vending machine application indicating that the vending machine is approved and that **completion of the transaction and transfer of sensitive payment information** from the wireless device 10 to the vending machine 12 may safely proceed.” Ex.1004, 6:12-20 (emphasis added); *see also id.* at 7:37-39 (“The method further continues with a step b) of completing the transaction including the exchange of payment information[.]”). By completing a transaction, the vending machine application (*i.e., mobile payment application*) of Zhou receives user input that *trigger[s] payment...for a transaction*

*initiated by the user of the mobile device with the available payment accepting unit.*

Ex.1003 ¶89.

Moreover, this limitation would have been obvious over Zhou in view of Athwal. Ex.1003 ¶90. Athwal discloses that after a consumer selects a product, “[t]he ERS 120 will confirm availability of the desired product/service, calculate the cost and send an electronic ‘bill’ to the MCD 110 for the amount of the purchase via a WES.” Ex.1005 ¶[0017]. The consumer is “prompted by the MCD 110 to verify the purchase and to select the customer’s account which should be used to make the purchase,” after which “[t]he MCD 110 will [] transmit payment account information and an authorization key (i.e. SIM chip ID or personal identification number) to the ERS 120 via a WES.” Ex.1005 ¶[0017]. A POSITA would have understood transmitting payment account information and authorization following user input to constitute *trigger[ing] payment by the mobile payment application for a transaction initiated by the user of the mobile device with the available payment accepting unit.* Ex.1003 ¶90.

Thus, Zhou in view of Athwal, and, alternatively, Zhou in view of Athwal in further view of Low render obvious this limitation as claimed. Ex.1003 ¶91.

***[1(d)] establishing via the one or more radio transceivers a wireless communication path including the mobile device and the available payment accepting unit of the one or more payment accepting units;***

Zhou discloses or renders obvious this limitation because it describes establishing wireless contact between a wireless communications device (*i.e., mobile device*) and a vending machine (*i.e., payment accepting unit*). Ex.1003 ¶92.

Zhou recognizes “[t]he art has proposed using contactless communications devices such as contactless Integrated Circuit (IC) cards and Radio Frequency Identification Devices (RFIDs) as a means for communication with a vending machine and exchanging payment information.” Ex.1004, 1:21-25. Zhou also teaches that these devices “may take the form of...a **transmitter/receiver** in accordance with WiFi, Bluetooth, 802.11 or other standard,” and “can be embedded in other devices, such as **wireless communications devices such as cellular telephones** and personal digital assistants.” Ex.1004, 1:25-27, 3:67-4:2 (emphasis added); Ex. 1003, ¶93.

Zhou further discloses using these contactless communications means to effect wireless communication (*i.e., establish a wireless communication path*)

between a wireless communications device and a vending machine. Ex.1003 ¶94;  
Ex.1004, Fig. 1 (reproduced below).

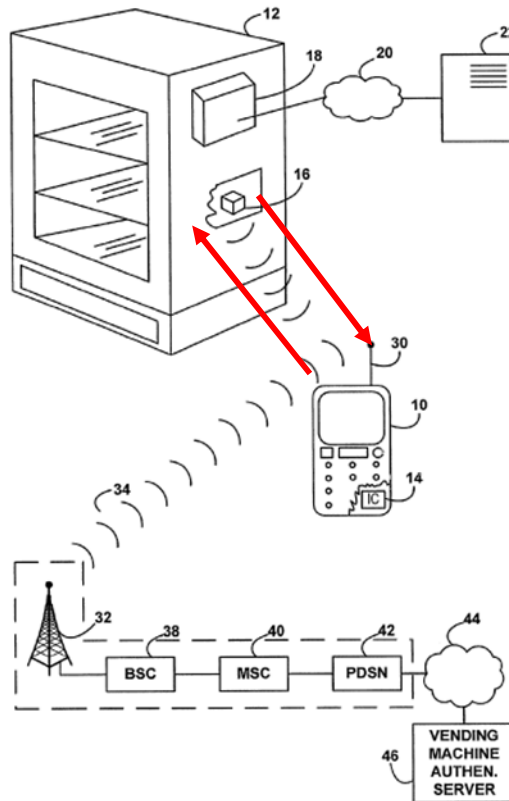


Fig. 1

**Ex.1004, Fig. 1 (annotated).**

Zhou teaches “[t]he wireless communication device includes a first contactless communications means (e.g., RFID transponder or contactless IC card). The first contactless communication means communicates with a corresponding second

contactless communication means (e.g., RFID transponder or contactless IC reader/scanner) that is included in the vending machine.” Ex.1004, 2:24-30.

Thus, Zhou discloses or renders obvious this limitation as claimed. Ex.1003 ¶94.

***[1(e)] after establishing the wireless communication path, enabling user interaction with the user interface of the mobile payment application to complete the transaction;***

Zhou discloses or renders obvious this limitation because it teaches allowing user interaction to complete a transaction after wireless communication has been established and after authentication has occurred. Ex.1003 ¶95. When a consumer comes within a certain proximity of a vending machine “[t]he vending machine application presents to the user via the device 10 display various screen displays and prompts to facilitate a transaction with the vending machine.” Ex.1004, 5:32-34. After wireless communication is established, the vending machine application may use the IC card to obtain product information from the vending machine and present it on the display of the device. Ex.1004, 5:35-41. Once the vending machine is authenticated, “[t]he method further continues with a step b) of completing the transaction[.]” Ex.1004, 7:37-39. Thus, because Zhou performs authentication after

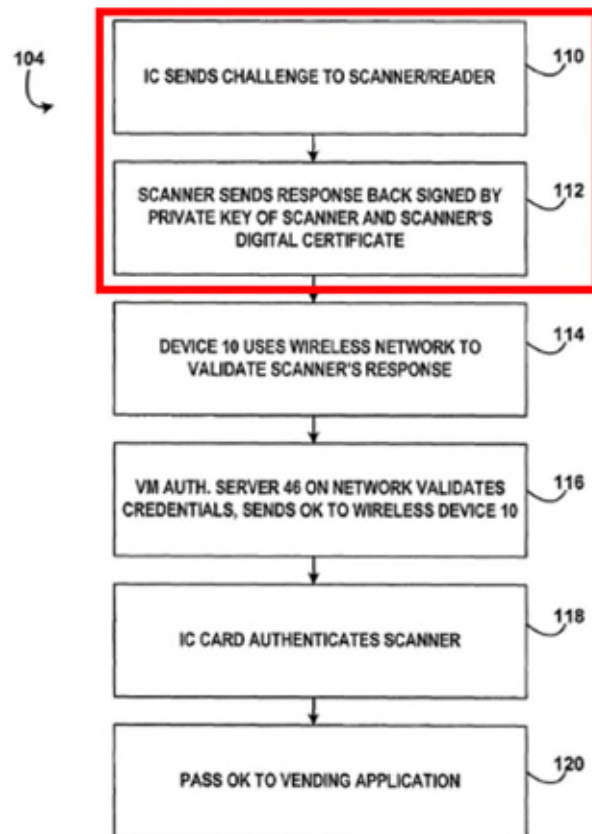
wireless communication is established and because Zhou requires authentication before a user is allowed to complete the transaction, Zhou discloses or renders obvious this limitation as claimed. Ex.1003 ¶¶96-97.

***[1(f)] exchanging information with the available payment accepting unit via the one or more radio transceivers, in conjunction with the transaction; and***

Zhou discloses or renders obvious this limitation because it discloses wirelessly exchanging information between a wireless communications device and a vending machine in conjunction with transactions. Ex.1003 ¶98. As discussed above at ***[1(a)]******[1(a)]******[1(a)]*** and ***[1(d)]***, Zhou discloses a wireless communications device exchanging information with a vending machine via means such as a contactless IC card, RFID transponder, or a transmitter/receiver. Ex.1004, 1:25-27, 3:67-4:2.

Zhou teaches that this information exchange occurs in conjunction with a transaction: “The method includes a step a) of performing an authentication of the vending machine using the contactless communications means...This step may include steps of exchanging challenge and response messages, wherein the contactless communications means in the vending machine provides a private key signature and a digital certificate.” Ex.1004, 2:31-37. Zhou’s authentication “may

comprises the steps of: a) sending a challenge message from the IC card to the scanner module” and “b) the scanner responding to the challenge with a private key signature and a digital certificate....” Ex.1004, 2:60-64; Fig. 4 (reproduced below).



**Ex.1004, Fig. 4 (annotated).**

After authentication, “the user of the device 10 can proceed to complete the transaction.” Ex.1004, 7:8-10. Because every successful transaction effected by Zhou begins by exchanging challenge/response information necessary for

authentication, this exchange occurs *in conjunction with the transaction*. Ex.1003 ¶¶99-100.

Thus, Zhou discloses or renders obvious this limitation as claimed. Ex.1003 ¶100.

***[1(g)] after exchanging the information, displaying, on the display, an updated user interface of the mobile payment application to the user of the mobile device.***

Zhou, either alone or in combination with Athwal, discloses or renders obvious this limitation by displaying messages associated with a transaction. Ex.1003 ¶101. Zhou teaches displaying a user interface that “presents to the user via the device 10 display various screen displays and prompts to facilitate a transaction with the vending machine.” Ex.1004, 5:32-34. After the authentication process, the user interface of Zhou’s mobile device application updates to display messages including at least “VENDING MACHINE NOT APPROVED” or “VENDING MACHINE APPROVED.” Ex.1004, 7:1-14. Because these messages depend on the result of the authentication process, they occur *after exchanging the information*. Ex.1003 ¶102.

This limitation is further obvious over Zhou in view of Athwal. Ex.1003 ¶103. Athwal discloses that an MCD receives “positive feedback if the funds have

transferred correctly.” Ex.1005 ¶[0029]. “If the ERSS [Electronic Retail System Software] has provided positive feedback, the ERS 120: a) Sends 5 a WES to the customers [sic] MCD 110 informing the customer that the transaction has been completed successfully; [and] b) Provides 5 an electronic receipt to the MCD 110.” Ex.1005 ¶[0030]-[0032]. A POSITA would have understood sending a notification to the mobile device informing the customer that the transaction has successfully completed as well as an electronic receipt constitutes or renders obvious *after exchanging the information, displaying, on the display, an updated user interface of the mobile payment application to the user of the mobile device*. Ex.1003 ¶103.

Thus, Zhou, either alone or in combination with Athwal, discloses or renders obvious this limitation as claimed. Ex.1003 ¶103.

## 7. Claim 2

***[2] The method of claim 1, wherein the updated user interface of the mobile payment application includes at least one of: a message displayed on the display of the mobile device; a banner notification displayed on a display of the mobile device; and/or a visual alert from one or more LEDs of the mobile device.***

Zhou, either alone or in combination with Athwal, discloses or renders obvious this limitation. Ex.1003 ¶104. Zhou discloses that a “response message from the vending machine authentication server 42 is passed to the vending machine

application for display to the user.” Ex.1004, 7:1-14. These messages include “VENDING MACHINE NOT APPROVED” and “VENDING MACHINE APPROVED.” Ex.1004, 7:1-14. Because these messages are sent after, and depend upon, Zhou’s authentication process, these messages are part of the updated user interface of the mobile payment application. Ex.1003 ¶105.

To the extent Zhou does not disclose or render obvious this claim, Athwal may be relied on in combination with Zhou. Ex.1003 ¶106. As discussed above at *[1(g)]*, Athwal discloses notifying a consumer of a successful transaction with a WES and an electronic receipt. Ex.1003 ¶106; *see* Ex.1005 ¶¶[0030]-[0032]. A POSITA would have understood both a notification informing the customer of a successful transaction and an electronic receipt to constitute or render obvious *message[s] displayed on the display of the mobile device*. Ex.1003 ¶106.

Thus, Zhou, either alone or in combination with Athwal, disclose or render obvious this limitation. Ex.1003 ¶106.

## **8. Claim 3**

***[3] The method of claim 1, wherein the information indicates completion of the transaction between the user of the mobile device and the available payment accepting unit.***

Athwal discloses or renders obvious this limitation. Ex.1003 ¶107. As discussed above at **[1(c)]** and **[1(g)]**, Athwal teaches an Electronic Retail System (such as a vending machine) sends “an electronic ‘bill’” to an MCD, “provide[s] a positive feedback” upon a successful transaction, and sends “an electronic receipt” to the MCD to conclude a transaction. Ex.1005 ¶¶[0017], [0029], [0030]-[0032]. A POSITA would have understood sending a message informing the customer that a transaction has been completed successfully and sending an electronic receipt to constitute *information indicat[ing] completion of the transaction between the user of the mobile device and the available payment accepting unit*. Ex.1003 ¶108.

Thus, Athwal discloses or renders obvious this limitation. Ex.1003 ¶108.

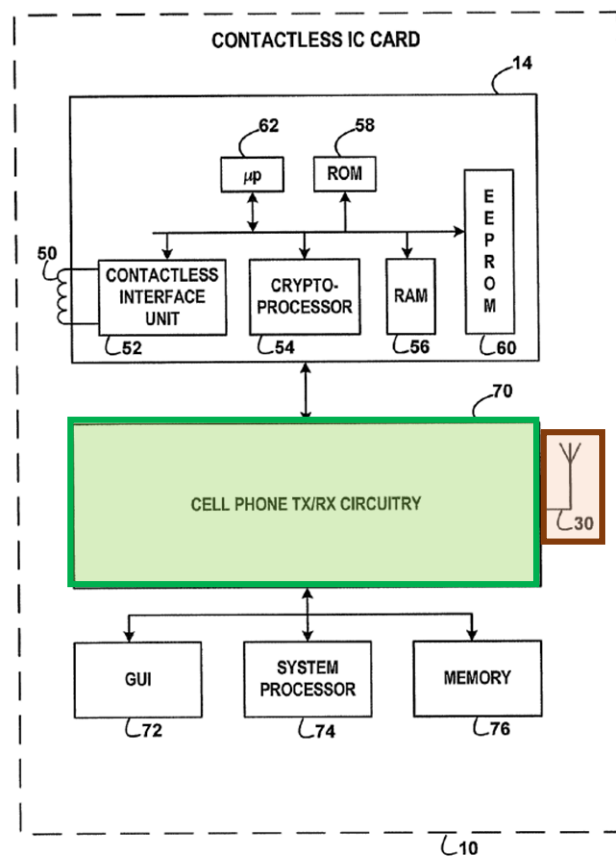
## **9. Claim 4**

***[4] The method of claim 3, wherein the mobile device includes a long-range transceiver and the information at least includes an amount of the completed transaction, and the method further comprises: sending at least the amount of the completed transaction to a server via the long-range transceiver.***

Zhou in combination with Athwal renders obvious this limitation. Ex.1003 ¶109.

**First**, Zhou discloses or renders obvious a *mobile device includ[ing] a long-range transceiver*. Ex.1003 ¶¶110-111. Zhou teaches a device “capable of two types

of wireless communication: 1) communication over an air interface 24 with the vending machine communication means 16 using the contactless communication device 14, and 2) communication over an air interface 34 with a vending machine authentication server 46 via a radio access network 36 . . . .” Ex.1004, 4:10-18. The wireless communications device includes an “antenna 30 [that] communicates with a CDMA base transceiver station antenna 32” and “conventional cellular telephone transmit/receive circuitry 70.” Ex.1004, 4:32-33, 52-55, Fig. 2 (excerpted below).



**Ex.1004, Fig.2 (annotated).**

A POSITA would have understood a wireless communications device equipped with transmit/receive circuitry and an antenna that communicates with a CDMA base transceiver to constitute a *mobile device includ[ing] a long range transceiver*. Ex.1003 ¶111.

**Second**, Athwal discloses or renders obvious that *the information at least includes an amount of the completed transaction*. Ex.1003 ¶112. As discussed above at [2] and [3], Athwal teaches sending an “electronic receipt” at the conclusion of a transaction. Ex.1005 ¶¶[0030]-[0032]. A POSITA would have understood that an electronic receipt would include the *amount of the completed transaction*. Ex.1003 ¶112.

**Third**, Athwal discloses or renders obvious *sending at least the amount of the completed transaction to a server via the long-range transceiver* because it teaches sending a request for funds in the amount of a transaction to a Financial System. Ex.1003 ¶¶113-114. Athwal describes, “[o]nce th[e] SRWT [short range wireless technology] 130 connection is created, the ERSS requests a LRWT data connection 140 from the MCD 120 by invoking the MCDS [mobile communications device

software].” Ex.1005 ¶[0025]. “The ERSS utilizes the data connection provided by the MCD 110 to establish 3 a secure LRWT connection to its Financial System 160 (e.g., an on-line bank).” Ex.1005 ¶[0027]. Then, “[t]he ERSS...requests a f[u]nds transfer from the Financial System 160, in the amount of the price of the goods/service, from the customer’s account to an ERS account. The Financial System 160 performs the f[u]nds transfer and notifies 4 the ERSS that the transaction has been completed.” Ex.1005 ¶[0028]. A POSITA would have understood, or it would have been obvious, that the Financial System (described as an on-line bank) would operate on a server, because it was well known for online financial systems to utilize servers before the priority date of the ‘772 patent. Ex.1003 ¶114. Further, a POSITA would have understood the mobile communications device sending the price of the goods/services is sending the amount of the completed transaction. Ex.1003 ¶114.

Thus, Zhou in view of Athwal renders obvious this limitation. Ex.1003 ¶114.

## **10. Claim 5**

***[5] The method of claim 1, wherein the information indicates abortion of the transaction initiated by the user of the mobile device.***

Zhou, either alone or in combination with Athwal, discloses or renders obvious this limitation. Ex.1003 ¶115. As discussed above at **[1(c)]**, Zhou describes aborting a transaction if a vending machine fails authentication. Ex.1004, 7:3-8. A POSITA would have understood, or it would have been obvious, to notify a user that their transaction was successfully cancelled and no payment information was exchanged with an unauthenticated vending machine. Ex.1003 ¶116.

To the extent Zhou does not disclose or render obvious this limitation, said limitation would have been obvious over Zhou in view of Athwal. Ex.1003 ¶117. Athwal discloses, “the ERSS provides . . . negative feedback if the funds did not transfer correctly.” Ex.1005 ¶[0029]. Upon receiving negative feedback, “the ERS 120 sends 5 a WES to the MCD 110 indicating that there was a problem transferring the finds [sic] and the nature of the problem.” Ex.1005 ¶[0029]. A POSITA would have understood, or it would have been obvious, that one reason funds may not transfer correctly is that the user has aborted the transaction. Ex.1003 ¶117. In which case, the WES (*i.e., information*) *would indicate abortion of the transaction initiated by the user*. Ex.1003 ¶117.

Thus, Zhou or alternatively, Zhou in view of Athwal, disclose or render obvious this limitation. Ex.1003 ¶117.

#### **11. Claim 6**

***[6] The method of claim 1, wherein the information indicates failure of the transaction initiated by the user of the mobile device or a malfunction associated with the available payment accepting unit.***

Athwal discloses or renders obvious this limitation because it sends an error message if funds are not properly transferred. Ex.1003 ¶118. Specifically, if funds are not transferred correctly, the Electronic Retail System “sends 5 a WES to the MCD 110 indicating that there was a problem transferring the finds [sic] and the nature of the problem.” Ex.1005 ¶[0029]. A POSITA would have understood sending a signal describing a problem transferring funds constitutes *information indicat[ing] failure of the transaction initiated by the user of the mobile device*. Ex.1003 ¶119.

Thus, Athwal discloses or renders obvious this limitation. Ex.1003 ¶119.

#### **12. Claim 8**

***[8] The method of claim 1, wherein the information reflects availability of the available payment accepting unit to conduct a transaction.***

Zhou, alone or in combination with Athwal, discloses or renders obvious this limitation. Ex.1003 ¶120. Zhou’s vending machine application “presents to the user via the device 10 display various screens displays and prompts to facilitate a transaction with the vending machine.” Ex.1004, 5:32-34. A user may “obtain[] price information for the goods” and “the vending machine application may...obtain product information from the vending machine and present it on the display of the device 10.” Ex.1004, 5:36-41. A POSITA would have understood displaying price information and prompts to facilitate a transaction are *information reflect[ing] availability of the available payment accepting unit*. Ex.1003 ¶121.

To the extent Zhou does not disclose or render obvious this limitation, Athwal may be relied on in combination with Zhou. Ex.1003 ¶122. Athwal discloses a user querying “all available ERS 120 in their vicinity from their MCD 110.” Ex.1005 ¶[0017]. Then, “[a]ll ERS 120 will respond with WES that convey detailed information such as their name, available products and prices. The MCD 110 will display this information to the customer[.]” Ex.1005 ¶[0017]. A POSITA would have understood these responsive signals containing detailed information to

constitute *information reflect[ing] availability of the available payment accepting unit to conduct a transaction.* Ex.1003 ¶122.

### 13. Claim 12

***[12] The method of claim 1, wherein the payment operated machines included a payment activated washer, a payment activated dryer, a vending machine, a parking meter, a toll booth, an arcade game, a kiosk, a photo booth, or a ticket dispensing machine.***

Zhou discloses or renders obvious this limitation because Zhou describes transacting with any automated machine that provides goods and/or services in exchange for money. Ex.1003 ¶123. Zhou explains “the term ‘vending machine’ is intended to be interpreted to cover generally any automated machine for vending or providing goods or services with a consumer in exchange for payment, including ATMs, automated kiosks, conventional vending machines, etc.” Ex.1004, 2:18-23. A POSITA would have understood that *a payment activated washer, a payment activated dryer, a vending machine, a parking meter, a toll booth, an arcade game, a kiosk, a photo booth, [and] a ticket dispensing machine* are all automated machines for vending or providing goods or services with a consumer in exchange for payment. Ex.1003 ¶124.

Thus, Zhou discloses or renders obvious this limitation. Ex.1003 ¶124.

**14. Claim 13**

***[13(pre)] A mobile device comprising:***

To the extent the preamble is considered limiting, Zhou discloses or renders obvious this limitation for the reasons set forth above for limitation ***[1(a)]***. Ex.1003 ¶125.

***[13(a)] one or more radio transceivers; one or more output display devices including a display; one or more processors; and memory storing one or more programs to be executed by the one or more processors, the one or more programs comprising instructions for:***

Zhou discloses or renders obvious this limitation for the reasons set forth above for limitation ***[1(a)]***. Ex.1003 ¶126. Further, Zhou discloses or renders obvious *memory storing one or more programs to be executed by the one or more processors*. Ex.1003 ¶127. For example, Zhou teaches a wireless communications device that includes “a main system processor 74, and a memory 76 storing program instructions for execution by the system processor...[t]he program instructions will typically include applications such as telephone and email applications, as well as web browser, entertainment or game applications, and vending machine applications....” Ex.1004, 4:52-5:2. A POSITA would have understood that Zhou expressly discloses *memory storing one or more programs to be executed by the one*

or more processors. Ex.1003 ¶127. Thus, Zhou discloses or renders obvious this limitation. Ex.1003 ¶127.

***[13(b)] identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device, the identifying based at least in part on an identifier corresponding to the one or more payment accepting units, wherein the one or more payment accepting units are payment operated machines that accept payment for dispensing of products and/or services;***

Zhou, either alone or in view of Athwal, discloses or renders obvious this limitation for the reasons set forth above for limitation ***[1(b)]***. Ex.1003 ¶128.

***[13(c)] displaying a user interface of the mobile payment application on the display of the mobile device, the user interface being configured to display a visual indication of the one or more payment accepting units and accept user input to (i) receive selection by a user of the mobile device of an available payment accepting unit of the one or more payment accepting units and (ii) trigger payment by the mobile payment application for a transaction initiated by the user of the mobile device with the available payment accepting unit of the one or more payment accepting units;***

Zhou, in combination with Athwal, or, alternatively, Zhou, in combination with Athwal and Low renders obvious this limitation for the reasons set forth above for limitation ***[1(c)]***. Ex.1003 ¶129.

***[13(d)] establishing via the one or more radio transceivers a wireless communication path including the mobile device and the available payment accepting unit of the one or more payment accepting units;***

Zhou discloses or renders obvious this limitation for the reasons set forth above for limitation **[1(d)]**. Ex.1003 ¶130.

***[13(e)] after establishing the wireless communication path, enabling user interaction with the user interface of the mobile payment application to complete the transaction;***

Zhou discloses or renders obvious this limitation for the reasons set forth above for limitation **[1(e)]**. Ex.1003 ¶131.

***[13(f)] exchanging information with the available payment accepting unit via the one or more radio transceivers, in conjunction with the transaction; and***

Zhou discloses or renders obvious this limitation for the reasons set forth above for limitation **[1(f)]**. Ex.1003 ¶132.

***[13(g)] after exchanging the information, displaying, on the display, an updated user interface of the mobile payment application to the user of the mobile device.***

Zhou, either alone or in combination with Athwal, discloses or renders obvious this limitation for the reasons set forth above for limitation **[1(g)]**. Ex.1003 ¶133.

## 15. Claim 14

***[14] The mobile device of claim 13, wherein identifying the one or more payment accepting units includes identifying a payment activated washer, a payment activated dryer, a vending machine, a parking meter, a toll booth, an arcade game, a kiosk, a photo booth, or a ticket dispensing machine.***

Zhou discloses or renders obvious this limitation for the reasons set forth above for claim **[12]**. Ex.1003 ¶134.

## **16. Claim 15**

***[15(pre)] A non-transitory computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which, when executed by a mobile device with one or more processors, one or more output devices including a display, and one or more radio transceivers, cause the mobile device to perform operations comprising:***

To the extent the preamble is considered limiting, Zhou discloses or renders obvious this limitation for the reasons set forth above for limitation **[13(a)]** and **[1(a)]**. Ex.1003 ¶135.

***[15(a)] identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device, the identifying based at least in part on an identifier corresponding to the one or more payment accepting units, wherein the one or more payment accepting units are payment operated machines that accept payment for dispensing of products and/or services;***

Zhou, either alone or in view of Athwal, discloses or renders obvious this limitation for the reasons set forth above for limitation **[1(b)]**. Ex.1003 ¶136.

***[15(b)] displaying a user interface of the mobile payment application on the display of the mobile device, the user interface being configured to display a visual indication of the one or more payment accepting units and accept user input to (i) receive selection by a user of the mobile device of an available payment accepting***

***unit of the one or more payment accepting units and (ii) trigger payment by the mobile payment application for a transaction initiated by the user of the mobile device with the available payment accepting unit of the one or more payment accepting units;***

Zhou, in combination with Athwal, or, alternatively, Zhou, in combination with Athwal and Low renders obvious this limitation for the reasons set forth above for limitation **[1(c)]**. Ex.1003 ¶137.

***[15(c)] establishing via the one or more radio transceivers a wireless communication path including the mobile device and the available payment accepting unit of the one or more payment accepting units;***

Zhou discloses or renders obvious this limitation for the reasons set forth above for limitation **[1(d)]**. Ex.1003 ¶138.

***[15(d)] after establishing the wireless communication path, enabling user interaction with the user interface of the mobile payment application to complete the transaction;***

Zhou discloses or renders obvious this limitation for the reasons set forth above for limitation **[1(e)]**. Ex.1003 ¶139.

***[15(e)] exchanging information with the available payment accepting unit via the one or more radio transceivers, in conjunction with the transaction; and***

Zhou discloses or renders obvious this limitation for the reasons set forth above for limitation **[1(f)]**. Ex.1003 ¶140.

***[15(f)] after exchanging the information, displaying, on the display, an updated user interface of the mobile payment application to the user of the mobile device.***

Zhou, either alone or in combination with Athwal, discloses or renders obvious this limitation for the reasons set forth above for limitation ***[1(g)]***. Ex.1003 ¶141.

#### **17. Claim 16**

***[16] The non-transitory computer readable storage medium of claim 15, wherein the updated user interface of the mobile payment application includes at least one of: a message displayed on the display of the mobile device; a banner notification displayed on a display of the mobile device; and/or a visual alert from one or more LEDs of the mobile device.***

Zhou, either alone or in combination with Athwal, discloses or renders obvious this limitation for the reasons set forth above for claim ***[2]***. Ex.1003 ¶142.

#### **18. Claim 17**

***[17] The non-transitory computer readable storage medium of claim 15, wherein: the information indicates completion of the transaction between the user of the mobile device and the available payment accepting unit; the information at least includes an amount of the completed transaction; and the instructions further cause the mobile device to send at least the amount of the completed transaction to a server.***

The combination of Zhou and Athwal renders obvious this limitation for the reasons set forth above for claims ***[3]-[4]***. Ex.1003 ¶143.

**19. Claim 18**

***[18] The non-transitory computer readable storage medium of claim 15, wherein the information indicates abortion of the transaction initiated by the user of the mobile device.***

Zhou, either alone or in combination with Athwal, discloses or renders obvious this limitation for the reasons set forth above for claim [5]. Ex.1003 ¶144.

**20. Claim 19**

***[19] The non-transitory computer readable storage medium of claim 15, wherein the information indicates failure of the transaction initiated by the user of the mobile device or a malfunction associated with the available payment accepting unit.***

Athwal discloses or renders obvious this limitation for the reasons set forth above for claim [6]. Ex.1003 ¶145.

**21. Claim 20**

***[20] The non-transitory computer readable storage medium of claim 15, wherein identifying the one or more payment accepting units includes identifying a payment activated washer, a payment activated dryer, a vending machine, a parking meter, a toll booth, an arcade game, a kiosk, a photo booth, or a ticket dispensing machine.***

Zhou discloses or renders obvious this limitation for the reasons set forth above for claim [12]. Ex.1003 ¶146.

**D. Ground 2: Claim 9 is obvious under 35 U.S.C. § 103 over Zhou and Athwal further in view of Low and even further in view of Arora.**

**1. Summary of Zhou**

*See* Sec. X.C.1; Ex.1003 ¶¶35-36.

**2. Summary of Athwal**

*See* Sec. X.C.2; Ex.1003 ¶¶37-38.

**3. Summary of Low**

*See* Sec. X.C.3; Ex.1003 ¶39.

**4. Summary of Arora**

Arora discloses a “system and method for vending products to a customer that encompasses a group of vending machines managed by a vending company . . . and the use of a personal electronic device by the customer.” Ex.1007 at Abstract. “Embodiments include either products or vending machines from a list of options provided via the user interface of the personal electronic device, wherein the list of options depends on the actual available inventory on vending machines co-located with [the] customer, and the customer purchase history.” Ex.1007 at Abstract. Arora further discloses that the vending machine company may offer coupons to a consumer based on their prior purchasing history. Ex.1007 at Fig.3.

**5. Reasons to Combine Zhou, Athwal, Low, and Arora**

Arora's disclosure relates to a customer "selecting either products or vending machines from a list of options provided via the user interface [a] personal electronic device," (Ex.1007, Abstract) and Arora is, therefore, analogous art to the '772 patent. Ex.1003 ¶46. A POSITA would have been motivated to combine the teachings of Arora with those of Zhou, Athwal, and Low for several reasons. Zhou discloses a method for wirelessly conducting transactions between a mobile consumer device and a vending machine, including an authorization process. *See* Ex.1004, 2:15-18. Athwal discloses a method of conducting e-commerce with ERS (vending machines) whereby a customer first searches, via their MCD, for all available ERS in their vicinity. Ex.1005 ¶[0017]. The ERS respond with a Wireless Electronic Signal ("WES") that includes the ERS name, available products, and prices. Ex.1005 ¶[0017]. Arora describes tracking consumer data and providing coupons for particular vending machine products based upon a consumer's purchase history and the nearby available products. *See, e.g.*, Ex.1007, 2:51, 5:23-39, 7:6-37, 14:5-8.

Accordingly, with a reasonable expectation of success, a POSITA would have been motivated to modify the combination of Zhou, Athwal, and Low with Arora so

as to provide a consumer with coupons for products to incentivize consumers to purchase additional products and/or return to the same vending machine. Ex.1003

¶59. A POSITA also would have been motivated to incorporate Arora’s disclosure of coupons tailored to a user’s transaction history into the combination of Zhou, Athwal, and Low, as offering coupons/loyalty rewards incentivizes users to continue shopping at a vending machine, resulting in greater profit for the vending machine operator. Ex.1003 ¶60. “One example of increased profit to the vending company is the ability to put products that are about to expire on sale. The customer benefits by receiving discounted products and the company benefits by selling products that otherwise would have to be discarded at a loss.” Ex.1007, 6:32-36. Moreover, “a current customer may be offered an incentive to cause an additional customer to register [or] use the app....” Ex.1007, 7:10-14. Arora explains that coupons are an example of such a reward. Ex.1007, 7:5-14. A POSITA would have understood that implementing Arora’s disclosure of offering coupons to vending machine customers would expand a customer base and increase profits. Ex.1003 ¶60. Thus, a POSITA would have found it obvious to combine Arora with Zhou, Athwal, and Low. Ex.1003 ¶61.

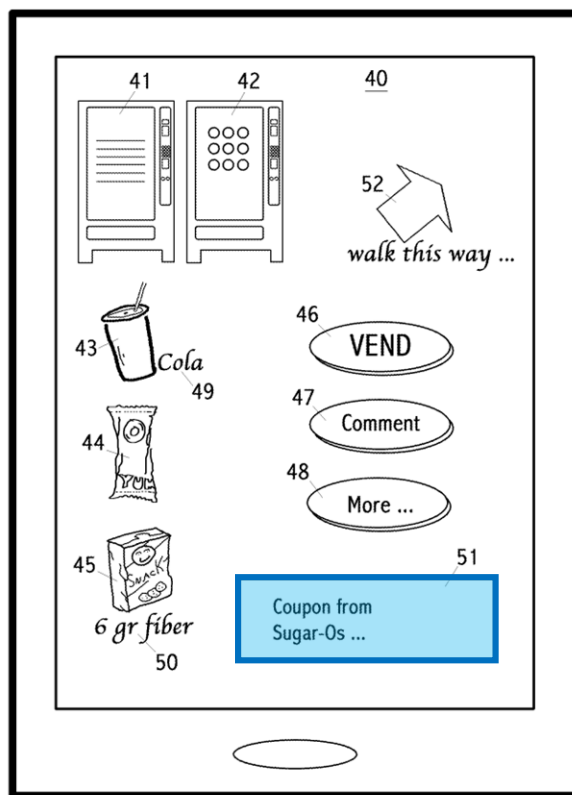
A POSITA would have had a reasonable expectation of success in combining Arora's coupons with Zhou, Athwal, and Low, because Zhou already recognizes nearby vending machines and includes a vending machine mobile application user interface and because it also would have been within the background knowledge and standard capabilities of a POSITA to expand the user interface of the combination of Zhou, Athwal, and Low to offer tailored coupons to consumers. Ex.1003 ¶61. Accordingly, the combination of Zhou, Athwal, Low, and Arora represents applying known techniques to a known device ready for improvement to yield predictable results. Ex.1003 ¶61.

## **6. Claim 9**

***[9] The method of claim 1, further comprising: in addition to exchanging the information, receiving, via the one or more radio transceivers, a coupon that is targeted to the user of the mobile device based on the transaction.***

Zhou in combination with Arora renders obvious this limitation. Ex.1003 ¶147. Arora discloses that a mobile device may receive information including coupons tailored to the mobile device's operator based on the details of a transaction (*i.e., receiving...a coupon that is targeted to the user of the mobile device based on the transaction*). Ex.1003 ¶148. Arora teaches "[a]dditional, optional,

communication from the vending company to the customer is shown in the box 51. Here, a coupon for a product is offered.” Ex.1007, 14:5-8, Fig.3 (excerpted below).



**Ex.1007, Fig.3 (annotated).**

Arora discloses monitoring a consumer’s “preferences and purchasing history, including products and typical purchase times,” which “may be used to make recommendations or to prioritize recommendations.” Ex.1007, 4:43-44, 7:33-37. Because the coupon is based on the products offered by the nearby vending machine,

the coupon is targeted to the user based on the transaction. Ex.1003 ¶148. A POSITA would have understood, or it would have been obvious, that transmitting coupons to a consumer's device based upon the consumer's transaction history and the products available constitutes a mobile device *receiving, via the one or more radio transceivers, a coupon that is targeted to the user of the mobile device based on the transaction.* Ex.1003 ¶149.

Thus, Arora discloses or renders obvious this limitation. Ex.1003 ¶149.

**E. Ground 3: Claim 10 is obvious under 35 U.S.C. § 103 over Zhou and Athwal further in view of Low and even further in view of Casey.**

**1. Summary of Zhou**

*See* Sec. X.C.1; Ex.1003 ¶¶35-36.

**2. Summary of Athwal**

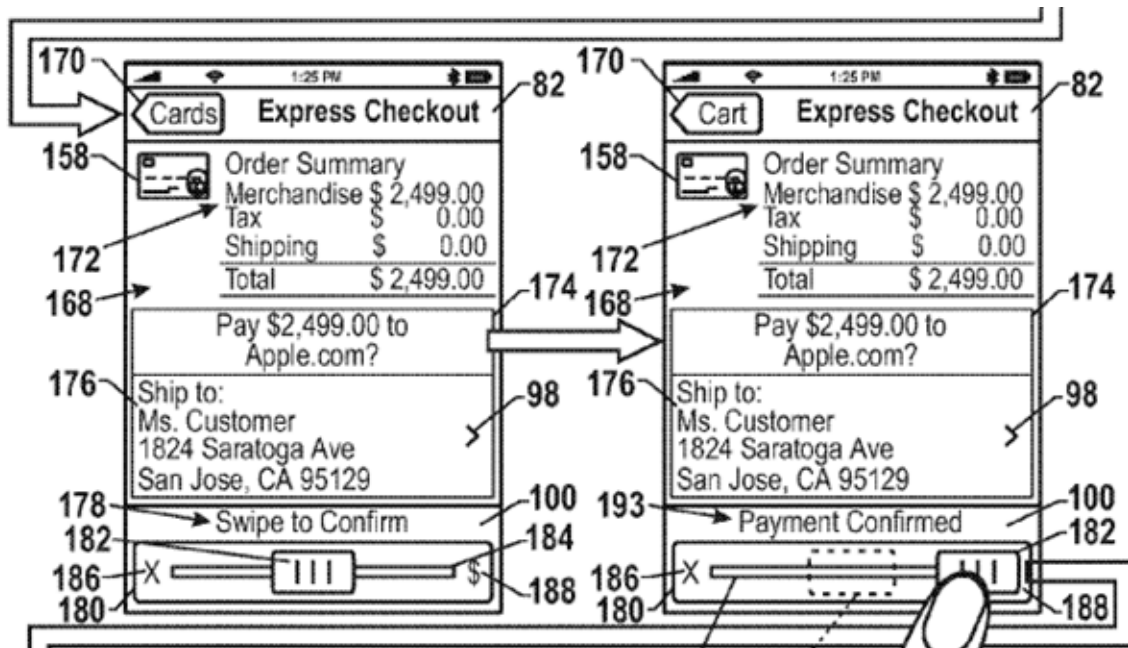
*See* Sec. X.C.2; Ex.1003 ¶¶37-38.

**3. Summary of Low**

*See* Sec. X.C.3; Ex.1003 ¶39.

**4. Summary of Casey**

Casey discloses “techniques for confirming a payment transaction on an electronic device that includes a touchscreen.” Ex.1008 at Abstract. Casey describes using a touchscreen to facilitate and confirm mobile payment. In particular Figure 5 (reproduced below) “illustrates a series of screens for confirming a payment transaction.” Ex.1008, 16:36-47, Fig. 5.



Ex.1008, Fig. 5.

## 5. Reasons to Combine Zhou, Athwal, Low, and Casey

A POSITA would have been motivated to combine the teachings of Casey with those of Zhou, Athwal, and Low. Ex.1003 ¶62. Casey relates to “[m]ethods

and devices for confirming payment transactions” (Ex.1008, Abstract) and contemplates that it may be used with a “vending machine.” Ex.1008, 16:36-40. Thus, Casey is analogous art to the ‘772 patent. Ex.1003 ¶47.

Zhou, Athwal, and Low use smart phones or other mobile computing devices to effect the methods described therein. Ex.1004, 2:15-23; Ex.1005 ¶[0014]; Ex.1006, 1:22-39. But, they do not disclose the convenient swipe-to-pay feature and confirmation display indicating a wireless link has been established that is disclosed by Casey. Ex.1003 ¶63. A POSITA would have been motivated to implement these features of Casey into the combination of Zhou, Athwal, and Low, because it would have enhanced the convenience, reliability, and user-friendliness of the interface(s). Ex.1003 ¶63.

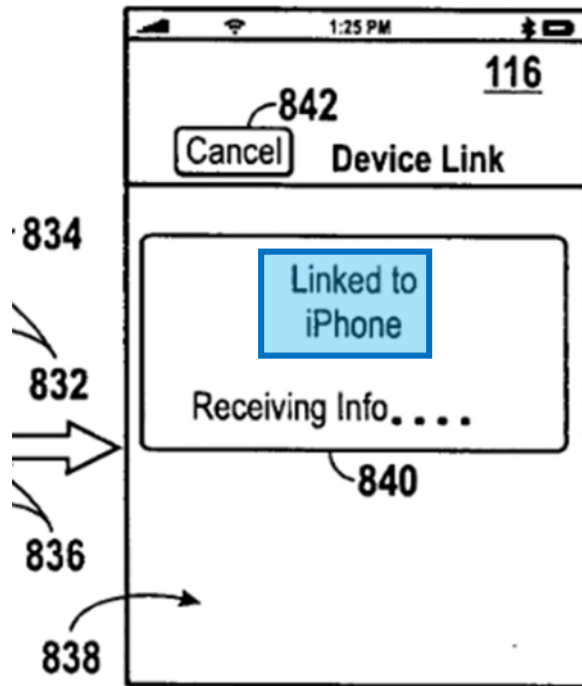
Further, a POSITA would have had a reasonable expectation of success in making this combination, because Zhou already discloses a mobile application user interface for transacting with vending machines and it would have been within the background knowledge and standard capabilities of a POSITA to expand the user interface of the combination of Zhou, Athwal, and Low to include Casey’s known swipe-to-pay functionality and confirmatory display that a wireless link has been

established. Ex.1003 ¶64. Accordingly, the combination of Zhou, Athwal, Low, and Casey represents applying known techniques to a known device ready for improvement to yield predictable results. Ex.1003 ¶64.

## 6. Claim 10

***[10] The method of claim 1, wherein the user interface of the mobile payment application, after establishing the wireless communication path, indicates that the wireless communication path has been established with the available payment accepting unit.***

Casey in combination with Zhou renders obvious this limitation. Ex.1003 ¶150. Casey incorporates by reference U.S. Patent Application Publication No. 2010/0082485 to Lin (Ex.1010), which depicts the user interface of a mobile payment application indicating a wireless link has been established (*i.e., indicating that the wireless communication path has been established*). Ex.1008, 16:36-47 (incorporating by reference U.S. Patent Application No. 12/286,445); Ex.1010 at Fig. 39 (excerpted below), ¶[0050] (“FIG. 39 is a front view of screens of the device of FIG. 30 illustrating a method of linking devices in accordance with one embodiment”); ¶[0261] (describing display window 840 “indicating the status of the device link”).



**U.S. Patent Application No. 12/286,445 at Fig. 39.**

Figure 39 of Lin depicts a merchant's mobile device displaying a notification when a wireless link has been established with a consumer's mobile device, but a POSITA would have found it obvious and would have been motivated to display a similar notification on the consumer's device, because the consumer would have wanted to know when the link is established and ready to use for a transaction for the same reasons as the merchant. Ex.1003 ¶¶151-152. A POSITA would have understood that Casey/Lin's user interface providing a notification when a user's iPhone has

linked to a vendor's device renders obvious *the user interface of the mobile payment application, after establishing the wireless communication path, indicates that the wireless communication path has been established with the available payment accepting unit.* Ex.1003 ¶¶152-153.

Thus, Casey discloses or renders obvious this limitation. Ex.1003 ¶153.

**F. Ground 4: Claim 11 is obvious under 35 U.S.C. § 103 over Zhou and Athwal further in view of Low and even further in view of Arora, Casey, and Freeny**

**1. Summary of Zhou**

See Sec. X.C.1; Ex.1003 ¶¶35-36.

**2. Summary of Athwal**

See Sec. X.C.2; Ex.1003 ¶¶37-38.

**3. Summary of Low**

See Sec. X.C.3; Ex.1003 ¶39.

**4. Summary of Arora**

See Sec. X.D.4; Ex.1003 ¶40.

**5. Summary of Casey**

See Sec. X.E.4; Ex.1003 ¶41.

## **6. Summary of Freeny**

Freeny relates to a “proximity service unit for providing at least one predetermined service for use with multiple types of wireless devices.” Ex.1009, Abstract. In Freeny’s system, “the proximity service unit 2920 communicates with the proximity authorization unit 2910 via either a wireless link 2912 or in some cases a physical link 2917.” Ex.1009, 31:43-49.

In use, the machine (which may be a vending machine) may automatically activate when the user enters a certain area. *See* Ex.1009, 32:49-55 (“[T]he vending machine system can be activated either automatically or manually by the proximity authorization unit[.]”). The transactions completed based on the mobile device’s proximity to the machine may be “automatic.” Ex.1009, 33:37-53.

Moreover, the proximity authorization unit of Freeny “can operate just like a smart card with the approved credit amount stored in the proximity authorization unit 2910 until transactions are authorized,” and “the [credit balance] can be checked at any time by the user of the proximity authorization unit[.]” Ex.1009, 37:60-63, 38:3-5.

**7. Reasons to Combine Zhou, Athwal, Low, Arora, Casey, and Freeny**

As discussed above with regard to claims [9]-[10], a POSITA would have been motivated to modify the combination of Zhou, Athwal, and Low, with the disclosure of Arora and Casey. A POSITA would have also considered and been motivated to implement the teachings of Freeny. Ex.1003 ¶65. Freeny also relates to electronic payment using a mobile device with machines that dispense goods or services. *See* Ex.1004, 2:15-18; Ex.1005 ¶[0005]; Ex.1006, 2:11-28; Ex.1009, 2:8-25. As such, Freeny is analogous art to the ‘772 patent. Ex.1003 ¶48.

A POSITA starting with Zhou would have looked to Freeny for its teaching on proximity-based transactions. Ex.1003 ¶¶48, 65-66. Zhou discusses proximity-based authentication. *See* Ex.1004, 2:31-50. Zhou also discloses that once a machine is properly authenticated, the consumer may then decide to transact with that machine. *See* Ex.1004, 7:8-10. Because Zhou already authenticates vending machines based on consumer proximity and contemplates a transaction upon the completion of the authentication process, a POSITA would have been motivated to implement Freeny’s proximity-based transactions in Zhou’s system. Ex.1003 ¶66.

Further, Freeny’s proximity-based methods were intended to improve systems to facilitate electronic payment on machines—the same type of system identified by Zhou—so a POSITA would have reasonably expected success. Ex.1003 ¶66. It would have been within the background knowledge and standard capabilities of a POSITA to expand the proximity authentication method of Zhou to include a method for effecting a post-authentication transaction. Ex.1003 ¶66. Accordingly, the combination of Zhou, Athwal, Low, Arora, Casey, and Freeny represents applying known techniques to a known device ready for improvement to yield predictable results. Ex.1003 ¶66.

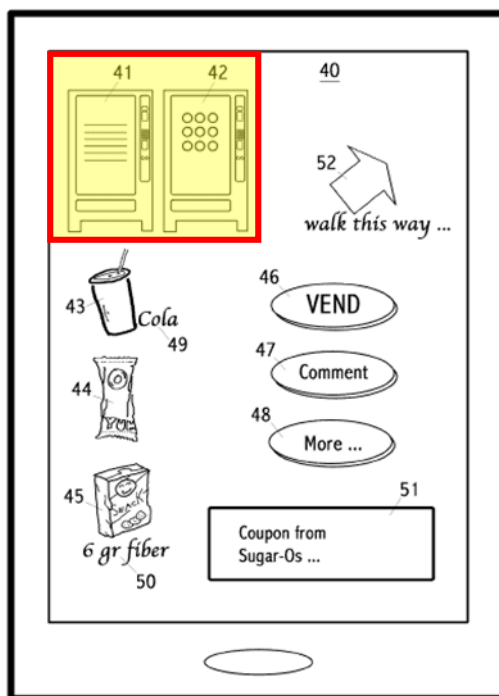
## 8. Claim 11

***[11] The method of claim 1, wherein the user interface of the mobile payment application, after establishing the wireless communication path, includes: a visual representation of the available payment accepting unit; an indication of a prepared balance; and an affordance that when slid, indicates the initiation of the transaction; wherein the affordance is slid in response to receiving a user input of a swipe on the affordance displayed on the display of the mobile device.***

The combination of Zhou and Athwal, in further view of Arora, and in even further view of Casey and Freeny, discloses or renders obvious this limitation. Ex.1003 ¶154.

**First**, Zhou discloses or renders obvious *the method of claim 1, wherein the user interface of the mobile payment application, after establishing the wireless communication path, includes: a visual representation of the available payment accepting unit* for the same reasons discussed above at [1(c)], [1(g)], and [2]. Ex.1003 ¶155; Ex.1004 7:1-14.

To the extent Zhou does not disclose or render obvious this limitation, the limitation would have been obvious over Zhou in combination with Arora. Ex.1003 ¶¶156-157. Arora discloses a “screen on a personal electronic device” (*i.e., user interface of the mobile payment application*) displaying “icons or photographs 41 and 42 [that] are representative of two actual machines co-located with a customer and owner of the personal electronic device[.]” Ex.1007, 13:47-52, Fig. 3 (reproduced below).

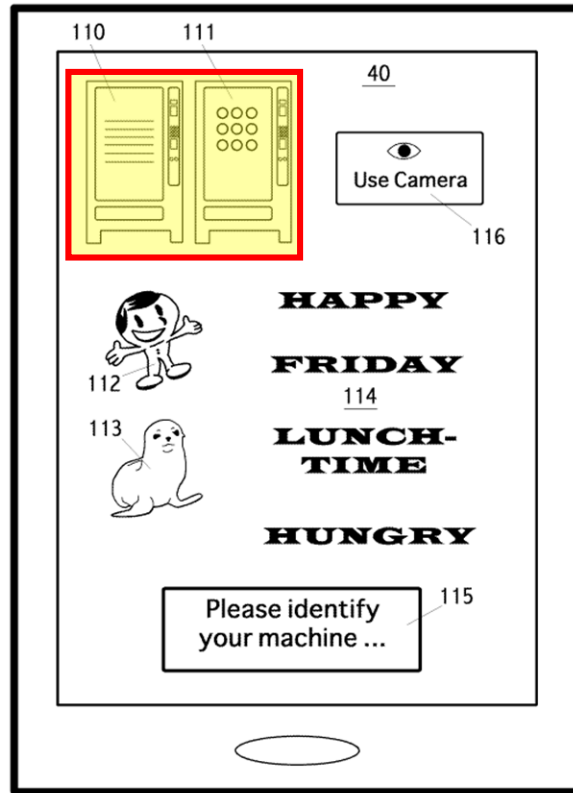


**Ex.1007, Fig. 3 (annotated).**

Further, “optional arrow, 52, helps direct the customer to a vending machine.”

Ex.1007, 13:55-56.

Arora uses a similar display to differentiate between different types of vending machines: “Two different vending machine types are shown, 110 and 111. Machine type 110 vends consumer packaged goods (CPG), while machine 111 vends beverages.” Ex.1007, 19:34-36, Fig. 7 (reproduced below).



**Ex.1007, Fig. 7 (annotated).**

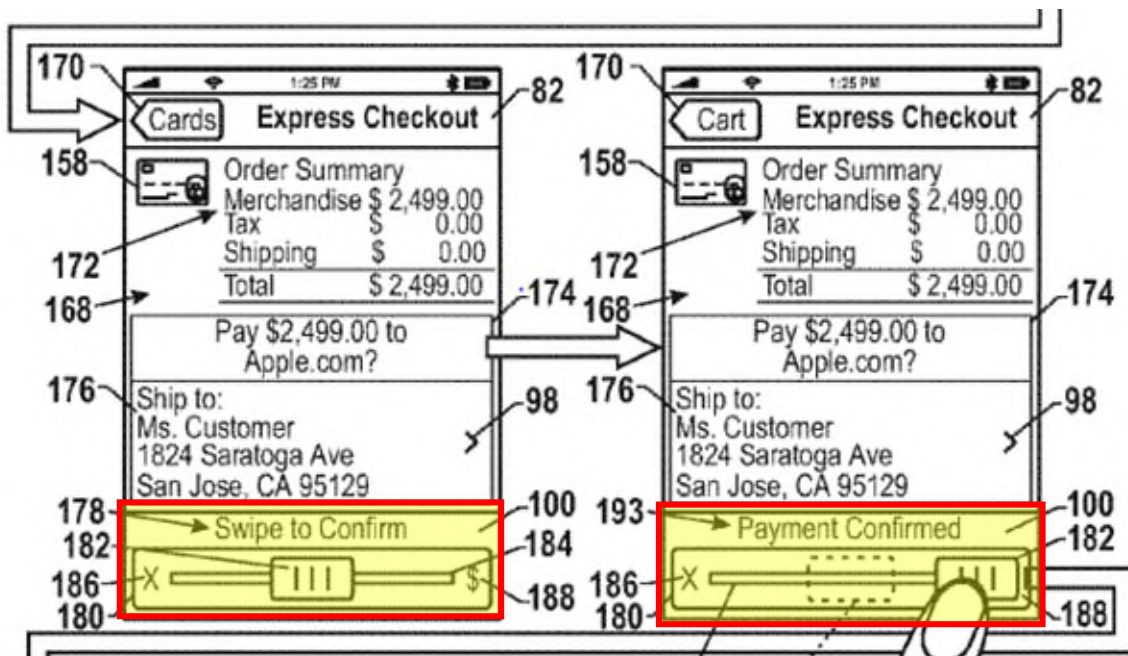
A POSITA would have understood displaying icons or photographs representing different vending machines on a consumer's mobile device to constitute a *user interface of [a] mobile payment application includ[ing]: a visual representation of the available payment accepting unit.* Ex.1003 ¶158.

**Second**, to the extent Zhou does not disclose or render obvious *wherein the user interface of the mobile payment application, after establishing the wireless*

*communication path, includes: an indication of a prepared balance*, Freeny in combination with Zhou discloses or renders obvious this limitation. Ex.1003 ¶159. Freeny discloses a proximity authorization method that includes a control function of a customer wireless device (*i.e., mobile payment application*) that allows the customer to perform a “customer bank balance request after the customer is connected to their bank.” Ex.1009, 9:32-35. The proximity authorization unit of Freeny “can operate just like a smart card with the **approved credit amount** stored in the proximity authorization unit 2910 until transactions are authorized[.]” Ex.1009, 37:60-63. “[T]he [approved credit] amount can be checked at any time by the user of the proximity authorization unit[.]” Ex.1009, 38:3-5. A POSITA would have understood displaying a customer’s bank balance or approved credit amount(s) to be *indication[s] of a prepared balance*. Ex.1003 ¶159.

**Third**, Casey discloses or renders obvious displaying *an affordance that when slid, indicates the initiation of the transaction; wherein the affordance is slid in response to receiving a user input of swipe on the affordance displayed on the display of the mobile device*. Ex.1003 ¶160. Casey describes, “a user **may use her finger 190, or another object, to move the graphical element 182 from a center**

position 192 to the confirmation position 188...the device 10 may display a message 193 indicating that the payment has been confirmed. When the graphical element 182 reaches the confirmation position 188, the device 10 may transmit payment information to confirm the payment transaction.” Ex.1008, 14:13-21 (emphasis added); Fig. 5 (reproduced below)



Ex.1008, Fig.5 (annotated).

A POSITA would have understood a graphical element that confirms a transaction when a user slides the element to a confirmation position with their finger to constitute *an affordance that when slid, indicates the initiation of the transaction,*

*wherein the affordance is slid in response to receiving a user input of swipe on the affordance displayed on the display of the mobile device.* Ex.1003 ¶¶160-161.

Thus, the combination of Zhou, Athwal, Low, Arora, Casey, and Freeny discloses or renders obvious this limitation. Ex.1003 ¶161.

## **XI. CONCLUSION**

Petitioner respectfully requests that the Challenged Claims be cancelled.

Respectfully submitted,

Dated: October 9, 2023  
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Customer No. 27683

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## **XII. MANDATORY NOTICES**

### **A. Real Party-in-Interest**

Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner certifies that it is the real party-in-interest.

### **B. Related Matters**

Pursuant to 37 C.F.R. § 42.8(b)(2), to the best knowledge of Petitioner, the ‘772 patent is or was involved in the following cases:

| <b>Case Heading</b>                             | <b>Number</b> | <b>Venue</b> | <b>Filed</b>  |
|-------------------------------------------------|---------------|--------------|---------------|
| <i>PayRange, Inc. v. CSC ServiceWorks, Inc.</i> | 1:23-cv-00278 | D. Del.      | Mar. 15, 2023 |

In addition, the ‘772 patent is subject to a pending post-grant review petition in PGR2023-00042.

### **C. Lead and Back-up Counsel and Service Information**

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Please address all correspondence in this proceeding to lead and back-up counsel. Petitioner consents to service in this proceeding by email at the addresses above.

**CERTIFICATE OF WORD COUNT**

Pursuant to 37 C.F.R. § 42.24(d), Petitioner hereby certifies, in accordance with and reliance on the word count provided by the word-processing system used to prepare this Petition, that the number of words in this paper is 13,991. Pursuant to 37 C.F.R. § 42.24(d), this word count excludes the table of contents, table of authorities, mandatory notices under § 42.8, certificate of service, certificate of word count, appendix of exhibits, and any claim listing.

Dated: October 9, 2023

/Jason R. Mudd/  
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**CERTIFICATE OF SERVICE**

The undersigned certifies that, in accordance with 37 C.F.R. § 42.6(e) and 37 C.F.R. § 42.105, service was made on Patent Owner as detailed below.

|                          |                                                                                                                                                             |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Date of service</i>   | October 9, 2023                                                                                                                                             |
| <i>Manner of service</i> | FEDERAL EXPRESS                                                                                                                                             |
| <i>Documents served</i>  | Petition for <i>Inter Partes</i> Review Under 35 U.S.C. § 312 and 37 C.F.R. § 42.104 of U.S. 11,481,772; Petitioner's Exhibit List; and Exhibits 1001-1011. |
| <i>Persons served</i>    | Morgan, Lewis & Bockius LLP<br>1400 Page Mill Road<br>Palo Alto, CA 94304                                                                                   |

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