

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Petitioner,

v.

DH INTERNATIONAL LTD.,

Patent Owner.

PTAB Case No. IPR2025-00173

Patent No. 7,628,333

**DECLARATION OF DR. SAFWAN ZAHEER
IN SUPPORT OF THE PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 7,628,333**

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TABLE OF DECLARATION EXHIBITS AND APPENDIX

Exhibit	Title
1001	U.S. Patent No. 7,628,333 to Gaillard <i>et al.</i> (“333 Patent”)
1002	Prosecution History of U.S. Application No. 10/552,912 (’333 Prosecution History)
1003	Declaration of Michael Buehrer (“ <i>Buehrer</i> ”)
1004	U.S. Patent Publication No. 2002/0180584 to <i>McGregor et al.</i> (“ <i>McGregor</i> ”)
1005	U.S. Patent Publication No. 2003/0226041 to <i>Palmer et al.</i> (“ <i>Palmer</i> ”)
1006	U.S. Patent No. 6,078,791 to <i>Tuttle et al.</i> (“ <i>Tuttle</i> ”)
1007	<i>Intentionally left blank</i>
1008	U.S. Patent Publication No. 2002/0116330 to Hed <i>et al.</i> (“ <i>Hed</i> ”)
1009	U.S. Patent No. 5,690,773 to Fidalgo <i>et al.</i> (“ <i>Fidalgo</i> ”)
1010	U.S. Patent No. 5,767,503 to Gloton (“ <i>Gloton</i> ”)
1011	U.S. Patent No. 6,097,292 to Kelly <i>et al.</i> (“ <i>Kelly</i> ”)
1012	U.S Patent No. 6,375,082 to Kobayashi <i>et al.</i> (“ <i>Kobayaski</i> ”)
1013	U.S. Patent No. 5,748,737 to Daggar (“ <i>Daggar</i> ”)
1014	U.S. Patent No. 6,704,608 to Azuma (“ <i>Azuma</i> ”)
1015	U.S. Patent No. 5,280,527 to Gullman <i>et al.</i> (“ <i>Gullman</i> ”)
1016	U.S. Patent No. 6,631,849 to Blossom (“ <i>Blossom</i> ”)

DECLARATION OF SAFWAN ZAHEER
IN OPPOSITION TO PETITION FOR
IPR2025-00173, U.S. PATENT NO. 7,628,333

1017	U.S. Patent Publication No. 2002/0095587 to Doyle <i>et al.</i> (“ <i>Doyle</i> ”)
1018	U.S. Patent Publication No. 2002/0038369 to Sung <i>et al.</i> (“ <i>Sung</i> ”)
2001	Declaration of Safwan Zaheer
2002	Litigation Tolling Agreement

Appendix Curriculum Vitae of Safwan Zaheer

I, Mr. Safwan Zaheer, declare as follows:

I. INTRODUCTION

1. I'm currently consulting and, most recently, at autoMHatic Financial, a private equity-backed specialty lender focused on manufactured home loans. I have over twelve years of experience with the digital transformation of financial companies, such as FinTech and product development. As Chief Product Officer, I lead Product, Operations, and Technology responsible to accelerate the lending business, build operating efficiency, and increase competitive advantage through products that expand market share and increase company valuation. I have previously served as EVP & GM at LendingPoint where I was tapped to scale POS Lending and Payments business across Dental, Elective Medical, and Home Improvement verticals, which I grew from \$90M to over \$350M in funded volume per year during my tenure. Previously as Head of Products at BM Technologies (formerly BankMobile), I launched and scaled T-Mobile MONEY, growing the digital banking platform to 500K consumers. In my former role at autoMHatic Financial, I drove business transformation in the specialty lending space, focusing on digital solutions and growth.

2. My earlier career included key leadership positions at KPMG, Accenture, and Barclays, where I spearheaded major digital banking and payments

initiatives. At KPMG, I provided strategic vision for KPMG's US FinTech service line and performed effectively as an active member of the Global FinTech leadership team. I served many clients, including Global Banks, and was involved in a variety of different strategic initiatives ranging from Digital Transformation to launching innovative Payments, Lending and FinTech solutions. Throughout my career, I have excelled in building high-performance teams, forging strategic partnerships, and delivering transformative solutions across the financial services industry. I have also been named as an inventor in three patent applications. Two in the field of mobile payments wallet systems, and one in CDMA wireless systems.

3. I have been hired by DH International Ltd. ("DH International" or "Patent Owner") to investigate and opine on certain issues relating to U.S. Patent No. 7,628,333 to Gaillard *et al.* (Ex. 1001, the "'333 Patent").

4. I understand that the '333 Patent was assigned to DH International.

5. I am over 21 years of age. If I am called upon to do so, I would be competent to testify as the matters set forth in my declaration.

6. In this declaration, I discuss the technology related to the '333 Patent, including an overview of that technology as it was known at the time of the earliest priority date claimed by the '333 Patent, which is April 14, 2003. This overview of

the technology provides some of the bases for my opinions with respect to the '333 Patent.

7. This declaration is based on the information currently available to me. To the extent that additional information becomes available, I reserve the right to continue my investigation and study.

8. In forming my opinions, I have relied on information and evidence identified in this declaration, including without limitation the '333 Patent (Ex. 1001), the prosecution history of the '333 Patent (Exh. 1002), and prior art including:

9. U.S. Patent Publication No. 2002/0180584, "Bio-metric smart card, bio-metric smart card reader, and method of use" (Exh. 1004) ("*McGregor*")

10. U.S. Patent Publication No. 2003/0226041, "Apparatus and method for effecting secure physical and commercial transactions in a contactless manner using biometric identity validation" (Exh. 1005) ("*Palmer*")

11. U.S. Patent No. 6,078,791, "Radio Frequency Identification transceiver and antenna" (Exh. 1006) ("*Tuttle*").

II. SUMMARY OF OPINIONS

12. The challenged claims 1-13 ("Challenged Claims") of the '333 Patent generally describe an approach for "a portable electronic device capable of alternate

data conveyance operations responsive to an invariable activation command.”

Exh. 1001, 1:9-11.

13. It is my opinion that each of the Challenged Claims of the '333 Patent can be distinguished from the combinations of the references as asserted in grounds 1 and 2 of the Petition and, therefore, are not obvious under 35 U.S.C. § 103(a).

III. QUALIFICATIONS AND EXPERIENCE

A. Education and Work Experience

14. I have a Masters of Science in Engineering and Management from Massachusetts Institute of Technology (MIT), a Master of Science and a Bachelor of Science in Electrical Engineering from Texas A &M. Additional details regarding my education, work experience, and technical consulting experience are set forth in my CV, attached as Exhibit A.

15. I have extensive experience with financial services and payment systems. I developed and designed payments wallet for Barclays U.S. from 2012 to 2015 as the Director of Digital Payment Products. I have also worked for Accenture and then KPMG between 2015-2019. I was responsible for product development services for financial services, technology, and retail clients, in addition to KPMG's FinTech service line as a member of KPMG's Global FinTech Leadership team. After KPMG, I was a Managing Director for hundredX, LLC from 2019-2023,

where I was responsible for providing professional services to a number of clients including Financial Services and Payments companies.

16. From January 2024 to February 2024, I worked at autoMHatic Financial as its Chief Operating Officer and Chief Product Officer on digital transformation of the business, along with implementing artificial intelligence and digital automation solutions across operations and products.

17. I am a co-inventor of U.S. patent application No. 13/647,997, “Mobile Wallet System,” filed on October 9, 2012; U.S. patent application No. 13/725,061, “Mobile Commerce Business System and Method for Sharing Merchant Content and Creating a Customer Index,” filed on December 21, 2012; and U.S. patent 7,200,115, “Method of Managing Non-acknowledgement Responses,” filed on May 17, 2002.

18. Because of my background, training, and experience, I am qualified as an expert to explain the background of the technology encompassed by the '333 Patent as well as the meaning that the claim terms of the '333 Patent discussed herein would have had to a person of ordinary skill in the art in 2003 reading the claims in light of the specification and file history.

19. I have reviewed U.S. Patent No. 7,628,333 and its file history. I have also reviewed the documents cited in the Petition.

B. Compensation

20. DH International is compensating me for services I am providing in connection with this Petition for *inter partes* review of the '333 Patent at a rate of \$675.00 per hour. The compensation is not contingent upon my performance, the outcome of the *inter partes* review or any other proceeding, or any issues involved in or related to the *inter partes* review.

C. Documents and Other Materials Relied Upon

21. The documents on which I rely for the opinions expressed in this declaration are documents and materials identified in this declaration, including the '333 Patent, the prosecution history of the '333 Patent, the prior art references and information discussed in this declaration, and any other references identified explicitly in this declaration or the Petition (Paper 1), in their entirety, even if only portions of these documents are discussed here in an exemplary fashion.

IV. STATEMENT OF LEGAL PRINCIPLES

22. Patent Owner's counsel has advised me of the following legal principles:

A. Claim Construction

23. Patent Owner's counsel has advised me that the words of a claim are generally given their ordinary and customary meaning in view of the specification,

as it would have been understood by a person of ordinary skill in the art at the time of the invention.

B. Obviousness

24. Patent Owner's counsel has also advised me that obviousness under pre-AIA 35 U.S.C. § 103, effective before March 16, 2013, is a basis for invalidity. I understand that where a prior art reference discloses less than all of the limitations of a given patent claim, that patent claim is invalid if the differences between the claimed subject matter and the prior art reference are such that the claimed subject matter as a whole would have been obvious at the time the invention was made to one of skill in the art. Obviousness can be based on a single prior art reference or a combination of references that disclose all limitations of the claimed invention.

25. I understand that obviousness is not driven by a rigid formula but is a flexible inquiry that reflects the fact that one of skill in the art exercising ordinary creativity may find a variety of reasons to combine the teachings of different references. I understand that a non-exclusive list of possible factors that may give one of skill in the art a reason to combine references includes any of the following: combining elements according to known methods to yield predictable results; simple substitution of known elements to obtain predictable results; use of known techniques to improve similar devices in the same way; applying known techniques

to known devices ready for improvement to yield predictable results; choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; known work in one field of endeavor prompting variations of it for use in the same field; and teaching in the prior art that would have led one of ordinary skill to combine prior art reference teachings to arrive at the claimed invention.

C. Dependent Claims

26. Patent Owner's counsel has further advised me that dependent claims include all the elements from the claims on which they depend.

V. LEVEL OF ORDINARY SKILL IN THE ART

27. I understand from Patent Owner's counsel that the claims and specification of a patent must be read and construed through the eyes of one of skill in the art at the time of the priority date of the claims. I have also been advised that to determine the appropriate level of skill, the following factors may be considered: (a) the types of problems encountered by those working in the field and prior art solutions to it; (b) the sophistication of the technology in question, and the rapidity with which innovations occur in the field; (c) the educational level of active workers in the field; and (d) the educational level of the inventor.

28. The Abstract of the '333 Patent acknowledges that the alleged invention is “a portable electronic device capable of alternate data conveyance operations responsive to an invariable activation command.” Ex. 1001, 1:9-11.

29. Therefore, in my opinion, a person of ordinary skill in the art would have some familiarity with underlying technologies involving devices that utilize a transmitter and receiver for transmitting and receiving digital data along with processing that data with a processor. For example, a person of ordinary skill in the art would need to know how to utilize electrical components of the system but would not necessarily need to be an expert on the design of processor-controlled devices. A person of ordinary skill in the art would need to know how configurations for transmitting and receiving information between a portable device and terminal are created and implemented and how to access data on the portable device. The '333 Patent does not mention and is not dependent upon wireless cellular communication, such as defined by 2G, 3G, 4G (LTE), and 5G cellular standards. Rather wireless communication between devices is disclosed and not simply wireless communication devices. This view is also supported by the *McGregor* and *Palmer* reference relied upon by Petitioner, as those devices are not wireless communication devices, rather they are devices using wireless communication.

30. Based on my education and experience as both an engineer and practitioner, I am familiar with the level of knowledge that a person of ordinary skill would have possessed during the relevant time. In my opinion, one of skill in the art for the claimed technology would have a bachelor's degree in electrical engineering or a similar discipline and at least two years of relevant industry or research experience in wireless communication between devices. This definition is approximate, and more education may substitute for industry experience or vice versa.

VI. BACKGROUND OF THE TECHNOLOGY AND OF THE '333 PATENT

A. Technology at the Time of the '333 Patent

31. I have been asked to provide some context to the technology related to the '333 Patent and the prior art. I understand that the relevant time frame is April 14, 2003, and below, I provide background on how the various technologies were developed and operating up to that time frame.

32. The use of devices such as electronic cards for security was known at the time of the '333 Patent. What was not known, however, was that both the validation of a user and "an activation cue" were used to enable switching with a switching element between data on the electronic card.

33. During the prosecution of the '333 Patent, the patent applicant stated that:

Thus, the contact switch 24 of the card of document D1 has the effect of only activating the read mode portion of the card, and has a quite different function than the control device claimed in the present patent application, which must necessarily be triggered to initiate any data flow towards or out of the electronic circuit.

Exh. 1002, p.218-219 (*emphasis added*). The stored data is not permitted to flow out of the electronic circuit without being triggered by both a user validation (e.g., “invariable activation command”) and an activation cue to initiate a data flow.

34. Prior to the reception of an “invariable activation command” (such as validation) and an “activation cue,” the portable electronic device maintains “a first set of data is accessible in an inactive state.” Exh. 1001, 6:26. Upon receiving an “invariable activation command” (such as validation) and the “activation cue” by the control device, the data accessible is switched to a second set of data [by the switching element].” *See* Exh. 1001, 7:4-7.

35. The “activation cue” is a predetermined indication for switching what data will be accessed. It is an indicator, “for example, a predetermined bit sequence.” *Id.*, 6:1-3.

B. Challenged Claims

36. Petitioner challenged claims 1-13 of the '333 Patent. *See* Paper 1 ("Pet."), p.15. Claims 1, 10, and 11 are independent. Claims 2-9 and 12-13 depend from claims 1 and 11, respectively. Exh. 1001, 9:61-13:27.

C. Priority Date

37. The '333 Patent was granted based on PCT application No. PCT/IB03/01523, filed on April 14, 2003. Exh. 1001, cover. Counsel has informed me that the prior art references cited in Grounds 1-2 in the Petition are prior art to the '333 Patent based on the April 14, 2003 priority date. If evidence in this proceeding reveals an earlier invention date, I reserve the right to offer additional opinions and testimony to respond to such evidence.

D. Identification of the Prior Art and Summary of Opinions

38. As explained below, it is my opinion that the following prior art references in the combinations described by Petitioner, fail to disclose all technical features of the Challenged Claims of the '333 Patent, thus the Petition fails to render any Challenged Claims unpatentable:

- Exh. 1004 *McGregor*
- Exh. 1005 *Palmer*
- Exh. 1006 *Tuttle*

1. McGregor

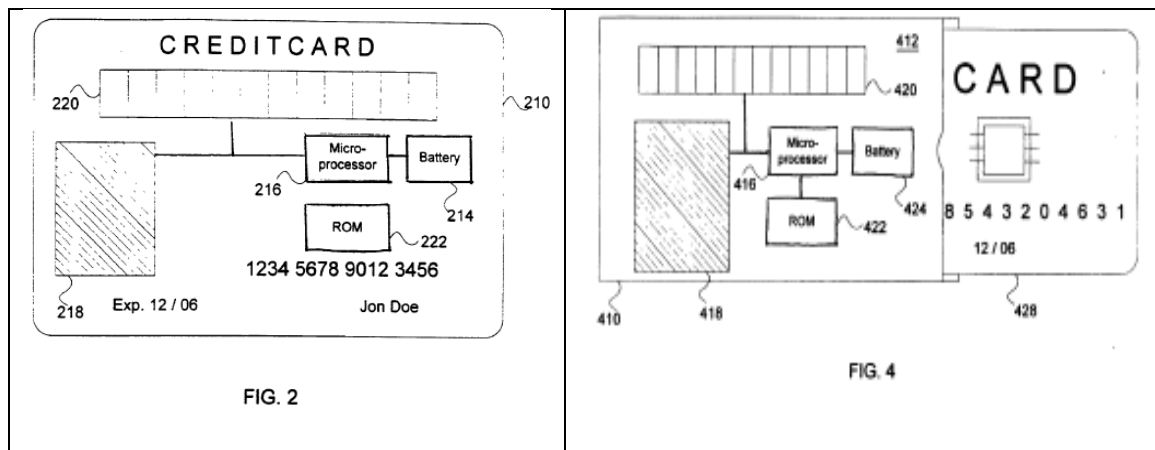
39. *McGregor* U.S. Publication No. 2002/0180584A1 (“*McGregor*”) (Exh. 1004) was filed on December 19, 2001.

40. *McGregor* describes a “system for increasing transaction security across existing infrastructure.” Exh. 1004, Abstract. The approach for increasing security is designed to be “compatible with the existing infrastructure” and can be used securely for remote, telephonic, or Internet-based transactions. *See id.*, [0011].

41. The first device is “a bio-metric smart card 210 [FIG. 2] that preferably has substantially the same shape and form factor as available plastic credit and debit cards such as card 110 of FIG. 1.” *Id.*, [0037]. The “ROM 222, preferable an EEPROM, stores fingerprint or other bio-metric data, encryption keys, and a transaction counter.” *Id.* No wireless communication or components are described as part of the smart card 210. *See id.*

42. The second device of *McGregor* is a card reader 410. *See* Exh. 1004, [0043] and Fig. 4. “The card reader 410 may be formed as a “wallet” such that a smart card can be inserted into the reader as shown in FIG. 4.” *Id.* “The [card reader 410] wallet may include an IR or wireless transmitter to transmit the security code to a transaction network automatically.” *Id.*, [0044].

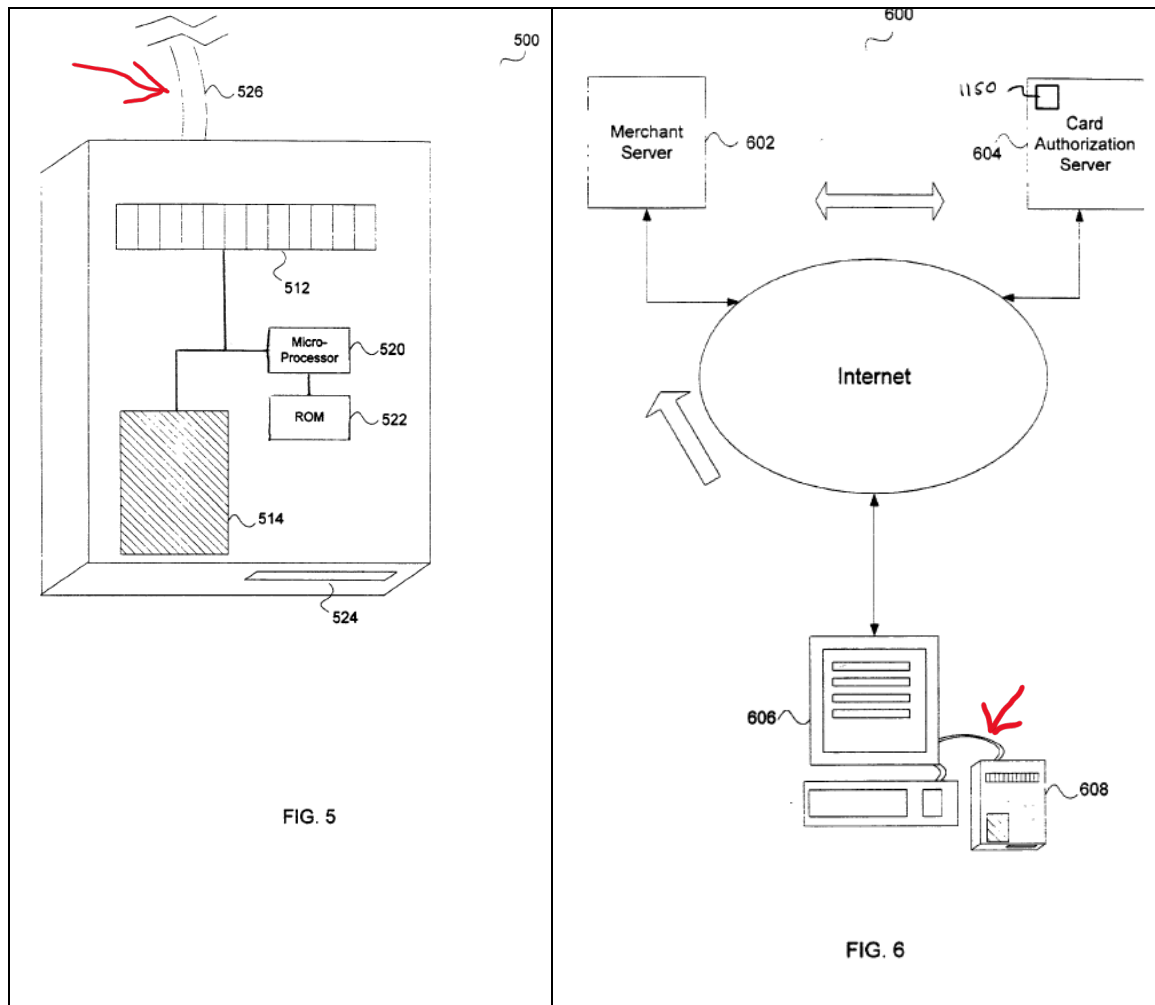
43. The card reader (wallet 412) as described in *McGregor* does not have the personal data contained in a credit card 210 and needs that personal data to be functional. The different devices shown in Figs. 2 and 4 of *McGregor* are illustrated below:



Exh. 1004, Figs. 2 & 4. In another embodiment of the card reader, *McGregor* explains:

As shown in FIG. 5, the present invention may be configured in an alternative embodiment as a traditional credit card reader 500 for attachment to a computer or point-of-sale (POS) device, Such as an electronic cash register. The card reader includes a microprocessor 510, a display 512, and a bio-metric sensor 514. It also further includes an electrical connection 516 for transferring the security code directly from the reader 500 to the POS device or computer.

Exh. 1004, [0045]. The connected card reader embodiment (Fig. 5) and transaction network with the card reader (Fig. 6) are depicted below:



Exh. 1004, Fig. 5 & 6 (*emphasis of red arrow added*). This identifies the interface location used by Petition between the *McGregor's* card readers (e.g., wallet and wired) and the point-of-sale system. This is not an interface located between the smart card and a point-of-sale device with which the smart card communicates.

44. The wallet embodiment of Fig. 4 uses a wireless link instead of the wired link 526¹ between card reader and POS terminal, but it reinforces my view that the wireless link and wired link are both connections to the POS terminal of the transaction network.

2. *Palmer*

45. *Palmer* U.S. Publication 2003/0226041 (*Palmer*) (Exh. 1005) was filed on March 27, 2003.

46. *Palmer* discloses an approach for validating a user's identity using biometric data. The device may be an electronic credit card. Exh. 1007, 1:18-39, 4:12-63, 11:45-12:28, Fig. 4. The device includes a biometric sensor "designed to sense some physical attribute of a person" such as a fingerprint, a voice print, or a retinal print. Exh. 1007, 2:62-3:8. Further, this approach is able to effect "secure

¹ Reference number 526 in Fig. 5 of Exhibit 1004 is not used in the specification; instead, reference number 516 in paragraph [0045] is used. Upon reviewing a copy of the issued patent (U.S. 7,337,326), a correction to the specification was made and 516 in the specification was replaced with 526.

physical and commercial transactions in a contactless manner using biometric identity validation.” Exh. 1005, [0021].

3. Tuttle

47. U.S. Patent No. 6,078,791 (“*Tuttle*”) (Exh. 1006) was filed on August 6, 1997.

48. *Tuttle* discloses an approach for radio frequency identification (RFID) transceiver and antenna. “The general purpose and principal object of the present invention is to provide a novel alternative approach to all of ... prior art RFID, OCR, and bar code type location tracking and data storage systems. This new approach as described and claimed ... represents a fundamental breakthrough in the field of article transport control in a wide variety of fields, of which the fields of airline baggage transport, delivery of parcels and mail, and inventory control are only three examples.” Exh. 1006, 2:20-28.

49. One aspect of the RFID approach of *Tuttle* is “... an RFID device [that] has two modes of operation are provided with a wake-up circuit. The wake-up circuit senses in-band energy and switches from a sleep mode to an operating (waked) mode. The sleep mode being useful during transit and storage of RFID device to conserve battery power.” Exh. 1006, 4:26-31.

50. *Tuttle* also teaches “... the frequencies of radio communication, modulation scheme, geometry of the antenna, capacity of the battery, and electrical properties of the enclosure cooperate for omnidirectional communication between an enclosed transceiver of the present invention and a distant interrogator. No manual manipulation of the interrogator or transceiver is required for area-wide communication such as confirming the contents of a delivery vehicle or verifying inventory in place.” Exh. 1006, 4:52-60.

VII. CLAIM CONSTRUCTION

51. I understand from Patent Owner’s counsel that patent claims generally are given their plain and ordinary meaning to one of skill in the art as of the priority date of the analyzed claim. I also understand from Patent Owner’s counsel that the intrinsic record of the Patent itself may help define that ordinary meaning. However, the intrinsic record may also reflect the patentee’s clear desire to be his own lexicographer and depart from the ordinary meaning of a claim term.

52. To the extent that a claim term of the ’333 Patent is used in the same way as the same term in the relevant standards, technical specifications, and/or prior art, it is my position that such claim term should be given its plain and ordinary meaning to one of skill in the art, which is reflected in the relevant standards, technical specifications, and/or prior art.

53. The claim term “activation cue” means a predetermined indicator, such as “a predetermined bit sequence” (Exh. 1001, 6:1-3), that is “recognized by the electronic device as an activation cue” *Id.* I am not saying the “activation cue” has to be a predetermined bit sequence; rather, the “activation cue” has to be designed or created for use in a device to cause activation. Not simply a message that is being sent over a communication path.

54. I applied a plain and ordinary meaning in my analysis of these claim terms. I also reserve the right to offer additional opinions on claim construction in response to arguments that may be made by Petitioner.

VIII. UNPATENTABILITY OF THE '333 PATENT'S CHALLENGED CLAIMS

55. In my Declaration, I analyze the following bases for invalidity:

Grounds	Basis	Challenged Claims
1.	35 U.S.C. § 103 <i>McGregor</i> and <i>Palmer</i>	1, 2, and 4-10
2.	35 U.S.C. § 103 <i>McGregor</i> , <i>Palmer</i> , and <i>Tuttle</i>	3 and 11-13

A. GROUND 1: Obviousness Based on *McGregor* and *Palmer*.

56. In my opinion, claims 1, 2, and 4-10 are not obvious based on *McGregor* (Exh. 1004) in view of *Palmer* (Exh. 1005) given my understanding of what meets the criteria for obviousness and based on the combination of the

McGregor and *Palmer* references. *See supra* ¶¶24-25. *McGregor* and *Palmer*, when combined, fail to disclose all limitations of claims 1, 2, and 4-10 and thus do not render the challenged claims as obvious. Furthermore, a POSITA would not have been motivated to use *McGregor*'s smart card reader (wallet 412), which enables smart cards to be compatible with the existing transaction infrastructure, in combination with *Palmer*'s secure transactions in a contactless manner, using validation that is not compatible with the existing infrastructure at the time of the '333 patent's priority date. When combined, the resulting device using *Palmer*'s secure transactions would fail to achieve the primary goal of the *McGregor* patent, namely, compatibility with existing transaction infrastructure. Also, the asserted modification in the Petition of the card reader (wallet) of *McGregor* occurs on a wireless link between the card reader and the transaction network point of sale (POS) when a smart card has been inserted into the card reader, **not the link between the smart card and the transaction network, as claimed in the '333 Patent.**

1. No Motivation to Combine

57. The smart card 10 of the '333 Patent claims wireless communication between the smart card 10 and the data exchange device (smart card reader) 9. The wallet card reader of *McGregor*, when combined with *Palmer* as asserted in the Petition, describes a wireless link between a card reader and a terminal. *See supra*

¶¶43-44. The Petition in Grounds 1 and 2, *McGregor* and *Palmer*, are directed towards a different communication link than the communication link taught and claimed in the '333 Patent.

58. *McGregor*'s approach has "a user bio-metric sensor device integrated into a credit or debit 'smart card.'" Exh. 1004, ¶0012. That device is part of "a system for increasing transaction security **across existing credit or debit card processing infrastructure.**" *Id.* (*emphasis added*). Petitioner's expert acknowledges that *Palmer* is not attempting to maintain compatibility when addressing "the problem of conventional credit cards using a magnetic strip that requires the use of suitable transaction interface machine," Petitioner's expert acknowledges. *See* Exh. 1003, ¶76 (*emphasis added*).

59. *McGregor* acknowledges it is attempting to solve "a need in the art for a new fraud-preventive system and method, which is compatible with the existing infrastructure, and can be used securely for remote, telephonic, or Internet-based transactions." *Id.*, ¶0011. The smart card of *McGregor* does not have a transmitter/receiver; instead, *McGregor* uses a separate card reader (also called a wallet 412) device that has wireless transmitter. *See* ¶0043-0044, 0047, 0068-0069.

60. This is opposed to *Palmer*'s approach of RF powering and authentication (*see* Exh. 1005, FIG. 3), which is incompatible with existing

infrastructure because, at the time of the invention, the existing infrastructure, i.e., POS systems, did not have any wireless capability. The *Palmer* “device 100 is illustrated in an exemplary environment 200 that enables contactless interaction with a reader/writer device 202. To achieve this contactless interaction, the device 100 is shown with the antenna 104 In operation, a two-way communication link 208 may be established between the reader/writer device 202 and the device 100.” *Id.* ¶0027.

61. There is no motivation to modify the “credit card 210” of *McGregor* with the transmitter/receiver of *Palmer*, as the wireless capability of *McGregor* is located in the wallet, not the credit card 210. A card with wireless capability would contradict the principles of compatibility with traditional transaction infrastructure as required in *McGregor*. The combination in the Petition is to *McGregor*’s card reader (wallet) and not a credit card (smart card) and *Palmer* teachings. A POSITA would recognize that having communication capabilities in both the wallet and smart card of *McGregor* would also be redundant, resulting in increased costs and adversely impacting power consumption due to powering multiple transmitters.

62. Further, the Petitioner’s modification of the card reader (wallet) of *McGregor*, uses a transmitter in the card reader device (wallet) and adds to the card reader device an additional transmitter from *Palmer*. Both transmitters are then

used to communicate wirelessly, between the card reader (wallet) and the transactional network. The '333 Patent is not directed towards card readers, and there is no motivation for a POSITA to combine the teachings of card readers of *McGregor* and *Palmer* when attempting to teach a smart card type device of the '333 Patent.

63. Petitioner's Expert asserts that "*McGregor* teaches a bio-metric smart card device that, upon authenticating a user's biometric data, generates and displays a security code that is used by the transaction network to approve the transaction. *McGregor* expressly teaches that the device can also be equipped with a wireless transceiver for automatically communicating the security code to the transaction network." Exh. 1003, ¶77. This is not true. The smart card device is never described in *McGregor* as having wireless communication ability.

64. A separate card reader (wallet) device is described as having a transmitter. *Supra* ¶61. Dr. Buehrer fails to be consistent in his declaration as to what device of *McGregor* is modified by the teachings of *Palmer*. The Petition and declaration (Exh. 1003) describe the device of *McGregor* as (1) a smart card device, (Exh. 1004, 210 Fig. 2); (2) a smart card device (Exh. 1004, 428 Fig. 4) and reader (wallet) device (Exh. 1004, 412 Fig. 4); and (3) a reader device (Exh. 1004, 412 Fig. 4). Furthermore, if the biometric smart card is used with a "wallet" card reader of

McGregor, it would make no sense to have the biometric reader on a smart card as it would be inaccessible when the smart card is inserted in the card reader.

65. In the Petition's overview of *McGregor*, Petitioner makes a flawed comparison of "[b]oth *McGregor* and the '333 Patent are directed to portable electronic devices. Compare *McGregor*, [005], [0043] (disclosing a bio-metric smart card reader to enhance credit card security), with '333 Patent, Abstract (describing a portable electronic device." Pet. 8. Portable electronic devices are too broad of a category for comparison as a smart card is not a smart card reader. The devices operate differently as a smart card communicates in the '333 Patent with a reader wirelessly (*see* '333 Patent, 10 Fig. 3) and a card reader of *McGregor* communicates with a transaction device or network (*see* Fig. 5 & 6 *McGregor*) associated with a point-of-sale terminal. The physical relationship between a smart card and smart card reader is demonstrated in Fig. 4 of *McGregor* with a card reader (wallet 412) and smart card 428 inserted into the wallet 412:

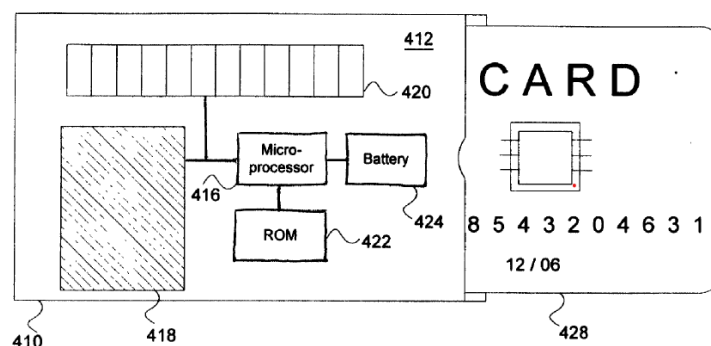


FIG. 4

66. The card reader (wallet 412) device of *McGregor* has a microprocessor. Petitioner asserts that the Smart card chip 408 of *Palmer* is a second controller. *See* Pet. 9 (Footnote 3). A POSITA would understand that microprocessors and controllers are the more expensive chips used in a device. As such, there would not be a motivation to add an additional controller smart card chip of *Palmer* to the wallet 412 of *McGregor*, when *McGregor*'s microprocessor would have the majority of the functionality provided by *Palmer*. I also note that the smart card chip of *Palmer* seems to be cited for teaching both a controller (*id.*) and a transceiver (Pet. 55 (citing Dec., ¶163)).

67. However, no motivation to combine exists when the combination of *McGregor* and *Palmer* fail to disclose the elements of the '333 Patent and results in a wireless link from a modified card reader where **no wireless link between the smart card 410 and the wallet 412 exists**. It is the wireless link between the smart card and the data exchange device that is claimed in the claims of the '333 Patent. Additionally, a POSITA would not make such a combination of *McGregor* and *Palmer*, as adding a second controller would increase the cost at the time of the '333 Patent, require additional battery power, and increase the size of the wallet. Furthermore, the proposed changes resulting from combining the references would

not be compatible with existing transaction systems, which is the purpose of the *McGregor* reference.

2. Independent Claim 1.

68. It is my opinion that the combination of *McGregor* in view of *Palmer* does not render claim 1 obvious because all the claim elements are not found in the combined references.

a. [1.Pre] “A portable electronic device, comprising:”

69. The '333 Patent is claiming a device in independent claim 1. But *McGregor* discloses two separate devices, 1) smart card device, and 2) wallet device. The Petitioner falsely states that “[b]oth *McGregor*’s bio-metric smart card embodiment as depicted in Fig. 2 and its bio-metric smart card reader (wallet) embodiment as depicted in Fig. 4 satisfy the claims and are captured by the Proposed Grounds. To focus this discussion, Petitioner highlights that Fig. 4 [*McGregor*’s] wallet embodiment in its mapping and includes parallel citations to the Fig. 2 [*McGregor*’s credit card] embodiment.” Pet. 21 (Footnote 6). However, Fig. 2 is described as “a bio-metric smart card 210.” Exh. 1004, ¶0037. Fig. 4 is of “the inventive card reader 410 ... such that a smart card can be inserted into the reader as shown in FIG. 4.” Exh. 1004, ¶0043. The smart card of *McGregor* has no wireless capability. The Petitioner appears to be selecting elements indiscriminately between

the two separate devices rather than a single device, such as claimed in independent claim 1 of the '333 Patent.

70. There may be some components that have similar names but with different element numbers. *McGregor* states, “like reference numerals designate like structural elements.” Exh. 1004, ¶¶0018. Therefore, no assumption can be made that items with similar names are similar structural elements as asserted in the Petition and Declaration (Ex. 1003).

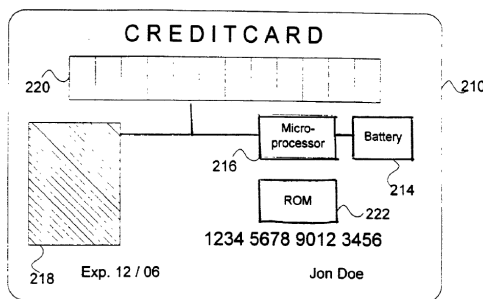


FIG. 2

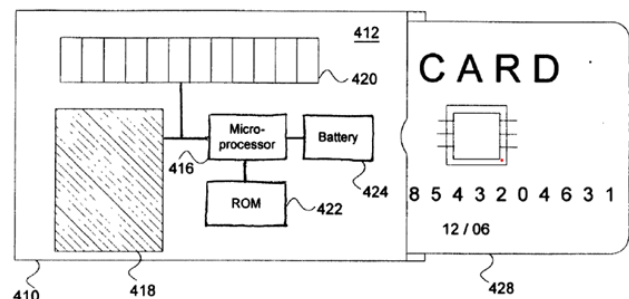


FIG. 4

71. In *McGregor*'s discussion of Fig. 4, I can find no reference to any element of Fig. 2 as asserted in Petition's Footnote 6. See Exh. 1004, ¶¶0043-0044.

72. A POSITA would understand that the card reader (wallet) device of Figure 4 is inoperable without inserting a smart card device into the card reader, as the personal data for a transaction is stored on the smart card.

73. A POSITA would also understand that the structural elements identified in FIG. 2 differ from those identified in FIG. 4. The referenced elements in FIG. 2 have different reference numbers from referenced elements of FIG 4 of *McGregor*. The *McGregor* reference stated that; “like reference numerals designate like structural elements.” Exh. 1003, [0018]. As the reference numerals between FIG. 2 and FIG. 4 differ, it is logical that the elements represent different structural components.

b. [1.a] “an electronic circuit capable of storing data therein, capable of processing data, and capable of data input and output;”

74. Petitioner stated “the microprocessor in its [*McGregor*’s] Fig. 2 embodiment generates a security key code, it does not expressly teach the microprocessor in its Fig. 4 embodiment is similarly responsible for generating a security key code.” Pet. 24 (Footnote 7). Petitioner admits that there is no description of the microprocessor in Fig. 4 generating a security key code.

75. The microprocessor of Fig. 2 is identified as element 216 and the microprocessor of Fig. 4 is identified as element 416. *See* Exh. 1004, Fig. 2 and Fig. 3. They are different microprocessor, and no assumption can be made that they are doing the same processing, such as generating a security key code. Further, *McGregor* stated that “like reference numerals designate like structural elements.”

Exh. 1004, ¶0018. Finally, the device of Fig. 2 is a smart card and the device of Fig. 4 is a card reader. Since microprocessors have different reference numbers and are located in different devices, it is improper and against the plain text of *McGregor* to assume they both operate in the same manner.

76. The Petitioner also stated “that Fig. 4’s microprocessor receives a fingerprint input and **outputs** a generated security key code (*id.* [Exh. 1004, [0044]]).” Pet. 24 (Footnote 7). Nevertheless, *McGregor* makes no such statement about outputs:

Finger print scanner 418 is accessibly disposed upon surface 412 of the card reader 410 and is connected to the microprocessor 416 to provide an input signal triggered by the user placing a thumb or finger upon the Surface of the scanner 418. The display 420 is configured to display dynamic numeric and/or textual data forwarded by microprocessor 416, and is intended to accompany the account number for all transactions in the manner outlined above with reference to FIG. 3. The wallet may include an IR or wireless transmitter to automatically transmit the Security code to a transaction network. Thus, the present bio-metric reader (“wallet”) may be used with existing Smart cards, which lack an incorporated microprocessor and/or display.

Exh. 1004, ¶0044. No output of a key is mentioned in paragraph 0044. I am unsure of what they are referring to as “a key being output.”

77. A POSTA would understand a microprocessor of Fig. 4 is used on the reader (wallet) device, but it is the data contained on the smart card device that must be used in a transaction. It is noted that Fig. 3 of *McGregor* has a user initiating key production, but an encrypted key is displayed, and a key is not output as asserted by Petitioner. *See* Exh. 1004, 308-310 Fig. 3. What is taught in *McGregor* is that the microprocessor of the card reader (wallet) displays an encrypted key in 420, *see* Exh. 1003, FIG. 4, [0046]. However, the encrypted key displayed by the card reader cannot exist without the smart card inserted into the card reader. In *McGregor*, a smart card is required to be inserted into the card reader for the card reader to generate the encrypted key.

78. Further, *McGregor* requires two separate devices (smart card device and card reader device) communicate with each other in order to utilize the microprocessor shown in Fig. 4 to generate a key.

c. [1.b] “a control device operatively linked to said electronic circuit, with an invariable activation command being issued when said control device is selectively triggered”

79. The '333 Patent describes the “invariable activation command” as “the activation command issued when control device 12 is triggered.” Exh. 1001, 7:15-17. Further, “[t]he same invariable activation command will thus be issued upon triggering the control device 12, and it is the state of switching element 44b, resulting

from the receipt or non-receipt of an “activation cue” by portable electronic device 10, that will be decisive as to the type of data conveyance that will occur.” Exh. 1001, 7:24-29. The data conveyance type depends upon the activation cue and not the activation command or invariable activation command.

80. The ’333 Patent’s prosecution history states that “the control device claimed in the present patent application, ... must necessarily be triggered to initiate any data flow towards or out of the electronic circuit.” Exh. 1002, 218. The “triggering” is with the invariable activation command. “Generally, control device 12 is considered to be triggered when the portable electronic device holder has successfully accomplished the necessary steps for control device 12 to issue an activation command, for example when the PIN or fingerprint scan was authenticated or when the validation button was pressed, or when the button was pressed while the fingerprint scan was authenticated.” Exh. 1001, 5:33-39.

81. The Petitioner asserts “[n]amely, the combination proposes that a POSITA would have been motivated to modify *McGregor* pursuant to *Palmer* such that *McGregor*’s device automatically transmits its security key when the device confirms the existence and availability of a reader/writer device able to receive the code.” Pet. 25-26. It is impossible for a POSITA to make such a combination

because the card reader device requires another device (a smart card) to operate as asserted by the Petitioner.

82. Petitioner fails to state which device of *McGregor* smart card device 210 or card reader device 412 they are referencing on pages 25-26 of the Petition.

83. The *McGregor* smart card device 210 cannot be modified as stated in the Petition because smart card device 210 does not have a transmitter or receiver. Thus, it is impossible for the *McGregor* smart card device 210 to confirm the existence and availability of reader/writer as there is no transmitter/receiver. This is because smart card device 210 is supposed to be compatible with existing transaction terminals and internet transactions which it is not. *See supra* ¶58.

84. The reader (wallet) device 412 is a static reader device and cannot function without a smart card. Further, the combination, as explained by Petitioner, confirms the “existence and availability of reader/writer.” However, the wallet device 412 is a reader/writer, so modifying the wallet to determine if it exists and is available is pointless. Even if such a combination was possible, it would not be able to automatically transmit its security key code as it has no security key code without a smart card device.

85. The Petition states a “POSITA would have understood that the user engaging a finger print scanner to initiate the authentication and data conveyance

process is selectively triggering, as claimed. Pet. 26. The Petitioner then selectively cites the '333 Patent but fails to actually identify where in the combination of *McGregor* and *Palmer* describe the '333 Patent claim 1 element, “a control device operatively linked to said electronic circuit, with an invariable activation command being issued when said control device is selectively triggered,” is located. The claim element is not simply “selectively triggering.”

86. The Petition references Fig. 3 as applying to both the smart card device of Fig. 2 and the card reader device of Fig. 4. However, Fig. 3 only describes displaying data on a display. No data is transmitted over a wireless transmission link.

87. The Petition refers to paragraph 0044 of *McGregor* for the teaching for an “IR or wireless transmitter.” Despite this, paragraph 0044 describes the card reader device 412, not a smart card device 210 that has the IR or wireless transmitter. The card reader device 412 cannot function as the portable electronic device of claim 1, as the device of claim 1 of the '333 Patent is not a card reader.

88. *Palmer* teaches a smart card device. The smartcard chip 408 is cited as a second controller (Pet. 9, Footnote 3) and transceiver (Exh. 1003, ¶163) of *Palmer* are cited in the Petition, and not as a smart card. *See* Pet. *McGregor*'s wallet device is a card reader. Exh. 1004, ¶0043. Even if the RF field detection of *Palmer*

could be combined with the card reader of *McGregor*, it would result in a card reader that has RF field detection. That card reader device lacks functionality without a user inserting a smart card into it and the card reader with RF field detection would rapidly run down its battery attempting to function without a smart card every time a RF field is detected.

89. The Petition attempts to define an “invariable activation command” as simply as the system selecting to transmit data through either a first or second data conveyance operation. Yet, this is an improper definition and changes the claim element from “invariable activation command” to “automatic data path selection.”

90. The '333 Patent describes an example implementation where “a single manually activated button provided on the portable electronic device ..., when pressed, issues an activation command that triggers a particular data conveyance.” Exh. 1001, 5:5-12. “Switching element 44b can be any type of device allowing data to be conveyed according to alternate data conveyance operation in response to an activation cue being received by transceiver 18 or not.” Exh. 1001, 6:4-7. “[T]he activation command issued when control device 12 is triggered, is an invariable activation command. That is to say that the portable electronic device holder will not be able to select to issue different activation commands by means of control device 12.” Exh. 1001, 7:15-20. It is not auto switching that is claimed with an

invariable activation command; rather, it is a first data conveyance automatically changed to a second data conveyance in response to the invariable activation command.

91. Once again, Petitioner is mixing the devices of *McGregor* in the Petition:

In the Proposed Combination, after a user enters their fingerprint and a security key code is generated, *McGregor's* microprocessor causes the security key code to be displayed on the card and/or transmitted through a wireless network if an RF field is detected and a two-way communication link established.

Pet. 34. However, there is no transmitter in the smart card device 210 of *McGregor* and therefore, “the security key code to be displayed on the card and/or transmitted through a wireless network if an RF field is detected and a two-way communication link established” as asserted by Petitioner is impossible to occur. Furthermore, this is an example of the Petition switching between different embodiments (e.g., smart card and wallet) with *McGregor's* different functionalities.

92. Further, it is impossible for the card reader 412 to “cause the security key code to be displayed on the card” as the card is in the card reader 412 and the display is on the card reader 412, not the smart card.

d. [1.d] “a data transceiver operatively linked to said electronic circuit, said data transceiver being for exchanging data between said electronic circuit and an external data exchange device, and for receiving a selectively emitted activation cue from a source external to said portable electronic device”

93. The Petition states that “the [p]roposed [c]ombination relies on *McGregor*’s modified wallet device exchanging data with an external data exchange device.” Pet., 36. As already established, the wallet of *McGregor* is a card reader device 412. See Exh. 1004, ¶0044. The card reader has no data to exchange without an additional smart card device and it has no security keys without the smart card device. The ’333 Patent teaches a portable electronic device, not a portable electronic device that communicates non-wirelessly with a first external data exchange device (card reader device 412), where the first external data exchange device communicates wirelessly with a second external data exchange device.

94. The Petition asserts that the combination of a *McGregor* device ...operatively connected to *Palmer*’s RF antenna 404 and smartcard chip 408 to transmit the security key generated by the microprocessor. See Pet. 37. However, a POSITA would understand that a security key could not be generated by the wallet 412 of *McGregor* as modified by *Palmer* because the wallet is useless without a

smart card device inserted into it. *McGregor* teaches multiple devices that must function together (*e.g.*, a card reader device and a smart card device).

95. The Petition switches back and forth between arguments relying on the card reader device (wallet) and the smart card device in *McGregor* in the Petition. The Petitioner asserts the operation of *Palmer*'s smart card device can be combined with the card reader of *McGregor*. However, that invalidity argument is based on the combination of *Palmer*'s teaching of a second transceiver with the card reader of *McGregor*. This is illogical as the resulting card reader device still does not operate without a smart card device.

96. Therefore, *McGregor*'s reader device, in view of *Palmer*, results in a nonfunctioning device. For the *McGregor* reader device to function, a smart card device must be in physical contact with the reader device. The claim element [1.d] is not described by the inoperable combination because the smart card reader cannot operate with a smart card device (a second.) Claim 1 of the '333 Patent is a single device.

- e. [1.e] “a data conveyance switching element operatively linked to said electronic circuit, said switching element being in an activated state upon an activation cue having been received by said data transceiver, and being in an inactive state when no activation cue was received by said data transceiver”

97. Petitioner asserted that the microprocessor is a switching element. Pet. 42. However, the Petitioner does not explain why a POSITA would choose to use the microprocessor as a switching element when a simpler alternative is known. The Petitioner described two approaches for conveying data. The first approach put forth by the Petitioner and its expert is a device that *both displays and transmits its data* (non-switching approach) when an activation cue is received and has no switching element:

[T]ransmitting data when an activation cue has been received (e.g., when handshake signals are exchanged), they do not exclude a device that both displays and transmits its data when an activation cue has been received. *Id.* [Dec., ¶¶107-108.]

Pet. 35.

98. In the first approach, no switching occurs, and data is sent to both the display and transmitter.

99. In the second approach (switching approach), switching between the data states affecting the data conveyance is described and the Petitioner asserts the microprocessor is a switching element:

Namely, as discussed above with reference to limitation [1(b)], *McGregor's* microprocessor is responsible for transmitting a security key code to the device's display and/or automatically transmitting the code in the event a wireless reader/writer device has been detected and a handshake operation has been performed (pursuant to *Palmer's* teachings). Accordingly, *McGregor's* microprocessor is a switching element (1) that is placed into an activated state after receiving a handshake signal (an activation cue) that establishes a communication during the handshake process and (2) that remains in an inactivated state if no reader/writer device is detected. *Dec.*, ¶¶125-127.

Pet. 42. Neither the *McGregor* or *Palmer* teach or describe a switching element.

100. Petitioner decides to use the second approach simply because of what is described in the '333 Patent. The Petition describes two approaches. First, it describes conveying data to both a transceiver and an LCD display. Second, using a switching element to switch the data conveyance between the transceiver and LCD display. However, there is no evidence in the Petition as to why a POSITA would choose the first approach over the second approach or the second approach over the first approach.

The '333 Patent states that 'switching element 44b can be a physical structure, a virtual program, or both.' '333 Patent, 6:16-17; see id., 6:11-12 (teaching that the element can be 'a series of instructions programmed onto the microchip').

Pet. 41-42. The only explanation in the Petition for selecting a switching approach over a non-switching approach as described by the Petitioner is cites to the '333 Patent.

101. A POSITA would understand that it is simpler to code conveying data to both data paths (i.e., copying data) rather than coding switching of data paths with all the associated overhead of ensuring data is stopped on one path properly and started on another. Furthermore, the amount of memory required would be reduced by the simpler design.

102. No software is identified as a switching element in either *McGregor* or *Palmer*. The microprocessor of *McGregor* is not described as doing any switching of data paths. The Petitioner combines the references to convey two types of data simultaneously. Then, the software appears in an assertion made by Petitioner's expert. The Petitioner asserts that a microprocessor is a switching element because the '333 Patent mentions that the switching element can be accomplished with software. Nonetheless, it is the software that operates as the switching element when executed, not the general microprocessor alone.

103. Next, the Petitioner disregards its dual data conveyance approach when it states, “*McGregor*’s device, modified pursuant to *Palmer*’s processes, satisfies this limitation.” Pet. 42. However, *Palmer*’s process (and similarly *McGregor*’s device) does not have: (1) two data conveyance paths; (2) a switching element; (3) switching code for a microprocessor; or (4) any explanation of why a POSITA would choose one approach over another, except for what is taught in the ’333 Patent.

104. The combination of the card reader device of *McGregor* and *Palmer*’s smart card device fails to describe this element because of at least 1) a card reader is modified with the teachings of *Palmer*, 2) a switching element is not described, and 3) the only reason provided for a POSITA to choose a switching approach over a non-switching approach is provided by the ’333 Patent.

f. [1.g] “wherein upon said control device being selectively triggered to issue [sic] invariable activation command: if said switching element is in said activated state, a data exchange will be initiated through the instrumentality of said data transceiver for exchanging data between said electronic circuit and an external data exchange device.”

105. Petitioner fails to clearly identify which device of *McGregor* is combined with *Palmer* for this element. The combination of *McGregor* and *Palmer*, as described on page 43 of the Petition, cites paragraph 130 of the declaration, where

the device is the card reader device (i.e. *McGregor's* wallet device) combined with elements of *Palmer*.

106. The switching element is not described in the combined reference. *See supra* ¶100.

107. The claim element requires; 1) an invariable activation command, and 2) the switching element to be in the activated state, for the 3) data exchange to be initiated between the electronic circuit and the external data exchange device. As described previously (*see supra* ¶¶77-78), the invariable activation command.

108. The Petition states that the “command issued by *McGregor's* microprocessor to convey the security key code is ‘invariable’ in that the microprocessor being in an activated state dictates how the data is conveyed.” Exh. 1003, ¶130; Pet. 43. The claim element [1.g] requires the state of the switching element to be in an activated state, not the state of the microprocessor as stated in the Petition. If various states of the microprocessor were claimed, the wallet device would be turned on or turned off. Therefore, the state asserted in the Petition and Declaration (Exh. 1003) is not the state of the switching element, but rather the operational state of the microprocessor. If the active state is the microprocessor turned on, then the inactive state in the microprocessor in claim element [1.h] has to be the microprocessor turned off.

109. The security key code is not intended to be an invariable activation command. The Petition asserts that the security key code is “invariable.” *See* Pet. 43. The security key code is simply data generated. However, the ’333 Patent states the “activation cue is in the form of a data communication of a specific type which will be recognized by the electronic device 10 as an activation cue, for example, a predetermined bit sequence.” Exh. 1001, 5:67-6:3. First, the activation cue is in the form of a data communication. The security key code is not a form of data communication. Instead, it is part of the PIN Field that is transmitted from the card reader. *See* Exh. 1004, Fig. 12A-C. Second, the conveyance of data occurs (activation) prior to sending the key code. *Id.* Therefore, it is impossible for the security key to be the invariable activation command.

110. Because *McGregor* combined with *Palmer* (1) fails to establish the switching element and (2) the security key cannot be the activation cue; the combination of *McGregor* and *Palmer* fails to describe claim element [1.g].

g. [1.h] “wherein upon said control device being selectively triggered to issue [sic] invariable activation command: if said switching element is in said inactive state, data will be conveyed from said electronic circuit to said user interface device for communicating information to the portable electronic device holder.”

111. The combination of *McGregor* and *Palmer* fails to describe a switching element. *See supra* ¶100.

112. The Petition states, “[a]bsent detecting an RF field of a reader/writer device and performing a handshake process, the wallet’s microprocessor (i.e., switching element) remains in an inactivated state.” Pet. 44. However, in the same paragraph, Petitioner states, “when a user enters their fingerprint for authorization (i.e., selectively triggers the device to send data), automatically displays a security key code (i.e., data) to the wallet device’s display.” *Id.*

113. The microprocessor of the card reader device (wallet device) cannot be in an inactive state. The activation of the display requires the microprocessor:

... there is also preferably provided a bio-metric reading apparatus such as fingerprint Scanner 218 in electrical communication with a microprocessor 216.

Exh. 1004, [0037]. It is impossible for the microprocessor of the wallet to be in an inactive state and still be in electrical communication with a microprocessor 216.

114. It is my opinion that the combined references of *McGregor* and *Palmer* fail to teach all the elements of [1.h] because a switching element is not described and it is impossible for the microprocessor to be in an inactivated state, as the microprocessor must be active for the wallet to operate.

115. Thus, the combination of *McGregor* and *Palmer* fails to teach elements 1.pre, 1.a, 1.b, 1.d, 1.e, 1.g, 1.h. of independent claim 1 and claim 1 is not obvious in view of *McGregor* and *Palmer*. See *supra* ¶¶66-112.

3. Claim 2 – “A portable electronic device as defined in claim 1, wherein said user interface device is a display screen.”

116. Claim 2 is a dependent claim and incorporates all the elements of claim 1.

117. All the elements of claim 1 are not disclosed in the combined references of *McGregor* and *Palmer*. See *supra* ¶¶65-113.

118. It is my opinion that the combination of *McGregor* and *Palmer* fails to describe claim 2 because of its dependence upon claim 1, and all of the elements of claim 1 are not described by the combination of *McGregor* and *Palmer*.

4. Claim 4 – “A portable electronic device as defined in claim 1, wherein said control device is a biometric parameter detector.”

119. Claim 4 is a dependent claim and incorporates all the elements of claim 1.

120. All the elements of claim 1 are not disclosed in the combined references of *McGregor* and *Palmer*. See *supra* ¶¶66-113.

121. It is my opinion that the combination of *McGregor* and *Palmer* fails to describe claim 4 because of its dependence upon claim 1, and the elements of claim 1 are not described in *McGregor* and *Palmer*.

5. Claim 5 – “A portable electronic device as defined in claim 4, wherein said biometric parameter detector is a fingerprint scanner capable of obtaining a fingerprint scan, and whereby said control device is triggered when the fingerprint scan matches a fingerprint image pre-saved in said electronic circuit.”

122. Claim 5 is a dependent claim and incorporates all the elements of dependent claim 4 and independent claim 1.

123. All the elements of claims 1 and 4 are not disclosed in the combined references of *McGregor* and *Palmer*. See *supra* ¶¶66-113, 117-119 .

124. It is my opinion that the combination of *McGregor* and *Palmer* fails to describe claim 5 because of its dependence upon claims 1 and 4, and the elements of claims 1 and 4 are not described in *McGregor* and *Palmer*.

6. Claim 6 – “A portable electronic device as defined in claim 1, wherein said control device is a manually activated button, and whereby said control device is triggered when the button is pressed.”

125. Claim 6 is a dependent claim and incorporates all the elements of claim 1.

126. All the elements of claim 1 are not disclosed in the combined references of *McGegor* and *Palmer*. See *supra* ¶¶66-113.

127. The electrical device of claim 1 was a card reader (wallet) 412 of Fig. 4 of *McGregor* combined with parts of the smart card of *Palmer*. Now, the Petitioner has switched the card reader device from 412 to a credit card device 710 that has the functionality of a fingerprint scanner but lacks a transceiver or other type of wireless communication. If the smart card device 710 is relied upon, then none of the elements of claim 1 that rely on the card reader device and its wireless capability can be relied upon.

128. The Petitioner states that a “POSITA would have expected success in making this simple substitution between a biometric sensor and simple button.” Pet. 49. However, what is described by the Petitioner is the combination of a card reader device 412 with a smart card device 710 of *McGregor*. Different embodiments of *McGregor* are used by Petitioner rather than a single device to show all of the elements of the claims.

129. In my opinion, the combination of *McGregor* and *Palmer* fails to describe claim 6 because it relies on claim 1, and all the elements of claim 1 are not described in the combined references of *McGregor* and *Palmer*. Furthermore, claim 6 relies on a *McGregor's* device that differs from the portable electronic device as claimed in claim 1 of the '333 Patent.

7. Claim 7 – “A portable electronic device as defined in claim 1, wherein said electronic circuit comprises said switching element.”

130. Claim 7 is a dependent claim and incorporates all the elements of claim 1.

131. All the elements of claim 1 are not disclosed in the combined references of *McGregor* and *Palmer*. *See supra* ¶¶66-113.

132. As previously discussed, a microprocessor can run firmware to execute software, and the executed software may function as a switching element, but neither *McGregor* nor *Palmer* describes software used as a switching element. *See supra* ¶¶98-99.

133. It is my opinion, the combination of *McGregor* and *Palmer* fails to describe claim 7 because its dependence upon claim 1 and all of the elements of claim 1 are not described in *McGregor* and *Palmer*.

8. Claim 8 – “A portable electronic device as defined in claim 7, wherein said electronic circuit comprises a microchip, and wherein said switching element is a series of instructions programmed onto said microchip.”

134. Claim 8 is a dependent claim and incorporates all the elements of claims 1 and 7.

135. All the elements of claims 1 and 7 are not disclosed in the combined references of *McGregor* and *Palmer*. See *supra* ¶¶66-113 and ¶¶128-131.

136. It is my opinion that the combination of *McGregor* and *Palmer* fails to describe claim 8 because of its dependence upon claims 1 and 7, and all the elements of claims 1 and 7 are not found in *McGregor* and *Palmer*.

9. Claim 9 – “A portable electronic device as defined in claim 1, wherein said switching element comprises a logical circuit.”

137. Claim 9 is a dependent claim and incorporates all the elements of claim 1.

138. All the elements of claim 1 are not disclosed in the combined references of *McGregor* and *Palmer*. See *supra* ¶¶66-113.

139. Claim 9 requires a logical circuit having a switching element. A POSITA would understand a switching element in an electronic circuit to be a physical component that switches in the electronic circuit. Dependent claim 7 is an “electronic circuit,” and a POSITA would understand that to exclude software.

140. Claim 9 must be differentiated from claims 7 and 8 because using the Petitioner's rationale would result in claims not being differentiated and redundant as the microprocessor has software acting as the switching functionality, but the microprocessor is the electronic circuit. The microprocessor has circuitry that enables firmware to run, allowing execution of the software. The microprocessor on its own is not a "logic circuit," as used in claim 9.

141. A POSITA would know the difference between the term "logic," which includes software execution by the processor, and "logical circuit," which would indicate physical switches, including physical transistors, in a circuit outside of a general-purpose microprocessor. The Petition's assertions are not supported by how the term microprocessor and logic circuit are used in the '333 Patent.

142. The *McGregor* reference does not describe a physical switching element.

143. The *Palmer* reference does not describe a physical switching element.

144. As previously explained, even if software was considered to meet this element, no software is identified in any of the references, as no switching or switches are in any of the references to meet the switching claim limitation. *See supra* ¶¶95-102.

145. The combination of *McGregor* and *Palmer* fails to describe a physical switching element.

146. It is my opinion that the combination of *McGregor* and *Palmer* fails to describe claim 9 because of its dependence upon claim 1, and the elements of claim 1 are not described in *McGregor* and *Palmer*. Furthermore, *McGregor* and *Palmer* fail to describe a switching element comprising a logical circuit as required by claim 9.

147. For the above reasons, it is my opinion that there can be no motivation to combine the card reader of *McGregor* with the smart card device of *Palmer*. Even if such a combination could be possible, the '333 Patent would not be obvious in view of the resulting cacophony of components of *McGregor* combined with *Palmer* and would fail to describe all elements of claims 1, 2, and 4-10 of the '333 Patent.

10.Independent claim 10

a. [10.Pre] “A data exchange system”

148. Once again, the Petitioner and its expert are failing to identify in the Petition what devices are referenced in *McGregor* and *Palmer* to achieve this limitation. The only support is to the assertions made regarding claim element [1.d] and paragraph 146 in the declaration. Further, the portable electronic device in the

system, as asserted in the Petition, is the card reader (Wallet) of *McGregor*, not the smart card.

149. Element [1.d] assertions were directed toward the card reader (wallet) of *McGregor* as modified by *Palmer*. See *supra* ¶¶91-94. The resulting card reader is inoperable without a smart card, which is a separate device. This is opposed to the teachings of the '333 Patent. A POSITA would understand that a card reader device is not a smart card device.

150. The Petitioner's Declaration acknowledges that "[a]ccordingly, a POSITA would have understood that *McGregor-Palmer* teaches a data exchange system comprising a portable electronic device (e.g., *McGregor*'s wallet) and a data exchange device (e.g., *Palmer*'s reader/writer device)." Exh. 1003, ¶146. What is described is the card reader (wallet of *McGregor*) having the capability to exchange data with another reader device, but this communication is impossible to occur without the presence of another device, namely a smart card.

151. In my opinion, the combination of *McGregor* and *Palmer* as explained in the Petition and Exh. 1003 fails to describe this element as used in independent claim 10.

b. [10.a] “a data exchange device comprising a first electronic circuit, a first data transceiver and a cue emitter; and”

152. The Petition and Declaration (Exh. 1003) is once again relying on *McGregor*’s wallet 410, which is a card reader. The Petition explains that “*McGregor* teaches retailer-based readers connected to the transaction network that facilitate short-range communications with wallet 410. *McGregor*, [0039] (‘The displayed security key is communicated or transmitted to the credit card authorization service [] through a reader[.]’); Dec., ¶148”. Pet. 51-52. The wallet is incapable of generating a security key without a separate device, which is not acknowledged, placed in the wallet. In simpler terms, the wallet of *McGregor* and *Palmer* cannot operate and communicate with a transaction network without the presence of another device.

153. The wallet of *McGregor* as modified by *Palmer* fails to have any data to exchange.

154. It is my opinion that claim element [10.a] is not met by the combination of *McGregor* and *Palmer* as asserted in the Petition and Declaration (Exh. 1003.)

c. [10.b] “a portable electronic device, comprising:”

155. The Wallet of *McGregor* fails, as asserted in the Petition fails to describe this element. *See supra* ¶¶146-148.

d. [10.d] “a control device operatively linked to said second electronic circuit, with an invariable activation command being issued when said control device is selectively triggered;”

156. As previously discussed with respect to claim 1 element [1.b], *McGregor*, in view of *Palmer*, does not describe this claim element. *See supra* ¶¶77-89.

e. [10.f] “a second data transceiver operatively linked to said second electronic circuit;”

157. The Petitioner asserts that a card reader (i.e., *McGregor*’s wallet 412) has the second data transceiver. A POSITA would understand that the second data transceiver is pointless and inoperable without another separate smart card device inserted into the wallet device. As described in the Petition and Declaration (Exh. 1003), a card reader communicates with another card reader, which, on its own, cannot function as the device of claim 10.

158. It is my opinion that this claim 10 element is not described by the card reader (wallet) of *McGregor* as modified by *Palmer* as described in the Petition as it is inoperable.

f. [10.g] “a data conveyance switching element operatively linked to said second electronic circuit, and”

159. As previously explained, the combination of *McGregor* with *Palmer* fails to describe a switching element. *See supra* ¶¶95-102.

160. In my opinion, the claim element [10.g] is not found in the combination of *McGregor* and *Palmer*.

g. [10.g.i] “switching element being in an activated state upon an activation cue having been received by said second data transceiver, and being in an inactive state when no activation cue was received by said second data transceiver; and”

161. As previously explained, the combination of *McGregor* with *Palmer* fails to describe a switching element and inactive state. *See supra* ¶¶95-102.

162. In my opinion, the claim element [10.g.i] is not found in the combination of *McGregor* and *Palmer*.

- h. [10.i] “wherein upon said control device being selectively triggered to issue said invariable activation command: if said switching element is in its activated state, a data exchange will occur between said first data transceiver and said second data transceiver, thereby exchanging data between said data exchange device and said portable electronic device;”**

163. As previously explained, the combination of *McGregor* with *Palmer* fails to describe a switching element. *See supra* ¶¶95-102.

164. In my opinion, the claim element [10.i] is not found in the combination of *McGregor* and *Palmer*.

- i. [10.j] “wherein upon said control device being selectively triggered to issue said invariable activation command: if said switching element is in its activated state, a data exchange will occur between said first data transceiver and said second data transceiver, thereby exchanging data between said data exchange device and said portable electronic device;”**

165. As previously explained, the combination of *McGregor* with *Palmer* fails to describe a switching element. *See supra* ¶¶95-102.

166. In my opinion, the claim element [10.j] is not found in the combination of *McGregor* and *Palmer*.

167. Claims 1-2 and 4-10 of the '333 Patent are not obvious as *McGregor*, combined with *Palmer*, fails to have the motivation to make such a combination and, if made, fails to teach all the elements of claims 1-2 and 4-10.

GROUND 2: Obviousness Based on *McGregor*, *Palmer*, and *Tuttle*.

168. Claims 3 and 11-13 are not obvious over *McGregor* in view of *Palmer* and, further, in view of *Tuttle*.

1. No Motivation to Combine.

169. As previously discussed, there is no motivation to combine *McGregor* and *Palmer*. See *supra* ¶¶57-65. *Tuttle* is cited to provide “detail on an integrated circuit that would allow smartcard chip 408 of *Palmer* to achieve the functions outlined in *Palmer*.” Pet. 56. *Tuttle* provides additional detail but does not add the elements that have been found lacking in independent claim 1 and dependent claim 4.

170. Furthermore, *Tuttle* is designed for omnidirectional communication, tracking inventories and other items, such as luggage. See *supra* ¶¶47-50. The *McGregor* and *Palmer* reference describes two-way communication and, securing data. See Exh. 1004, FIG. 12; Exh. 1003, FIG. 3.

171. The approach of *McGregor* is to have a smart card that is able to use traditional infrastructure. The approach of *Tuttle* “is to provide a non-contact

method of object and person detection and location which can **serve as a replacement** for magnetic strip, bar code, and other types of contact-powered electronics.” Exh. 1006, 3:52-57 (*emphasis added*). A POSITA looking to *McGregor’s* approach, constrained by the smart card's ability to be used with traditional infrastructure, would not look to *Tuttle’s* approach, which seeks to replace such traditional infrastructure, i.e., POS with a wireless link.

172. Further, the RFID approach of *Tuttle* is a self-contained RFID device that incorporates an antenna and has connections for a battery. *See* Exh. 1006:4: 5-21. A POSITA would understand that no data bus or other connections are available to integrate data processing with the microprocessor of *McGregor* or the controller of *Palmer*; *Tuttle* is a standalone IC (*See* Exh. 1006, Fig. 1B), and a POSITA would not look to it or its designs because an RFID is a specific type of wireless technology with a specific functional purpose. The Petition does not explain how such standalone technology can be successfully integrated into a different device, the RFID technology of *Tuttle*. The 1006 is specifically designed to be a single, complete device that requires only power.

173. In my opinion, there is no motivation to combine the *McGregor*, *Palmer*, and *Tuttle* references, at least because if such a combination were possible, claim elements would still be missing.

2. Claim 3 – “A portable electronic device as defined in claim 1, wherein said data transceiver comprises a data transmitter, a data receiver distinct from said data transmitter, and a cue receiver distinct from said data receiver.”

174. Claim 3 is a dependent claim and incorporates all the elements of claim 1.

175. All the elements of claims 1 are not disclosed in the combined references of *McGregor* and *Palmer*. See *supra* ¶¶66-113.

176. The *Tuttle* reference does not address any of the missing elements from claim 1.

177. Even if the card reader (wallet 412) of *McGregor* is modified with a second transceiver, it will not operate (i.e., generate security keys) unless another device (an actual smart card) is inserted into the card reader (wallet).

178. The Petition also states that:

One such system is *Tuttle*'s integrated circuit 11 comprising wake-up circuit 12, receiver 13, transmitter 14, control logic 15, and memory 16. For example, *Tuttle* teaches that the wake-up circuit 12 “senses in-band energy [(an interrogation signal)] and switches from a sleep mode to an operating (waked) mode.” *Tuttle*, 4:27-29.

Pet. 59. A POSITA would understand that the card reader (wallet) of *McGregor* waking up whenever it senses band energy would simply run the battery down, as

the card reader has no data to transmit without a smart card being inserted. The approach of the Petition would not be taken by a POSITA. This battery run-down problem was even addressed in *Tuttle*. “The cache [of RFID device], not shown, includes ... shielding means for preventing signal reception by enclosed transceiver within the cache. If shielding were not included, a supply of transceivers located within communicating range of an interrogator would soon expend battery capacity by processing signals including, for example, wake-up signals.” Exh. 1006, 11:25-32. The wake-up signal approach of *Tuttle*, as proposed in the Petition, would simply run down the battery of the card reader (*McGregor’s* wallet 412), making the card reader unavailable when needed for a transaction.

179. The Petitioner’s approach has taken a card reader (wallet) and added a second controller, two transceivers, and wakes up whenever in-band energy is sensed while acknowledging it is all battery powered. A POSITA would know designs running on battery have to be carefully designed to prolong battery life and the approach of the Petition would result in a device that would have limited battery life using battery technology at the time of the ’333 Patent.

180. It is my opinion that the combination of *McGregor*, *Palmer*, and *Tuttle* fails to disclose the elements of claim 3 because of its dependence upon claim 1, and the resulting device would not operate without a smart card.

3. Independent claim 11

181. A method for a single device is claimed in the '333 Patent. The Petition and Declaration (Exh. 1003) are modifying the card reader (wallet) of *McGregor* as the device, which lacks data to operate without a smart card.

- a. [11.pre] “A method for data exchange with a portable electronic device of the type comprising; an electronic circuit capable of storing data therein, capable of processing data, and capable of data input and output, a control device operatively linked to said circuit, a user interface device operatively linked to said circuit, communication ports operatively linked to said circuit, a switching element operatively linked to said electronic circuit and being in a default inactive state, and power means for providing power to said portable electronic device, said method comprising the steps of:”

182. As previously explained, there is no switching element, and even if a microprocessor could be used as a switching unit, why a POSITA would use that approach rather than a simpler approach. *See supra* ¶¶95-102.

183. The state of the processor is used rather than the state of the switching element. *See supra* ¶¶105-107.

184. The security key code is not intended to be an invariable activation command. *See supra* ¶101.

185. It is my opinion that at least one of the elements identified in the preamble of claim 11 of the '333 Patent is not found in the combination of *McGregor*, *Palmer*, and *Tuttle*.

b. [11.a] “awaiting for an activation cue to be received at a predetermined one of said communication ports;”

186. The Petition relies on *McGregor* in view of *Palmer*, where the card reader device of *McGregor* is modified by *Palmer*, which is further modified by *Tuttle*. See Pet. 61. What results is simply a card reader that waiting for activation. A POSITA would understand that the card reader would not function even upon receipt of “in-band energy,” as the card reader (wallet) of *McGregor* requires a smart card to be inserted to operate. See Exh. 1004, Fig. 4.

187. It is my opinion that the combination of *McGregor*, *Palmer* and *Tuttle* fails to disclose this element.

c. [11.b] “if an activation cue is received at one of said communication ports, changing the state of said switching element from its default inactive state to and activated state”

188. The state of the processor is used rather than the state of the switching element. See *supra* ¶¶106-108.

189. There is no switching element. See *supra* ¶¶95-102.

190. It is my opinion that claim element [11.b] is not described in the combination of *McGregor* and *Palmer*, in further view of *Tuttle*, as at least no switching element is disclosed or identified.

d. [11.c] “ selectively triggering said control device to issue an invariable activation command, whereby said method will further comprise one of the two following steps: if said switching element is in its activated state, initiating a data exchange with an external data exchange device through at least one of said communication ports; and”

191. The state of the processor is used rather than the state of the switching element. *See supra* ¶¶106-108.

192. There is no switching element. *See supra* ¶¶95-102.

193. It is my opinion that claim element [11.c] is not described in the combination of *McGregor* and *Palmer*, in further view of *Tuttle*, as at least no switching element is disclosed or identified.

- e. [11.d] “selectively triggering said control device to issue an invariable activation command, whereby said method will further comprise one of the two following steps: . . . if said switching element is in its inactive state, conveying data from said electronic circuit to said user interface device for communicating information to the portable electronic device holder.”

194. The state of the processor is being used rather than the state of the switching element. *See supra* ¶¶106-108.

195. There is no switching element. *See supra* ¶¶95-102.

196. It is my opinion that claim element [11.d] is not described in the combination of *McGregor* and *Palmer*, in further view of *Tuttle*, as at least no switching element is disclosed or identified.

197. It is my opinion that independent claim 11 of the '333 Patent is not Obvious under 35. U.S.C. § 103 with the combination of *McGregor* in view of *Palmer*, and in further view of *Tuttle*, as all the elements of claim 11 are not found in the combined references.

4. Claim 12 – “A method as defined in claim 11, wherein said activation cue is received at one of said communication ports distinct from another one of said communication ports used for data exchange with the external data exchange device.”

198. Claim 12 is a dependent claim and incorporates all the elements of claim 11.

199. Not all the elements of claim 11 are found in the combined references of *McGregor, Palmer, and Tuttle*. See *supra* ¶¶179-195.

200. In my opinion, the combination of *McGregor, Palmer, and Tuttle* fails to describe claim 12 due to its dependence on claim 11. Further, no switching element is found in the combination of the references.

5. Claim 13 – “A method as defined in claim 11, wherein the additional following step occurs after selectively triggering said control device if said switching element is in said activated state: conveying data from said electronic circuit to said user interface device for communicating information to the portable electronic device holder.”

201. Claim 13 is a dependent claim and incorporates all the elements of claim 11.

202. Not all the elements of claim 11 are found in the combined references of *McGregor, Palmer, and Tuttle*. See *supra* ¶¶179-195.

203. In my opinion, the combination of *McGregor, Palmer, and Tuttle* fails to describe claim 13 due to its dependence on claim 11. Further, no switching element is found in the combination of the cited references.

204. It is my opinion that there is no motivation to combine the references of Ground 2. Even if the references could be combined, the combination of *McGregor, Palmer, and Tuttle*, as described in the Petition and Exh. 1003, and fails

to describe or address at least one element in each of claims 3 and 11-13 of the '333 Patent.

This is the END of my Declaration.

In signing this Declaration, I recognize that the Declaration may be filed as evidence in a contested case before the PTAB. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will cooperate to the best of my ability to appear for cross-examination during the time allotted.

205. I reserve the right to supplement my opinions in the future to respond to any arguments that the Petitioner raises and to take into account new information as it becomes available to me.

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

207. I declare to the best of my ability under the penalty of perjury that all statements made in this Declaration are true and correct.

DECLARATION OF SAFWAN ZAHEER
IN OPPOSITION TO PETITION FOR
IPR2025-00173, U.S. PATENT NO. 7,628,333

Executed: April 15, 2025, in Glenn Mills, Pennsylvania.

/Safwan Zaheer/ 
Safwan Zaheer

APPENDIX A

GLOBAL FINTECH, PAYMENTS, & LENDING EXECUTIVE

Delivering market leadership through bold strategy, operational excellence, and transformative product & tech solutions.

FinTech executive with 20+ years of driving market-leading growth, product innovation, and operational excellence across global banks, PE/VC-backed FinTechs, and professional services firms. Deep expertise in Payments, Lending, Credit Cards, BNPL, Wallets, and Merchant Checkout - scaling businesses, launching industry-first solutions, and winning in competitive markets.

Known for building high-performing teams, delivering multi-\$M revenue growth, and launching industry-first products, I bring a unique blend of strategic vision, technical expertise, and hands-on execution to drive long-term market success.

CORE EXPERTISE & SKILLS

- ✓ **Product Leadership:** Designed and launched industry-first products like AI-driven lending platforms, Credit Cards, Installment Loans/ BNPL, and neobanks, delivering double-digit growth and setting new benchmarks for customer experience and operational efficiency.
- ✓ **Strategic Growth Enablement:** Spearheaded business strategies, GTM plans, and digital roadmaps that unlocked new revenue streams and expanded market share. Successfully exited a FinTech firm at a multi-\$M valuation through strategic positioning and execution.
- ✓ **Business Performance:** Owned E2E business performance, driving revenue, customer adoption, and operations KPIs. Partnered with sales, marketing, finance, risk, compliance, and cross-functional teams to set goals, secure buy-in, and execute key metrics. Used data-driven insights to build SLAs and deliver measurable results.
- ✓ **Digital Transformation:** Led enterprise-wide modernization driving revenue growth and enhanced customer experience through AI, cloud, and automation. Delivered 20-30% efficiency gains via process optimization, data analytics, and automation workflows, while maintaining risk controls and regulatory compliance.
- ✓ **Leadership & Change Management:** Built and led high-performing, cross-functional teams, fostering a culture of agility, innovation, and customer first mindset across complex, matrixed organizations.

Cross-Functional Team Leadership • GTM • Digital Transformation • FinTech • Product Development • Program Management • Core Banking • SDLC • POS • LOS • KYC/AML • A/B Testing • AI & Automation
Data Analytics • Business Case/ROI • Strategic Partnerships • Executive Presence • SaaS • Customer Experience

PROFESSIONAL EXPERIENCE

autoMHatic Financial: PE backed Fintech Lender focused on Manufactured Home Loans. Exiting via M&A.
Philadelphia, PA 2024-2025

CHIEF PRODUCT OFFICER

- **Strategic Exit:** Partnered with PE investors and CEO to enhance asset value through launch of AI-driven Lending product, Tech automation, and 25% growth in Loan Originations leading to an exit via M&A (2025).

- **AI-Driven Product:** Launched industry-first “Instant Decision” product, delivering full loan approvals in minutes, increasing approval rates 35% to 45% (+70% w/counter-offers), and modern LOS & POS for originations efficiency.
- **Data Modernization:** Spearheaded migration from legacy Data Warehouse to modern, cloud-based platform, driving data efficiency, enhanced security, and +20% cost savings while enabling agile, scalable analytics.
- **Growth Leadership:** Drove 25% growth in loan originations to \$100M+ annually, improved funding speed by 20%, and enhanced operational efficiency through automation and digital solutions – while maintaining risk controls.
- **Strategic Partnerships:** Partnered with an AI firm to develop a blockchain-based E2E Loan Performance product, eliminating investor data verification issues and boosting capital markets efficiency.

HUNDREDDX: *Advisory Firm for Banks, Payment Networks, and Fintech.*
Philadelphia, PA

2019-2023

MANAGING DIRECTOR

- **Neobank Launch:** Led the US launch of T-Mobile MONEY, a revolutionary neobank, scaling to 250K+ active consumers and delivering a seamless, customer-first digital experience.
- **BNPL & POS Lending Growth:** Designed and launched installment lending, payments, BNPL products, forged Bank and payment network partnerships to drive 30% adoption growth for FinTech clients.
- **Strategic Advisory:** Advised clients on digital transformation, product innovation, and GTM strategies, resulting in marked increases in profitability and market share.

LENDINGPOINT: *FinTech Lender focused on Personal and POS Loans.*
Kennesaw, GA/New York, NY

2021-2022

EXECUTIVE VICE PRESIDENT AND GENERAL MANAGER, POS LENDING

- **Scaled POS Lending Business:** Grew funded volume from \$90M to \$250M annually across Dental, Elective Medical, and Home Improvement verticals, achieving record-high +20% net margins.
- **Embedded Finance Products:** Launched B2B and B2B2C embedded finance products, including installment loans inside of Invisalign’s mobile app (120M+ consumers) and BNPL solutions at 2500 merchant checkouts.
- **Operational Transformation:** Increased share-of-wallet from 1.5% to 8% through data-driven pricing, UI/UX enhancements, and hypothesis-driven A/B testing.

BM TECHNOLOGIES, formerly BankMobile (via HUNDREDDX): *FinTech Banking-as-a-Service (BaaS) Provider*
Philadelphia, PA

2019-2021

HEAD OF PRODUCTS

- **Neobank Product Launch:** Launched T-Mobile MONEY, led E2E product execution, core banking integrations (FIS), fraud prevention, KYC/AML, and ACH, maintaining compliance and risk controls and a seamless UI/UX.
- **GTM Execution:** Served as crucial bridge with T-Mobile, Bank partners, vendors, and marketing teams executing on GTM plan helping to scale the neobank to 250K+ active consumers.

KPMG US
New York, NY

2016-2019

HEAD OF FINTECH

- **Strategic vision:** Built KPMG’s US FinTech service line from scratch, performed effectively as an active member of Global FinTech leadership team, growing consulting practice to \$5M in yearly revenues.
- **Digital Banking Transformation:** Spearheaded launch of a digital banking platform for Top 20 Bank, achieving +\$M in deposit volume and serving 15M+ consumers.

- **Client Growth:** Increased customer retention by 35% and transaction volume by 45% for a credit card firm through the launch of FinTech-like credit and debit card products.

ACCENTURE

Philadelphia, PA

2015-2016

DIRECTOR, DIGITAL PAYMENTS

- **Payments Growth:** Delivered high-impact digital payments, transformation, strategy and product development services to Financial Services and Retail clients, increasing company brand reputation and repeat business.
- **Payments Wallet:** Introduced a Payments Wallet and Merchant Commerce Portal for a Fortune 6 Retailer, driving \$250M+ in payment volume within 5 years.

BARCLAYS US

Wilmington, DE

2012-2015

DIRECTOR, DIGITAL PAYMENTS PRODUCTS

- **Mobile Payments Leadership:** Launched a Mobile Payments Wallet for consumers and SMBs, achieving \$500K in transaction volume and 25+ merchant partnerships. Later white-labeled for co-brand credit card partnerships.
- **Strategic Partnerships:** Partnered with Google Wallet and Mastercard to achieve “top of wallet” exposure for co-brand credit cards.

Addition Experience as Strategy Consultant in Peppers & Rogers Group; Sr. Manager/ Product Manager (Mobile Products) and Wireless Engineer in Nokia/ Alcatel-Lucent. (2001-2011)

BOARD & ADVISORY ROLES: Fiat Growth (2023-Present), NewChip Accelerator (2022-2023), Blockchain Founders Fund (2020-Present), LOYYAL Inc. (2016-2018).

EDUCATION

Massachusetts Institute of Technology (MIT), Cambridge MA

- Master of Science in Engineering and Management

Texas A&M University, College Station TX

- Master of Science in Electrical Engineering
- Bachelor of Science in Electrical Engineering (Cum Laude)

****Listed on 3 U.S. Patents.***