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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C
	Application Number	
Title of Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	David		WYATT	

Residence Information (Select One) ● US Residency Non US Residency Active US Military Service

City	San Jose	State/Province	CA	Country of Residence i	US

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Postal Code	95131	Country i	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

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For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	136197		
Email Address	officeaction@mhbpatents.com	Add Email	Remove Email

Application Information:

Title of the Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD		
Attorney Docket Number	WYAT-0002.USD1C1C1C	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	7	Suggested Figure for Publication (if any)	7

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Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

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Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	136197		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	15701261	2016-08-29

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	Application Number	
Title of Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD	

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15701261	Continuation of	14981757	2015-12-28	9760884	2017-09-12
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14981757	Continuation of	14680979	2015-04-07	9224083	2015-12-29
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14680979	Division of	14217261	2014-03-17	9022286	2015-05-05
Prior Application Status	Expired				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
14217261	Claims benefit of provisional	61794891	2013-03-15		

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

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Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

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Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

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☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section. Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Virtual Electric Inc.		
Mailing Address Information For Applicant:			
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Address 2			
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Country	US	Postal Code	95131
Phone Number		Fax Number	
Email Address			

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Assignee Information including Non-Applicant Assignee Information:

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Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

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If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

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Address 1			
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NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Anthony C. Murabito/			Date (YYYY-MM-DD)	2019-07-01
First Name	Anthony	Last Name	Murabito	Registration Number	35295

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This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD

RELATED APPLICATIONS

[0001] This is a Continuation application of co-pending, commonly-owned U.S. Patent Application Serial No. 15/701,261, now U.S. Patent 10,339,520, filed 09-11-2017, which in turn was a Continuation application U.S. Patent Application Serial No. 14/981,757, filed 12-28-2015, now U.S. Patent 9,760,884, which in turn was a continuation of U.S. Patent Application Serial No. 14/680,979, filed 04-07-2015, now U.S. Patent 9,224,083, which in turn was a Division of U.S. Patent Application Serial No. 14/217,261, filed 03-17-2014, now U.S. Patent 9,022,286, which in turn claims priority from Provisional Application 61/794,891, filed 03-15-2013, each of which are hereby incorporated herein in their entirety by reference.

FIELD OF THE INVENTION

[0002] Embodiments according to the present disclosure generally relate to multi-function electronic devices or smart cards and, more particularly, to systems and methods of smart tokenizing payment cards and devices and transaction processing thereof.

BACKGROUND OF THE INVENTION

[0003] There are several different types of credit cards available in the marketplace at present. A first type of credit card is a conventional, standard piece of plastic with a magnetic strip, which is readily available and in wide commercial use. The advantage of this first type of credit card is that a large portion of the infrastructure for credit card transactions is built around this type of card, and consequently such a card works in a wide array of vendors' credit card machines, automated teller machines (ATMs), and other devices that support the present credit card and banking infrastructure.

[0004] Another type of credit card device employs the use of a smart integrated circuit chip. These types of credit cards have a built in microprocessor with cryptographic capabilities. These microprocessors operate in a similar manner to a cell phone having a chip comprising a cryptographic processor. Such a smart card device requires contact with a reader in order to be read and to perform a transaction. The reader provides the manner in which a facility interacts with the built-in processor on the card, e.g., for purposes of performing verification on the authenticity of the card or for making a direct deposit on the card. These credit card devices also comprise a magnetic strip such that they are compatible with standard plastic credit card readers in wide use.

[0005] A different type of credit card device in circulation employs radio frequency identification ("RFID"). These cards essentially have a low-power RF antenna built into

the card, and when the cardholder passes the antenna in front of a reader comprising an RF field, enough power is generated to enable the processor to interact wirelessly with the receiving device.

[0006] A concern with each of these types of credit cards presently available in the marketplace is that they can all be, in various ways, susceptible to theft and/or compromise. Therefore, these types of credit cards have security limitations. Further, cards employing smart integrated circuit chips and RF technology are not in wide use at present because they are incompatible with existing credit card infrastructure, which still predominantly supports conventional plastic credit cards.

SUMMARY OF THE INVENTION

[0007] This Summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This Summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used to limit the scope of the claimed subject matter.

[0008] An embodiment includes a credit card device capable of generating a programmed magnetic field of alternating polarity based on a speed of a card swipe, and methods for constructing the device for the purpose of emulating a standard credit card. An apparatus is described to allow said device to emulate behavior of a credit card when used in electronic credit card readers. Additionally methods are described to allow user control of said device for the purpose of authorizing or controlling use of said device in the application of credit, debit and cash transactions, including cryptocurrency and card-to-card transactions. Methods are also described for generating a limited-duration credit card number when performing a transaction for the purpose of creating a limited-use credit card number, which is limited in scope of use to a predetermined number of authorized transactions. Furthermore said device may interact with other similar devices in proximity for the purpose of funds or credit/debit transfers.

[0009] More specifically, an aspect of the present disclosure provides an apparatus comprising: a thin card shaped sized body; a memory operative to store a plurality of identification data; a processor coupled to the memory; a user interface for selecting a

select identification data of said plurality of identification data; a magnetic card reader detection unit for determining if the body is adjacent to a standard magnetic card reader; and an inductor assembly coupled to the processor and integrated into the body, the inductor assembly under processor control for generating a magnetic field of alternating polarity responsive to the body being detected as adjacent to a standard magnetic card reader, the magnetic field generated in a region substantially encompassing the standard magnetic card reader, wherein the magnetic field encodes said select identification data, and wherein the magnetic field is operable to be read by a magnetic read head of the standard magnetic card reader.

[0010] According to another aspect of the present disclosure, a credit card device comprises: a near-field communication (NFC) unit; a touch sensor array; a display; a motion rate detection array; a memory, storing a user data and a currency amount; and a processor operatively coupled to the NFC unit, the touch sensor array, the display, the motion rate detection array, and the memory; and wherein the processor initiates a card-to-card transaction between two credit card devices by a detected proximity of a first credit card device and a second credit card device and an input of information by a first user via said touch sensor array, and wherein the card-to-card transaction comprises an exchange of stored currency and said user data between the first credit card device and the second credit card device via the NFC unit.

[0011] According to yet another aspect of the present disclosure, a method of performing a transaction comprises: receiving an input signal at a credit card device from a user enabling operation of a near-field communication (NFC) unit of the credit

card device; receiving an indication of an amount of currency for a transaction; generating at said credit card device a limited-duration credit card number; and transmitting said limited-duration credit card number from said credit card device to a recipient of the transaction.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Embodiments of the present disclosure are illustrated by way of example, and not by way of limitation, in the figures of the accompanying drawings and in which like reference numerals refer to similar elements.

[0013] Figure 1 is an illustration depicting an exemplary interaction between a multi-function electronic device and a standard magnetic card reader, according to an embodiment of the present disclosure.

[0014] Figures 2A-2B are block diagrams illustrating data flow between the magnetic coils on the multi-function electronic device and the microprocessor on the multi-function electronic device according to an embodiment of the present disclosure.

[0015] Figure 2C depicts an exemplary process of selecting an account from a plurality of stored accounts according to an embodiment of the present disclosure.

[0016] Figure 3 is a flowchart illustrating an exemplary process of generating a magnetic field with an alternating polarity according to an embodiment of the present disclosure.

[0017] Figures 4A-4B illustrate a user interacting with a touch sensor of the multi-function electronic device, according to an embodiment of the present disclosure.

[0018] Figure 5 is an illustration of a multi-function electronic device connected with a computing system and operating according to an embodiment of the present disclosure.

[0019] Figure 6 is an illustration of two multi-function electronic devices performing a transaction according to an embodiment of the present disclosure.

[0020] Figure 7 depicts an exemplary process according to an embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE INVENTION

[0021] Reference will now be made in detail to the various embodiments of the present disclosure, examples of which are illustrated in the accompanying drawings. While described in conjunction with these embodiments, it will be understood that they are not intended to limit the disclosure to these embodiments. On the contrary, the disclosure is intended to cover alternatives, modifications and equivalents, which may be included within the spirit and scope of the disclosure as defined by the appended claims. Furthermore, in the following detailed description of the present disclosure, numerous specific details are set forth in order to provide a thorough understanding of the present disclosure. However, it will be understood that the present disclosure may be practiced without these specific details. In other instances, well-known methods, procedures, components, and circuits have not been described in detail so as not to unnecessarily obscure aspects of the present disclosure.

[0022] Some portions of the detailed descriptions which follow are presented in terms of procedures, steps, logic blocks, processing, and other symbolic representations of operations on data bits that can be performed on computer memory. These descriptions and representations are the means used by those skilled in the data processing arts to most effectively convey the substance of their work to others skilled in the art. A procedure, computer generated step, logic block, process, etc., is here, and generally, conceived to be a self-consistent sequence of steps or instructions leading to a desired result. The steps are those requiring physical manipulations of physical

quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated in a computer system. It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers, or the like.

[0023] It should be borne in mind, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities. Unless specifically stated otherwise as apparent from the following discussions, it is appreciated that throughout the present claimed subject matter, discussions utilizing terms such as "storing," "creating," "protecting," "receiving," "encrypting," "decrypting," "destroying," or the like, refer to the action and processes of a computer system or integrated circuit, or similar electronic computing device, including an embedded system, that manipulates and transforms data represented as physical (electronic) quantities within the computer system's registers and memories into other data similarly represented as physical quantities within the computer system memories or registers or other such information storage, transmission or display devices.

ENCODING VIA AN ALTERNATING POLARITY OF A MAGNETIC FIELD

[0024] In one embodiment of the present disclosure, a smart credit card device comprises a dynamic magnetic region (strip) incorporating a main inductor assembly from which programmed magnetic field data symbols are dynamically generated. In one embodiment the inductor assembly may be a planar coil formed within the material that embodies the credit card. An advantage of using a planar coil is that it can dynamically

produce a magnetic field in such a manner as to emulate the interaction between a traditional magnetic strip and a conventional credit card reader. As the magnetic strip of a conventional credit card is passed through a magnetic reader head, stripes of alternating magnetic polarity embedded in the strip induce a magnetic field of alternating polarity at the reader head. The pattern formed by the alternating polarity of the magnetic field encodes information, which when transformed by a transducer to a current signal in the magnetic reader head, provides user information for a transaction.

[0025] Embodiments of the present disclosure provide a credit card device able to generate a programmed magnetic field, wherein data is encoded and represented by an alternating polarity of the generated magnetic field. In a similar manner to a conventional plastic credit card, the magnetic field produced by the planar coil is able to be read by a pickup (or "transducer") and to thereby transmit information to the magnetic card reader. FIG. 1 illustrates a credit card transaction 100 performed between a credit card device 101 and a conventional magnetic reader 150. The credit card device 101 generates a magnetic field of alternating polarity 120 to be read by the conventional magnetic card reader 150, according to an embodiment of the present disclosure. The credit card device 101 is moved at a rate 130 relative to a magnetic reader head 155 of conventional magnetic card reader 150. The magnetic field 120 extends with sufficient distance and intensity from credit card 101 so as to be read by magnetic head reader 155. The magnetic head reader 155 responds to the magnetic field 120 by producing a current in the conventional fashion, which is then interpreted as encoded information by the magnetic reader 150. Therefore the magnetic field of

alternating polarity 120 produced by the credit card device 101 has a substantially identical encoding effect as a traditional magnetic strip.

[0026] A characteristic of encoding information in a conventional magnetic card strip is that binary information is encoded by the pattern of alternating magnetic polarity formed by ferromagnetic stripes embedded on the magnetic strip. As the conventional magnetic card strip has a standardized format, the encoding of information is provided at a specified data density (bits per inch), according to which conventional magnetic readers are designed for interpretation of encoded data. In order to most ably emulate a conventional credit card interaction with a conventional magnetic reader the credit card device 101 of the present disclosure is provided with a means of determining a substantially optimal rate for alternating the polarity of the generated magnetic field 120 in order to produce data at a rate which is able to be readily received and correctly interpreted by the conventional magnetic reader 150. Embodiments of the present disclosure provide several means of determining the relative movement rate 130 between the credit card device 101 and the magnetic reader head 155. These features, as well as other characteristics of the credit card device of the present disclosure, can be better appreciated by a description of the internal components and functions of credit card device 101.

[0027] FIGS. 2A and 2B depict exemplary embodiments of the smart credit card device, in a block diagram view. The components of the block diagram are illustrated according to functional connections, and their locations should not be construed as being limited to the respective locations as depicted in FIGS. 2A-2B. In FIG. 2A, credit card

device 201a is shown in a block diagram view. Credit card device 201a comprises a processor 205 and a memory unit 207, the processor 205 operatively coupled to the components of credit card device 201a. The memory 207 comprises a plurality of accounts 209, which may be credit card accounts, banking accounts, merchant accounts, online accounts, cryptocurrency accounts, and combinations thereof. A motion detection module 210 is coupled to the processor unit 205 and to a set of motion detection units, which comprise a rate detection assembly 225, an optical sensor array 230, and a set of accelerometers 235. The magnetic field is generated via a planar coil 220, which is controlled by the processor unit 205 via a coil interface 215. The rate at which the magnetic field changes polarity to encode the user data depends on the rate of relative movement detected by the rate detector. The credit card device 201a further comprises a real-time clock 240, a touch-sensor array 245, and a display 250, each operatively coupled to the processor unit 205. A user input may be made via the touch sensor array 245, which may comprise a touch screen panel, a keypad, or a combination thereof. The display 250 is able to display an alphanumeric sequence, as well as graphical icons (such as a logo for a bank, or other images). Further, an optional backup power source 255 is depicted.

[0028] In one embodiment, the processor unit 205 is connected to the planar coil 220 and the motion detection units, via the motion detection module 210. The processor unit 205 is responsible for determining the appropriate rate with which to output data from the planar coil 220, wherein output data is encoded using alternating polarity of a generated magnetic field. The rate of the alternating polarity of the magnetic field is

generated in accordance with the detected movement speed with which the card is swiped through the reader, in order for the reader to receive the encoded data at the appropriate rate. Magnetic card readers, which are designed to read conventional credit cards, are constructed to read data at specified input rates that correspond with the data density present in conventional magnetic card strips. The magnetic data symbols generated by the planar coil 220 are produced to align with the rate at which data is being read by the magnetic card reader. Accordingly, it is irrelevant if the credit card device 201a of the present disclosure is being swiped quickly or slowly, the planar coil 220 is controlled by the processor unit 205 to produce data at a substantially optimized rate, where the rate of data production is dependent on the rate at which the credit card device 201a is detected to be passing across the magnetic reader head.

[0029] FIG. 2B depicts a credit card device 201b according to an embodiment of the present disclosure. Credit card device 201b comprises a processor 205 and a memory unit 207, the processor 205 operatively coupled to the components of credit card device 201b. The memory 207 comprises a plurality of accounts 209, which may be credit card accounts, banking accounts, merchant accounts, online accounts, cryptocurrency accounts, and combinations thereof. A motion detection module 210 is coupled to the processor unit 205 and to a set of motion detection units, which comprise a rate detection assembly 225, an optical sensor array 230, and a set of accelerometers 235. Additionally, a galvanic sensor 275 is coupled to processor unit 205. The magnetic field is generated via a planar coil 220, which is controlled by the processor unit 205 via a coil interface 215. The rate at which the magnetic field changes polarity to encode the user

data depends on the rate of relative movement detected by the rate detector. The credit card device 201b further comprises a real-time clock 240, a touch-sensor array 245, and a display 250, each operatively coupled to the processor unit 205. A user input may be made via the touch sensor array 245, which may comprise a touch screen panel, a keypad, or a combination thereof. The display 250 is able to display an alphanumeric sequence, as well as graphical icons (such as a logo for a bank, or other images). Further, an optional backup power source 255 is depicted. Credit card device 201b further comprises a near-field communication (NFC) unit 260, as well as a radio frequency identification (RFID) unit 265, both of which are operatively coupled to the processor unit 205. In one embodiment the NFC and RFID may share the planar coil for use as a RF antennae, through the coil interface 215. In one embodiment one or both the NFC and the RFID may have antennae dedicated to that individual sub-system. A universal serial bus (USB) connector 270 is coupled to the processor unit 205. The functionality of the components with regard to exemplary uses of credit card devices 201a and 201b is described in greater detail in the following description.

[0030] A further aspect of the present disclosure provides a single credit card device that can be used for multiple banks or financial institutions. For example, instead of carrying a separate credit card for each account of a variety of credit card companies, a customer need only to carry a single card according to embodiments of the present disclosure. The capability of the credit card device to generate a multitude of credit card numbers provides the ability of the credit card device to be associated with multiple accounts. Furthermore, inputs at the touch sensor array on the credit card device can be

used to select the appropriate bank or credit provider account stored in the memory unit of the credit card device.

[0031] FIG. 2C depicts a process of selecting an account from a plurality of stored accounts in order to perform a transaction with the selected account, according to an embodiment of the present disclosure. The process 280 begins at step 282, where a plurality of accounts stored by the credit card device memory is displayed. The plurality of accounts 209 are stored by memory 207, and are displayed using display 250. A user indicates an account selected from the plurality of accounts at step 284. The selection is able to be made by keypad or touch sensor array 245, and an indication of the selected account can be displayed via display 250. At step 286 the credit card device is configured according to account information associated with the selected account, which may include an account number, an expiration date, and other user information associated with the account (e.g. a username, PIN, password, email address, etc.). At step 288 the planar coil of the credit card device is encoded with a limited-duration credit card number that is associated with the selected account. The limited-duration credit card number is able to be generated according to the selected account, a timestamp, a transaction amount, an indicated merchant, user key or secrets, on-card unique hardware secrets, credit card authority key or secrets, user input from the card interface, and other information associated with the transaction.

MOVEMENT RATE FEEDBACK

[0032] The relative movement rate of credit card device 201a is detected by one or more of the set of motion detection units, comprising the rate detection assembly 225,

the optical sensor array 230, and the set of accelerometers 235. Each of the motion detection units detects the motion of the credit card 201a in a distinct manner. The rate detection assembly 225, which is positioned alongside (but independent of) the planar coil 220, is able to detect the location of a magnetic head reader as the rate detection assembly 220 is being passed through the credit card reader. The reader module of a conventional credit card reader comprises a metal head having a small gap at the tip of the head. A pickup armature resides in this gap, such that as the metal head passes over a credit card strip, an electric field is induced in the head reader pickup circuit. In one embodiment the rate detection assembly 225 is constructed of an array of auxiliary inductor coils and magnetic pickup coils. As the metal head of the card reader assembly passes over the arrangement of auxiliary inductor coils and magnetic pickup coils of the rate detection assembly 225, a disturbance in the magnetic field flowing between the two is induced, generating a change in current and producing a detected movement signal. The change in current is detected by the motion detection module 210, and is used to determine the rate of motion of the card reader head passing across the surface of the credit card device 201a (and therefore along the planar coil 220).

[0033] The optical sensor array 230 is also operable to detect a movement rate of the credit card device 201a with respect to a conventional magnetic card reader. The optical sensor array 230 is disposed nearby the planar coil 220, in order to accurately detect a movement rate in the region of the planar coil 220. In an embodiment, the optical sensor array 230 is a thin strip parallel to, and extending along, the length of the planar coil 220. The optical sensor array 230 determines a location of a minimum of

received light, which corresponds to the region of a surface in nearest proximity to the optical sensor array 230. The magnetic reader head of a conventional magnetic card reader extends furthest from the surface of the card reader, and therefore the detected minimum in received light at the optical sensor array 230 corresponds with the location of the reader head. By tracking over time the position of this minimum received light along the optical sensor array, a detected movement rate may be found.

[0034] The set of accelerometers 235 are also operable to detect a movement rate of the credit card device 201a. The set of accelerometers 235 are positioned in the credit card device 201a in order to effectively measure the position and acceleration of the credit card device 201a. In an embodiment, the set of accelerometers comprises groups of accelerometers, each group having one or more accelerometers disposed at orthogonal planes to each other, and each group capable of generating signals that allow for determination of the orientation, motion and acceleration of the credit card device 201a.

[0035] The detected movement signal is received by the motion detection module 210. The detected movement signal is generated by any one of the set of motion detection units, or any combination of motion detection units of the set. For example, the movement detection signal is able to be generated by the combination of the rate detection assembly 225 and the optical sensor array 230. In an embodiment, the movement detection module 210 is able to determine the movement rate of the credit card device 201a from the detected movement signals, and transmits the determined movement rate, and orientation to the processor unit 205. In an embodiment, the motion

detection module 210 sends the detected movement signal to the processor unit 205, and the processor unit 205 determines the relative movement rate.

[0036] In one embodiment, the generation of the magnetic field by the planar coil 220 at a specified rate of alternating polarity is accomplished according to the following description. One or more of the motion detection units in the set of motion detection units (rate detection assembly 225, optical sensor array 230, and set of accelerometers 235) detect a movement rate of the credit card device 201a with respect to a magnetic card reader, and signal the motion detection module 210. The movement rate is provided to the processor unit 205, which determines the appropriate rate for alternating the polarity of the magnetic field generated by the planar coil 220. The processor unit 205 outputs instructions or data to the coil interface 215 at the determined rate, which in an embodiment is a digital-to-analog converter (a DAC) and acts to translate the signal from digital to analog in order to drive the planar coil 220 and produce the magnetic field. The instructions from the processor unit 205 are comprise binary code, which are output through a shift register to the coil interface 215. The shift register outputs data at a rate proportional to the determined movement rate of the credit card device 201a--thus, a higher determined credit card device 201a movement rate has a corresponding higher output rate at the shift register, leading to a higher rate of alternating polarity at the generated magnetic field (i.e., encoded data symbols output more quickly). Conversely, a lower movement rate of credit card device 201a leads the processor unit 205 to control the shift register to output data at a lower rate, and consequently the rate of alternating polarity in the generated magnetic field is lower.

[0037] FIG. 3 illustrates an exemplary process 300 for determining the rate to alternate the polarity of the generated magnetic field of the credit card device, according to an embodiment of the present disclosure. At step 301 the process determines if a standard magnetic card reader is detected to be in proximity with the credit card device. If NO, the step repeats. If YES, the process moves to step 303. At step 303 a detection of a movement rate at which the body of the credit card device is moving relative to the standard magnetic card reader is made. The process continues at step 305, wherein a magnetic field is generated by an inductor assembly comprised by the credit card device, the magnetic field having a target rate of alternating polarity that is based on the detected movement rate from step 303. The process then repeats at step 301, determining if a standard magnetic card reader is (or remains) in proximity to the credit card device. In this manner, while a standard magnetic card reader is detected to be in proximity to the credit card device, the movement rate of the credit card device is determined and the polarity and orientation of the generated magnetic field is alternated at the appropriate rate, to recreate the data as described above, at the correct rate, in order to clock out the data to be conveyed to the magnetic strip reader, at a rate matching the action of an ordinary magnetic strip card through same said magnetic card reader.

SECURITY

[0038] Security is an area of concern for credit card holders, as the small form factor makes theft quite easy, and additionally there are many ways for a malicious third-party to record the account number of a credit card in order to later make

fraudulent transactions on the account. Embodiments of the present disclosure address security concerns of a credit card owner on several fronts.

[0039] In one aspect, security of the credit card device is enhanced by providing a means of locking the credit card device in order to prevent use, until such time that a valid user input is entered. Embodiments of the present disclosure provide a credit card device having a region for receiving human input, e.g., touch sensors which are able to be formed by contacts that a user can press (e.g., the touch sensor array 245 of FIGS. 2A-2B). FIGS. 4A-4B illustrate a user interacting with a credit card device 401 via a keypad or touch sensor array 445. In FIG. 4A, the credit card device 401 is in a locked state. A display 450 is able to display a message to the user, for instance, the message "device locked" or "enter password," or question prompts which guide the user to respond with answers through said key-pad or said touch sensor, to certain preset questions, that confirm personal knowledge known only to the associated user. The touch sensor array 445 enables user interaction with the credit card device 401. An exemplary use of the touch sensor array 445 is an input of a currency amount to be used in a transaction. The touch sensor array 445 is able to include buttons, or a touch-sensitive pad, or a combination of the two. Other embodiments of the touch sensor array 445 allowing a user to input data to the credit card device 401 are consistent with the spirit and scope of the present disclosure.

[0040] In order to unlock the credit card device 401 and enable a transaction or other usage, the user inputs data via the touch sensor array 445. FIG. 4B illustrates the user inputting a password via a gesture 470, which operates to unlock the credit card

device 401. The display 450b is able to display a message indicating the credit card device 401 is unlocked and ready for use, for instance, display 450b may display the message "unlocked," or it may display an account number associated with the credit card device 401.

[0041] Embodiments of the present disclosure provide additional functionality for the touch sensor array 445. For example, there may be touch contact terminals that a user can press to wake up the credit card device 401, to cause the battery to supply power, or to place the credit card device 401 in a power reduction mode when it is not being used. In an embodiment, if any number other than the correct password is entered multiple times, or if there is an attempted usage of the credit card device 401 without entering in a password, an automatic phone call may be triggered to the appropriate fraud protection authorities.

[0042] In one embodiment of the present disclosure, the display 450 is a thin-film liquid crystal display ("LCD"). The display 450 is able to have multiple uses. In one embodiment, the display 450 can be used to cue the user for a security question upon input of an improper password. Or if fraud protection services need to contact a customer, they can verify the customer's identity by transmitting a security question to the display 450 of user's credit card device 401, to which the user would need to respond correctly using the input buttons of touch sensor 445 on the card.

LIMITED-DURATION CREDIT CARD NUMBER

[0043] A further security feature of the credit card device provided in the present disclosure is the capability of producing a limited-duration credit card number for performing transactions using accounts of the card. The credit card device comprises a real-time clock that is able to produce a cryptographically protected timestamp for each interaction. The power source is able to activate the processor unit such that a unique number may be generated by the credit card device and verified by the credit authority according to the timestamp and the transmitted user information. The limited-duration credit card number is able to be produced at the time the credit card device is performing a transaction, and is able to be generated according to the user's private information, a bank information, information regarding the facility performing the transaction, and the time of day. The limited-duration credit card number is able to be limited to only one transaction, a finite number of transactions, or may be limited to a specified period of time--e.g., 2 minutes, 10 minutes, 3 hours--after which time that particular limited-duration number would become invalid. As detailed above, if an expired limited-duration credit card is attempted to be used for a transaction, the transaction is denied and an automatic notification is able to be made to a credit authority in order to notify the user and to prevent transactions on the account. The transaction count is able to be determined through the action of passing the card through magnetic reader, and the process of transmitting said card number to said card reader.

[0044] In one embodiment, the number on the front of the card is able to be a full or partial number. In an embodiment, the number displayed on the credit card device is

a static number, but the number transmitted during a transaction is a limited-duration credit card number as described above. The number displayed on the credit card device may not necessarily be a static number. For example, the first four and last four digits of the credit card number are able to be fixed, while the remaining eight digits can be dynamically generated. As the credit card is read by the machine, part or all of the number may be dynamically produced at the time the card is read. As described above, the dynamic part of the limited-duration credit card number generated may be based on the user's private information, the user's bank information, the time of day or the facility that is reading the card. Further, the expiration date of the credit card device can also be dynamically generated.

[0045] Effectively, embodiments of the present disclosure provide a credit card device that has no fixed number, and therefore the account cannot be compromised. Only the number generated at the instant of the credit card transaction matters. Accordingly, unauthorized use of the credit card device is highly unlikely, because a transaction cannot be conducted with an expired limited-duration credit card number, or only the static portion of the credit card number. In one embodiment of the present disclosure, sufficient dynamically generated numbers are provided for on the credit card such that a unique credit card number can be generated for each transaction. In this embodiment, the credit card of the present disclosure effectively acts as a unique per-transaction credit card.

[0046] In one embodiment, the process steps enabling a card transaction are as follows. A credit card device (e.g., credit card device 201b) is connected to a computer

system (e.g. computer system 590), via any of the connection means available to the credit card device (USB 270, NFC 260, and RFID 265). User data and other essential information, such as account information, are downloaded to the credit card device. For example, for an account designed for online transactions, user account information will likely include an account email and an account password. The account may be for example a bank account, a credit account, a merchant account, an online transaction account, or a cryptocurrency. In one embodiment a currency amount is also downloaded, which is made accessible to the credit card device 201b for transactions. In an alternative embodiment, rather than a currency amount being downloaded to the credit card device 201b, the user account information (e.g., username and password) is stored such that a subsequent authorized credit card device 201b transaction is automatically pre-authorized to deduct (or credit) the entered transaction amount at a stored account. In an embodiment, a user uses the touch sensor array 245 of the credit card device 201b in order to input the user information, including the amount of currency to be stored. The information entered by the user is able to include an account source of a transaction (e.g., bank account, credit account, merchant account, ATM, online payment service, or a cryptocurrency), as well as a type of transaction to be made (e.g., as a debit card, as a credit card, or as a user account). In another embodiment, the information is entered using the computing system to which the credit card device 201b is connected.

[0047] Transactions may be authenticated on the specified account by entry of the username and password for the account during the transaction, using the touch sensor array 245. In an embodiment, a password for an account is represented by a user input

(such as a gesture, a swipe, and/or an unlock keycode) which is entered on credit card device 201b during a transaction for account authentication. According to an embodiment of the present disclosure, a user that has "primed" the credit card device 201b for a transaction has already performed a security authentication on the card, and therefore a subsequent card transaction is able to be pre-authorized to perform the transaction without further user authentication steps. The priming action can be a tap of the credit card device 201b detected by accelerometers 235, or a gesture, swipe, or a key input received by touch sensor array 245.

[0048] A transaction is able to be communicated using the planar coil 220. In one embodiment, when the transaction is a credit card transaction, a limited-duration credit card number is generated. A user inputs an amount for the transaction using the touch sensor array 245, and the limited-duration credit card number is generated to correspond with the entered amount. The binary data corresponding to this limited-duration credit card number is sent from the processor unit 205 to the coil interface 215, where it is converted to an analog signal in order to drive the planar coil 220 to generate a magnetic field having an alternating polarity corresponding to the encoded data of the limited-duration credit card number.

ONLINE TRANSACTIONS

[0049] FIG. 5 displays the credit card device 501 in connection with a computing device 590. In one embodiment, the credit card device 501 is able to be used to make online purchases. In one embodiment, the credit card device 501 is equipped with a means 570 for communicating with the USB port on a computer or other device in order

to make online purchases. In one embodiment the credit card device 501 may have an area cut-out, such that contact terminals corresponding to a USB cable connector are contained within, enabling connection of a USB cable (e.g., a micro-USB connection). When performing online transactions, the credit card device 501 can uniquely generate a limited-duration credit card number (as described above) for online purchases. The credit card device 501 receives a user input indicating that a transaction is imminent, and an authorization. The user input is able to comprise a gesture, a swipe, a key input sequence, and combinations thereof. The limited-duration credit card number is able to be displayed on the front display of the credit card device 501. In one embodiment, the credit card device 501 is able to use RFID 265 or near field communication NFC 260 technology in order to connect to a personal computer 590. This enables a per-transaction, limited-use credit card number, enhancing the security of the credit account by substantially negating the possibility of a theft of the credit card number used to perform the transaction leading to account compromise.

[0050] According to an embodiment, the transaction is able to include information regarding a user account, such as an email address of the user, and upon reconnection of credit card device 201b to a computer system (for instance, computer system 590), the transaction information stored on credit card device 201b could be "replayed" by the computer system in order to finalize the transaction.

[0051] In one embodiment, a means of limiting an available credit amount are provided. According to the download process described above, the credit card device is able to have a total credit available. The credit card device is able to reference the total

credit available in subsequent transactions, and will provide limited-duration credit card numbers corresponding to amounts up to, but not exceeding, the remaining credit available to the credit card device. An attempt to perform a transaction having an amount exceeding the remaining credit available will not result in a valid limited-duration credit card number, and therefore an authenticated transaction cannot proceed. In general, the credit card device will only successfully generate a limited-duration credit card number if the proper conditions for a transaction are determined to be present. The proper conditions for a transaction comprise a correct identification having been made by the user (via a gesture, swipe, and/or key input) and an amount for the transaction indicated to be less than the total credit available to the account indicated for the transaction.

CARD-TO-DEVICE TRANSACTIONS

[0052] In addition to transactions performed using conventional magnetic card readers (such as at point-of-sale locations, banks, and automated teller machines (ATMs)) and via cable connection with a computing device, transactions performed wirelessly between a card and a device (e.g., card-to-card, card-to-computer device having a reader dongle, card-to-ATM) are provided according to embodiments of the present disclosure. For simplicity, the following describes a card-to-card transaction, but it will be understood that card-to-device transactions are similarly provided.

[0053] FIG. 6 illustrates a card-to-card transaction according to one embodiment. A first credit card device 601a comprises a display 650a, and is in contact with a second credit card device 601b. A contact interaction between the cards is indicated by

interaction 680. In one embodiment, the contact interaction is a tapping of credit card device 601a against credit card device 601b. In another embodiment, an optical sensor array at one or both of the cards detects interaction 680. In another embodiment, interaction 680 indicates a swipe of credit card device 601a across credit card device 601b. In one embodiment a user input through said key-pad initiates and enables a transaction from first card to second card. In one embodiment the presence of second card in preparation for card to card transaction is confirmed through "polling", the process of which involves transmission of data between cards, and confirmed receipt of transmitted data by response received from second card received at first card, including information confirming receipt of said information, by second card.

[0054] The planar coil comprised by each of credit card device 601a and credit card device 601b is able to be a means of transferring information for a transaction, e.g., such as an antenna. Once either, or both, of credit card device 601a and credit card device 601b detect interaction 680, a transaction is able to be completed via generation of a magnetic field at one card and reception of the magnetic field (i.e., reading) at the other card. In this manner, the card (e.g., credit card device 601a) receiving the transaction information operates its planar coil in an antenna mode. This enables credit card device 601a and credit card device 601b to authentically perform a transaction, and to transfer a currency between credit card device 601a and credit card device 601b. As described above, in an embodiment the transaction is able to use a limited-duration card number to encode the transaction.

[0055] In an embodiment, a set of accelerometers is used to detect the beginning of the transaction, for instance, a transaction performed by a swipe of credit card device 601a across credit card device 601b. Further, the set of accelerometers can detect a "priming" action for a credit card device, i.e., an indication for a credit card device that a transaction is imminent. The priming action can be a tap of the credit card device 601a, or tapping the credit card device 601a against the credit card device 601b. In one embodiment, a touch sensor array is able to be used for the priming action.

[0056] In an embodiment of a card-to-card transaction, one card (e.g. 601a, the card of the user having a currency debit) generates the limited-duration credit card number, which is transmitted via the card's planar coil. The credit card device of the recipient (e.g., 601b, the card of the user receiving a currency credit) receives the encoded data via the planar coil, acting as an antenna, and the coil interface is able to convert the received signal into a digital signal understood by the processor to be the limited-duration credit card number, identifying both the correct account and the amount of the transaction.

[0057] In one embodiment, the credit card device 201b stores cryptocurrency information in processor unit 205. The cryptocurrency information stored is able to include a plurality of cryptocurrency addresses, a plurality of private keys, and a plurality of public keys. The credit card device 201b is able to perform a transaction, as described above, using a cryptocurrency as the specified account. In one embodiment, the credit card device 201b is able to hash a portion of the transaction, using the processor unit 205 and the real-time clock 240 along with user information pertinent to

the cryptocurrency account and the transaction. A subsequent connection of the credit card 201b to a computing device provides a means of connecting to the cryptocurrency servers and finalizing the transaction. Further, the credit card device 201b is able to sign a cryptocurrency transaction by, for instance, receiving a prompt at the display 250 to input a dynamic PIN specific to the transaction, which is able to be entered by touch sensor array 245.

[0058] In a card-to-card cryptocurrency exchange, a record of the transaction can be made according to the following. A first card (e.g. 601a) making a deduction with an amount indicated via touch sensor array 245 is able to generate a record of the transaction and store the record in the card memory, while a second card (e.g. 601b) receiving the cryptocurrency is able to generate a confirmation of the received transaction amount. In one embodiment, the amount indicated is provided by the receiving card 601b. The hashed record of the transaction contains the unique information of each user, along with the transaction amount. The success or failure of the transaction is able to be displayed on the respective displays of credit cards 601a and 601b.

ACCOUNT THEFT AND UNINTENDED USE PREVENTION

[0059] A security concern for conventional credit cards utilizing wireless communication means is the ability of a thief to access and/or copy user information through un-detected interaction with the wireless communication means. Sensitive and confidential information can be gleaned via, for example, "listening-in" on an RFID interaction between a credit card and a contactless reader, recording the characteristics

of the interaction, and replicating certain characteristics to fake an authorized transaction. While to a great extent security concerns are addressed by the usage of limited-duration credit card numbers and other security features provided for by the credit card of the present disclosure and previously described, a further security feature regarding the wireless communication means of the credit card device is described herein.

[0060] In one embodiment, wireless communication means of the credit card device 201b are in a powered-down, or disabled, state prior to receiving an authenticated activation signal from a user. Upon receiving the activation signal, the communication means (e.g., NFC 260, RFID 265, and planar coil 220) are activated, enabling the credit card device 201b to conduct a transaction. The activation signal can originate from one (or a combination) of the set of motion detection units (rate detection 225, optical sensor array 230, and accelerometers 235), the touch sensor array 245, and the galvanic sensor 275. The galvanic sensor 275 is operable to detect a contact of human skin, via a current produced at the sensor 275 upon such contact. In an embodiment the galvanic sensor 275 is comprised of metallic contacts disposed on opposite sides of, and isolated by, the body of credit card device 201b. In one embodiment, the current produced by user contact with the galvanic sensor 275 contacts is sufficient to provide small amounts of energy in order to power components of the card. For example, energy produced is able to power the processor unit 205 and the RFID 265. In one embodiment the galvanic sensor 275 further comprises two conducting surfaces separated by a junction, and the galvanic sensor 275 is configured as a thermoelectric generator (e.g., via the Peltier

effect, the Seebeck effect, or a combination). For example, heat applied at one surface of the credit card device 201b may lead to differential heating between the opposing, separated conducting surfaces of the galvanic sensor 275, generating an electric current and powering a subset of, or all of, the components of credit card device 201b (e.g., the processor unit 205, the NFC 260, and the RFID 265).

[0061] In an embodiment, the communication means are activated only so long as the activation signal continues to be detected. In another embodiment, the communication means are activated for a specified amount of time following detection of the activation signal. For example, if using the credit card device 201b in an ATM (or other device) preventing continuous human contact, the activation signal is able to be a swipe, gesture, or key input sequence entered via the touch sensor array 245, which activates the card for a specified duration (for instance, one minute). In an embodiment the detection of motion through accelerometer input indicates activation by a valid user. In one embodiment the specific motion detected through accelerometer input corresponding with a specific user action, such as a "flick", "swipe", "spin", "wave", "tap," may be used to initiate activation, wherein said motion is not normally generated at idle and during periods of inactivity. For example said motion not being generated accidentally while said card is stored in a user's wallet, carried while the user is actively moving, or is being handed from user to a clerk at a point of transaction. In one embodiment the specific motion, or sequence of motions, may be associated with a user, and stored on said card memory, such that performing the correct sequence when

prompted can confirm the possession of the card by the known owner, thus initiating activation and enabling usage.

[0062] FIG. 7 depicts a process of selectively enabling the communication capability of the credit card device according to an embodiment of the present disclosure. The process 700 begins at step 701, where an input signal is received at the credit card device from a user. The input signal is able to be generated by any one, or combination, of a plurality of input means, where the input means comprise: a swipe gesture received at a touch sensor array; a key press sequence; an accelerometer sensor indication of credit card device motion; and a galvanic sensor indication that the credit card is in a user grasp. The input received from the user enables operation of a near-field communication (NFC) unit of the credit card device. In one embodiment, the NFC unit is disabled prior to receiving the input signal. In one embodiment, an RFID communication unit is disabled prior to receiving the input signal, and is activated by the input signal. In one embodiment, the planar coil is disabled prior to receiving the input signal, and is activated by the input signal.

[0063] The credit card device, following enablement of the NFC unit, receives an indication of an amount of currency for a transaction at step 703. At step 705, the credit card device generates a limited-duration credit card number, which at step 707 is transmitted to a recipient of the transaction. In one embodiment, the limited-duration credit card number has a limited recurrence, and is limited in scope of use to a predetermined number of authorized transactions.

[0064] In the foregoing description of process 700, the ordering of the process steps is exemplary and should not be construed as limiting. Alternative ordering of the process steps is consistent with the present disclosure, as conceived by one skilled in the relevant art.

[0065] In one embodiment of the present invention, a credit card comprises a dynamic magnetic strip incorporating a main inductor assembly from which magnetic field data symbols are dynamically generated. In one embodiment the inductor assembly may be a planar coil formed within the plastic that the credit card is composed with. The advantage of using a planar coil is that it can produce the same magnetic field interaction that a traditional magnetic strip on a conventional credit card can produce when it is passed through a reader. Similar to a traditional plastic credit card, the planar coil can also produce a magnetic field that can be read by a pickup (or "transducer"). The pickup produces electric current in the coil that, in turn, produces a magnetic field that is read by the pickup. Accordingly, the planar coil can be read in the same way as the magnetic strip on a traditional plastic credit card. The magnetic field produced by the planar coil would behave identically to a traditional magnetic strip.

[0066] In one embodiment, alongside the main planar coil, auxiliary rate detection assembly independent of the main inductor assembly would be provided to assist with the alignment of the production of data from the loop as it is being passed over the head of the credit card reader. The reader module of a traditional credit card reader comprises a metal head with a small gap on the tip of the head. This gap is where the pickup armature resides, so that when the metal head passes over the credit card strip,

an electric field is induced in the head reader pickup circuit. In one embodiment the auxiliary rate detection assembly is constructed of an array of auxiliary inductor coils and magnetic pickup coils, alongside the main coil. As the metal head of the card reader assembly passes over the arrangement of auxiliary coils and pickup circuits, a disturbance in the magnetic field flowing between the two generates a electrical current change that is detected by a rate detection circuit so as to detect the rate of motion of the card reader head passing across the surface of the card and therefore along the main induction assembly. The purpose of this is to allow the determination of the rate or production of magnetic data symbols in the main inductor assembly to align with the rate at which data is being read by the reader, according to the data density of standard card magnetic strips. Accordingly, it is irrelevant if the credit card of the present invention is being swiped fast or slow, the main inductor assembly produces data at just the right rate depending on the rate at which the card is detected it is being passed over the reader's head.

[0067] In one embodiment, a microprocessor is connected to the main coil and the alignment pickups. The microprocessor is responsible for producing the data from the coil at the appropriate rate in accordance with the speed with which the card is swiped through the reader. As shown in Figure 1, the auxiliary coil detects the rate at which the credit card is being swiped. The microprocessor then uses this information to produce the data from the main planar coil at the appropriate rate for the credit card reader.

[0068] In addition, the credit card of the present invention comprises a real time clock that can produce a cryptographically worthy timestamp for each interaction and a battery back up that can be used to power up the microprocessor. Further, the card can comprise additional human inputs, e.g., touch sensors which can be formed by contacts that a user can press. For example, there can be contacts that a user can press to wake up the card, to cause the battery to supply power, or to put the card to sleep when it is not being used. There can also be additional inputs to key in customer specific information. For example, there can be inputs to key in a password or any other kind of unique identifier. If any other number besides the password is entered multiple times, or if there is attempted usage of the card without entering in a password, an automatic phone call may be triggered to the appropriate fraud protection authorities.

[0069] In one embodiment, the number on the front of the card can be a full or partial number. The number may not have to necessarily be a static number. For example, the first four and last four digits of the card number can be fixed while the remaining eight can be dynamically generated. As the credit card is read by the machine, part or all of the number may be dynamically produced at the time the card is read. The dynamic part of the number generated may be based on the user's private information, the user's bank information, the time of day or the facility that is reading the card. Further, the expiration date of the card can also be dynamically generated. Effectively, a credit card can be created that has no fixed number and therefore cannot be stolen. Only the number generated at the instant the card is being used matters. Accordingly, unauthorized use of the card is nearly impossible because no transaction

can be conducted with only the partial static part of the credit card number. In one embodiment of the present invention, enough dynamically generated numbers are provided for on the credit card such that a unique credit card number can be generated for each transaction. In this embodiment, the credit card of the present invention effectively acts as a unique per transaction credit card.

[0070] In embodiments of the present invention comprising dynamically created credit card numbers, a single credit card can be used for multiple banks. For example, instead of carrying a separate credit card for all the different credit card companies, a customer would only need to carry a single card and one of the inputs on the front of the card can be used to select the appropriate bank or credit provider.

[0071] In one embodiment of the present invention, a thin film liquid crystal display ("LCD") can be fitted on the card so the credit card can have a display screen. The display can have multiple uses. In one embodiment, the display can be used to ask the user a security question if an improper password is entered. Or if the fraud protection services need to contact a customer, they can verify the customer's identity by transmitting a security question to the user's credit card screen to which the user would then need to respond correctly using the input buttons on the card.

[0072] In one embodiment, the credit card of the present invention could also be used to make online purchases. In this embodiment, the card could use RFID or near field technology so that it can connect to a personal computer and be used to uniquely generate a credit card number for online purchases. The number could also, in one

embodiment, be displayed on the front LCD of the card. In one embodiment, the card may also be equipped with a means for communicating with the USB port on the computer in connection with making the online purchases.

TABLE 1

What is claimed is:

1. An apparatus for conducting credit transactions comprising:

a device with the similar dimensions and thickness to a standard credit card

an inductor assembly integrated into said device capable of generating a programmed magnetic field at a location on the device where it will come into proximity to a standard credit card magnetic-strip reader

the inductor assembly being operable to be read by a magnetic pickup of an electronic credit card reader;

at least one auxiliary rate detection units adjacent to said inductor assembly, wherein said at least one auxiliary detection unit is operable to detect a rate at which said device, including said inductor assembly, is passed through said electronic credit card reader; and

a microprocessor operatively coupled to said inductor assembly and said at least one detection unit, wherein said microprocessor is operable to simulate magnetic-strip data fields using the inductor assembly, at a rate determined from said auxiliary detection units.

2. A method of Claim 1, wherein the inductor assembly is a planar coil which is a looped inductor with dimension roughly equal to, and along the axis of, the standard credit-card magnetic strip

3. A method of Claim 1, wherein said detection assembly consists of a plurality of motion rate detection units, which may comprise inductor coils and companion magnetic-field pickup coils, each of which is able to detect the proximity of metallic objects, such as magnetic-strip reader heads, passing through the magnetic field created by said inductor and detected by said pickup coil.

4. A method of Claim 1, wherein said device may incorporate a plurality of touch sensors arranged along the surface of said device which may;

allow user input of information,

allow introducing a transaction specific identifier,

to confirm/deny transaction information,

to operate in sequence, or with a gesture across said sensor for the purpose lock/unlock or control access for transactions

5. A method of Claim 4, wherein said device contains a real-time clock or counter unit which generates a sequential parameter when the card is read by said credit card reader, and which along with certain user information, transaction identifiers, user secrets, credit card authority secrets is combined to generate a

limited-use credit card number, which has a limited recurrence, is limited in scope of use to a predetermined number of authorized transactions

6. A method of Claim 5, wherein the time, sequence, user, credit card authority and other information is similarly combined by credit card processing facility to generate a credit card number for comparison to the number transmitted by the credit card reader, for the purposes of authenticating said number is from a recognized card used in a user-authorized transaction

7. A method of Claim 1, wherein said device incorporates a display allowing credit card number, time, passcodes, sequence codes, amounts and other credit card transaction information to be displayed for user, merchant, bank or credit card authority

8. An Apparatus for conducting credit transactions comprising,

wherein the edge of said device contains a connector for connection to standard computing devices such as a USB interface.

[0073] The foregoing description, for purpose of explanation, has been described with reference to specific embodiments. However, the illustrative discussions above are not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the

invention and its practical applications, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as may be suited to the particular use contemplated.

[0074] Embodiments according to the invention are thus described. While the present disclosure has been described in particular embodiments, it should be appreciated that the invention should not be construed as limited by such embodiments, but rather construed according to the below claims.

CLAIMS

What is claimed is:

1. A method of performing a transaction, the method comprising:

receiving an input at an electronic device, wherein the input corresponds to a priming operation of the electronic device by an identified user and wherein the electronic device comprises:

a processor; a touch screen display coupled to the processor; and

a near field communications (NFC) interface coupled to the processor;

receiving a request for a transaction payment at said electronic device via the NFC interface;

displaying, on the touch-screen display, images of:

a card issuer payment method selection, including a last 4-digit partial number of a card issuer supplied account number of a payment card;

a card logo; and

other iconography of the payment card;

generating, by the processor, a limited-use payment information, and using said limited-use payment information in place of said card issuer supplied payment information;

transmitting said limited-use payment information from said electronic device to an NFC recipient of the transaction via said NFC interface; and

visually conveying a status of said transaction via a user-interface displayed on said touch-screen display.

2. The method of Claim 1, wherein the generating the limited-use payment information utilizes at least one information from a set of information comprising:

a device transaction sequence counter;

a device account number; device secret keys;

card issuer keys;

merchant information;

NFC recipient information;

payment reader information;

a time;

a timestamp;

an amount;

a location;

an online location;

transaction information;

payment information;

device information;

user information;

an email address; and

a user identification entry.

3. The method of Claim 1, further comprising:

dynamically generating a cryptogram number for use by the electronic device in place of a card validation value originated from the card issuer, and wherein the dynamically generating the cryptogram number comprises cryptographically combining a device transaction sequence counter count and at least one information of a set of information comprising:

a device account number;

device identifiers;

device secrets;

device keys;

payment issuer secrets;

payment issuer keys;

user information;

a time; and

transaction information; and

wherein further, said dynamically generating the cryptogram number results in a one-time limited-use number via the device incrementing said device transaction sequence counter count on a transaction.

4. The method of Claim 1, wherein a limited-use number comprises a device account number,

and wherein the device account number is of a limited time-duration of valid use,

and wherein further a card issuing authority provides said device account number for use only by the electronic device, in place of card issuer information in performing payment transactions by the electronic device, and further comprising:

performing payment transactions by the electronic device including the limited-use number;

combining the limited-use number and said device account number within a device generated payment information; and

conveying said device generated payment information, in place of card issuer information, when the device is performing payment transactions.

5. The method of Claim 1, further comprising:

generating a limited-use security number for use in place of a card issuer card security code by cryptographically combining information from at least one of a set of information comprising:

user information;

an internet address;

an email address;

a device transaction sequence counter;

a device account number;

device identifiers;

device secrets;

device keys;

issuer secrets;

issuer keys;

a payment card account number;

a payment card security code;

a time;

an expiration date;

an amount;

a merchant locality;

transaction information; and

displaying the limited-use security number on the user-interface of the display.

6. The method of Claim 1, wherein a payment processing authority verifies a limited-use number based on at least one information of the set of information comprising:

a transaction sequence count information;

a device account number;

user account information;

issuer secrets;

issuer keys;

issuer-provided device keys;

transaction information; and

a time of use, and further comprising:

authorizing said transaction, by the payment processing authority, responsive to verifying a valid limited-use number appearing in place of card issuer information; and

rejecting a limited-use number, by the payment processing authority, on at least one unverifiable condition, of a set of unverifiable conditions comprising:

an invalid number generation;

an invalid device account number;

a use outside of a valid time window;

an invalid re-use of a limited-use number; and

an invalid use of an expired limited-duration number.

7. The method of Claim 1, wherein the receiving an input at an electronic device comprises receiving an input via a user interface from one of the set of user interfaces comprising:

a device button;

a device touch-screen interface;

a device touch ID button interface;

an device optical sensor array;

a device skin touch sensor;

a skin-contact sensor;

a device motion detection interface;

a device biometric sensor interface; and

a device user-interface selection.

8. The method of claim 1, wherein the priming operation comprises one operation of the set of operations comprising:

a button press;

a touch ID button press;

a button double-press;

a touch ID sensor touch;

a touch-screen touch;

a touch-input sequence;

a gesture or swipe over a sensor-array;

a skin-contact sense;

an optical-sensor array sense;

an electronic device tap;

a sequence of motions of the electronic device;

a user-interface selection of a payment method; and

a user-interface selection initiating a payment-operation; and,

further comprising enabling the electronic device for payment via successfully completing at least one of a set of user-validations comprising:

a touching from an identified valid user;

a user entry of a valid passcode;

a user entry of a valid PIN;

swiping of a recognized user skin over a device sensor array;

a correct user swiping or gesturing on the electronic device;

a correct sequence of user taps on the electronic device;

a correct user sequence of user motioning of the electronic device;

a skin-contact sensing of an identified user;

a device biometric sensing of a valid user identity; and

a device biometric sensing the electronic device is continuously remaining in the proximity possession of a valid user.

9. The method of Claim 1, further comprising:

obtaining, by the electronic device, a user payment approval, through at least one device user interface of a set of interfaces comprising:

a device display interface;

a device touch-screen display interface;

a device touch interface;

device input buttons;

device key-pad inputs,

a device optical sensor array;

a device motion detection unit;

a device accelerometer;

a device biometric user-sensor; and

a device biometric sensing the electronic device is continuously remaining in the proximity contact of a valid user; and

displaying, on the display, at least one information of a set of information comprising:

a priming status of the electronic device for payment;

a default payment method;

a plurality of selectable payment accounts;

a payment request;

transaction information;

a payment amount;

a merchant identification;

a time;

an expiration date;

a location;

an account balance;

a payment bank logo;

a card image;

a payment card issuer icon;

a payment card network icon;

the last 4-digits of the primary account number;

the last 4-digits of the device account number; and

other payment iconography; and

receiving a user input of at least one user action, from a set of actions comprising:

a payment method selection;

a payment approval authorization;

a payment denial; and

an adjustment of a transaction payment.

10. The method of Claim 1, further comprising:

activating an NFC communication for a limited duration of time responsive to the electronic device priming; and

responsive to the preset duration being exceeded, terminating the NFC communications and aborting the transaction.

11. The method of Claim 1, further comprising completing the transaction on the electronic device, wherein the completing further comprises:

receiving an authorization input on the electronic device from a valid device user, in response to at least one of a set of exceptional conditions comprising:

the electronic device leaving the proximity of the NFC recipient;

the incomplete identifying of a valid device user;

the electronic device leaving the user's possession;

the electronic device leaving the proximity contact of the user;

the electronic device leaving the grasp of the user;

a biometric sensing the electronic device leaving the possession of a user since a last user validation;

the transaction exceeding a pre-set amount limit;

the transaction interval exceeding a pre-set time duration;

a card issuing authority requesting a security check; and

presenting the user with at least one of an set of selectable options comprising:

requesting a transaction payment;

continuing with the default payment method;

selecting an alternate payment account;

inputting an approval authorization;

inputting a transaction denial; and

inputting an adjustment of the transaction payment.

12. The method of Claim 1, further comprising:

subsequent to the priming operation, offering a user selection of payment options for user input selection by presenting a selection of payment options in graphical format on said touch-screen display, including at least one of:

a last four digits of a payment account number portion;

a last four digits of a device account number portion;

an expiration date;

a card issuer icon;

a bank logo;

a card processing network logo;

a card image;

a card payment network icon;

graphical images associated with the payment account;

accepting a user input selection of a payment option, from said payment options, via said touch-screen display; and

proceeding with a default payment option in said device payment transaction responsive to a user not selecting any of said payment options.

13. A method of Claim 1, wherein the priming operation comprises:

a button double press; and

a biometric sense of the device continuously remaining in the proximity contact of a valid user, since a last validation; and further comprising:

denying the priming operation for payment when the electronic device is not sensed as being continuously within the proximity contact of a valid user, until after successfully re-validating a user; and wherein re-validating a user requires a correct user passcode re-entry;

disabling a device priming operation on further button pressing;

disabling a payment priming operation after the expiration of a pre-set time duration from a successful priming action; and

disabling a device priming operation responsive to completing a transaction.

14. A method of Claim 1, wherein the priming operation is input after at least one of:

a biometric sense of a touch contact of a valid user's skin on a touch ID button of the electronic device, and validating a user passcode entry on the touch-screen display of the electronic device;

disabling a device priming operation on further button pressing;

disabling a payment priming operation after the expiration of a pre-set time duration from a successful priming action; and

disabling a device priming operation responsive to completing a transaction.

15. A method of performing a transaction, the method comprising:

receiving an input signal at an electronic device, the input signal corresponding to a request for payment of a transaction at said electronic device, via a recipient proximity communication request to an NFC interface of the electronic device;

displaying a summary of selectable payment account options at a touch-screen display user-interface of the electronic device;

receiving, from a valid device user, a payment selection and approval authorization input on the electronic device;

generating a limited-use number at said electronic device, and using said limited-use number in place of at least a portion of selected account issuer payment information; and

transmitting said limited-use number from said electronic device to a transaction recipient via the NFC interface.

16. The method of Claim 15, further comprising:

visually conveying on the touch-screen display user-interface, information regarding the transaction, including at least one of:

a payment amount requested;

an indication requesting an authorization input;

an indication of an authorization success;

an indication of an authorization failure;

an option to retry a transaction;

an option to retry a user authorization;

an option to retry validating a user identity;

an indication of a payment successfully completed;

an indication of a payment failure; and

an indication of a payment retry option.

17. The method of Claim 15, further comprising:

visually presenting on the touch-screen display user-interface, a plurality of payment options, including at least one of a set of payment method information for each payment option, the set comprising:

a card image;

a payment issuer logo;

partial payment account numbers;

a card payment network icon;

a graphical image-encoding of a users payment account information;

an amount of currency;

an account balance;

a credit limit;

an amount of remaining credit;

an amount of cryptocurrency;

a cryptocurrency server network; and

receiving a user-selection of a payment method for a transaction via said touch-screen display user-interface.

18. The method of Claim 15, further comprising:

receiving a priming operation at the electronic device for priming the electronic device for imminent payment, wherein the priming operation causes the electronic device to successfully identify the user through completing at least one user-validation, of a set of user validations comprising:

a touching of the device by an identified user;

a user entry of a valid passcode;

a user entry of a valid PIN;

a swiping of a recognized user skin over a sensor array of the electronic device;

a correct user swiping or gesturing on a touch sensor array of the electronic device;

a correct sequence of user taps on the electronic device;

a correct user sequence of user motions of the electronic device;

a skin-contact sense of a valid user; and

a device biometric recognition of a valid user.

19. The method of Claim 15, further comprising:

obtaining a user payment approval through at least one user-interface of the electronic device, of a set of user-interfaces comprising:

a touch-screen interface of the touch-screen display user-interface;

a touch ID button;

input buttons;

a touch key-pad;

an optical sensor array;

a sensor array operable to recognize a swiping of a recognized user skin over the sensor array;

a motion detection unit;

an accelerometer;

a biometric user-sensor;

a device biometric sensor operable to determine the electronic device continuously remains in contact with a valid user while the electronic device is coming within proximity contact of an NFC recipient;

displaying on said display at least one of a set of information comprising:

transaction information;

merchant information;

a time;

a location of the transaction;

a payment bank logo;

a card issuer icon;

a payment card image;

an amount; and

receiving a user input providing for at least one transaction action, from a set of actions comprising:

approving a transaction;

denying a transaction; and

adjusting a transaction.

20. An electronic device comprising:

at least one processor;

a memory coupled to the at least one processor;

a display operable to present a visual user-interface comprising device inputs;

display output;

a device input;

an NFC interface operable to receive a transaction request when in proximity to an NFC recipient;

wherein the processor is operable to execute a program to implement a method comprising:

accepting a priming action of the electronic device by an identified device user, from the device input;

enabling the electronic device for imminent performance of a payment operation responsive to the priming action of a valid user;

displaying a summary of selectable payment account options on the display;

receiving a payment selection and approval authorization from a valid device user via the device input; and

responsive to receiving an NFC transaction payment request, generating a limited-use payment information for use in place of card issuer payment information,

wherein the NFC interface is operable to transmit said payment information from said electronic device to the NFC recipient of the transaction; and

wherein further the processor is operable to cause the display to visually convey a status of the transaction.

21. The electronic device of Claim 20, wherein the method further comprises:

receiving the priming action of a valid user via the device input, wherein the device input comprises at least one of a set of device inputs comprising:

a button;

a touch ID button;

a touch sensor array;

a touch key-pad;

a motion detection unit;

an accelerometer;

an optical sensor array; and

identifying a valid device user through an input detection, selected from at least one of a set comprising:

a correct passcode entry sequence:

a touch ID recognition of a known user;

a biometric recognition of a valid user;

a biometric sensing of a valid users skin;

a biometric detection that the electronic device continuously remains in contact with a valid user; and

receiving a correct user response input, from a security challenge presented on the display.

22. The electronic device of Claim 20, wherein the memory is accessible to the processor,

wherein said memory comprises a static device-specific device account number of limited-use that originates from a card issuing authority and is limited to use by the electronic device in place of a card issuer account information,

wherein further said static device-specific device account number has an expiration date of limited duration of validity, and

wherein the generating a limited-use payment information comprises the processor generating said limited-use payment information by combining said static device-specific device account number, said device account expiration date,

when said issuer payment account method is selected.

23. The electronic device of Claim 20, wherein the memory is accessible to the processor, and wherein said memory comprises:

a static device-specific device account information including a device account number of limited-use;

and keys, wherein said device-specific device account information originates from a card issuing authority and is for limited-use by the specific electronic device only;

and wherein said static device-specific device account information is valid for a limited duration, and wherein the generating a limited-use payment information comprises the processor generating a one-time limited-use cryptogram number and

combining said limited-use static device account information and said one-time use cryptogram number to produce the limited-use payment information.

24. The electronic device of Claim 20 further comprising a cryptographic processor operable to dynamically generate a one-time limited-use cryptogram number by cryptographically combining of at least one information accessible on the electronic device, selected from a set comprising:

a sequence counter;

a device account number;

a device secret;

device keys;

card issuer keys;

a time;

an amount;

an expiration date;

a card security code;

a location;

merchant information;

NFC recipient information;

payment reader information;

an online location;

transaction information;

payment information;

device information;

user information;

an email address;

a user identification entry;

a hash of transaction information;

and a hashed record of transactions, and

wherein said cryptogram number is operable to be used in place of at least a portion of a card issuer payment information, in a payment transaction.

SMART TOKENIZING PAYMENT CARD AND DEVICE SYSTEM

ABSTRACT

An embodiment includes a credit card device capable of generating a programmed magnetic field of alternating polarity based on a speed of a card swipe, and methods for constructing the device for the purpose of emulating a standard credit card. An apparatus is described to allow said device to emulate behavior of a credit card when used in electronic credit card readers. Additionally methods are described to allow user control of said device for the purpose of authorizing or controlling use of said device in the application of credit, debit and cash transactions, including cryptocurrency and card-to-card transactions. Methods are also described for generating a limited-duration credit card number when performing a transaction for the purpose of creating a limited-use credit card number, which is limited in scope of use to a predetermined number of authorized transactions. Furthermore said device may interact with other similar devices in proximity for the purpose of funds or credit/debit transfers.

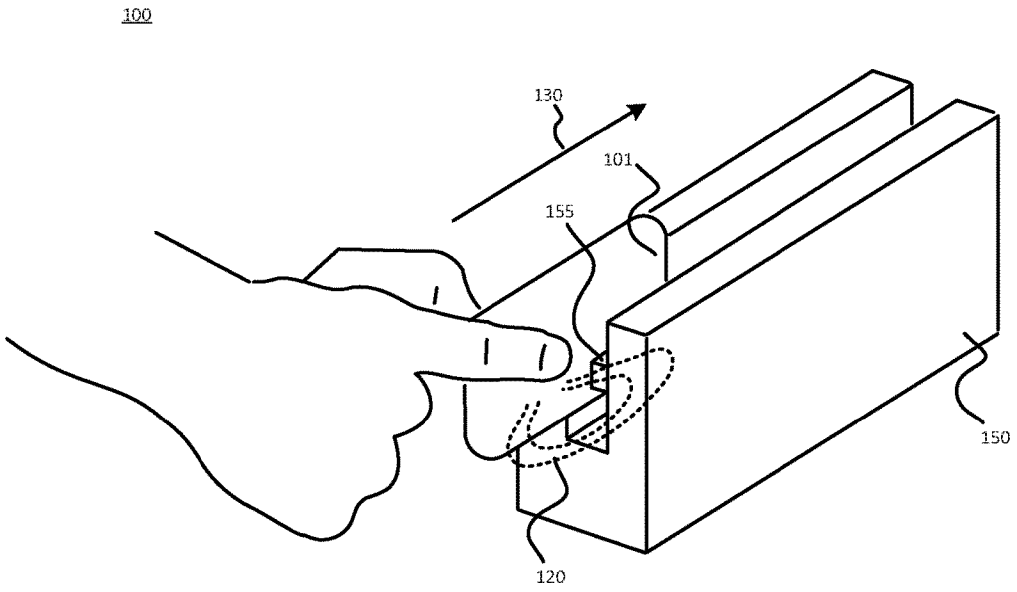

FIG. 1

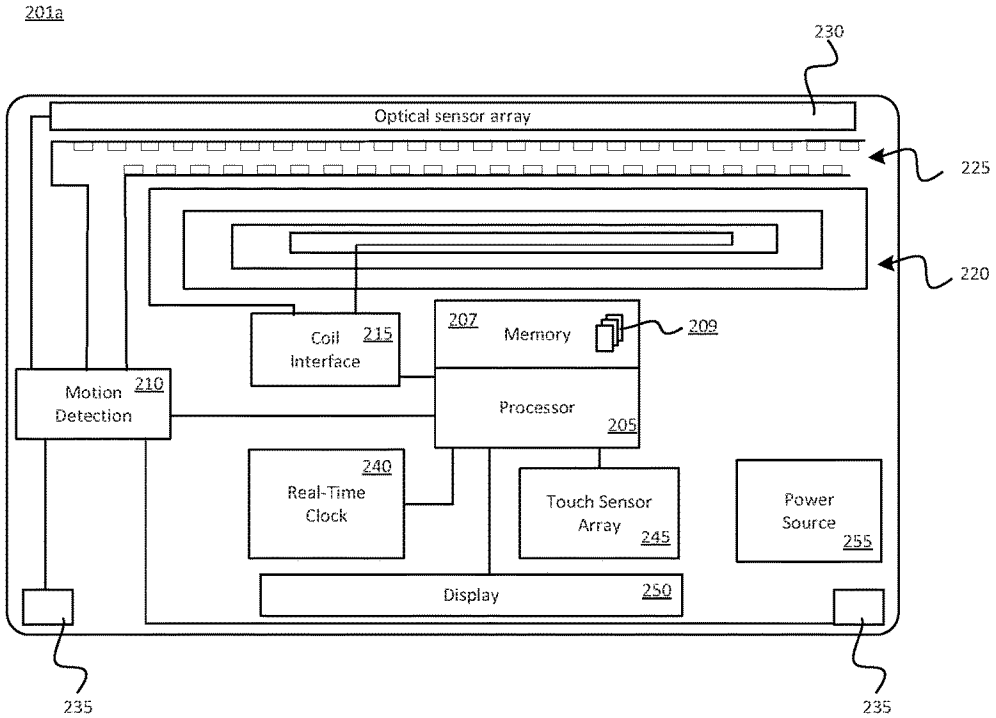
201a
230
Optical sensor array
225
220
Coil Interface 215
207 Memory
209
Motion Detection 210
Processor
205
240
Real-Time Clock
Touch Sensor Array 245
Power Source 255
Display 250
235
235

FIG. 2A

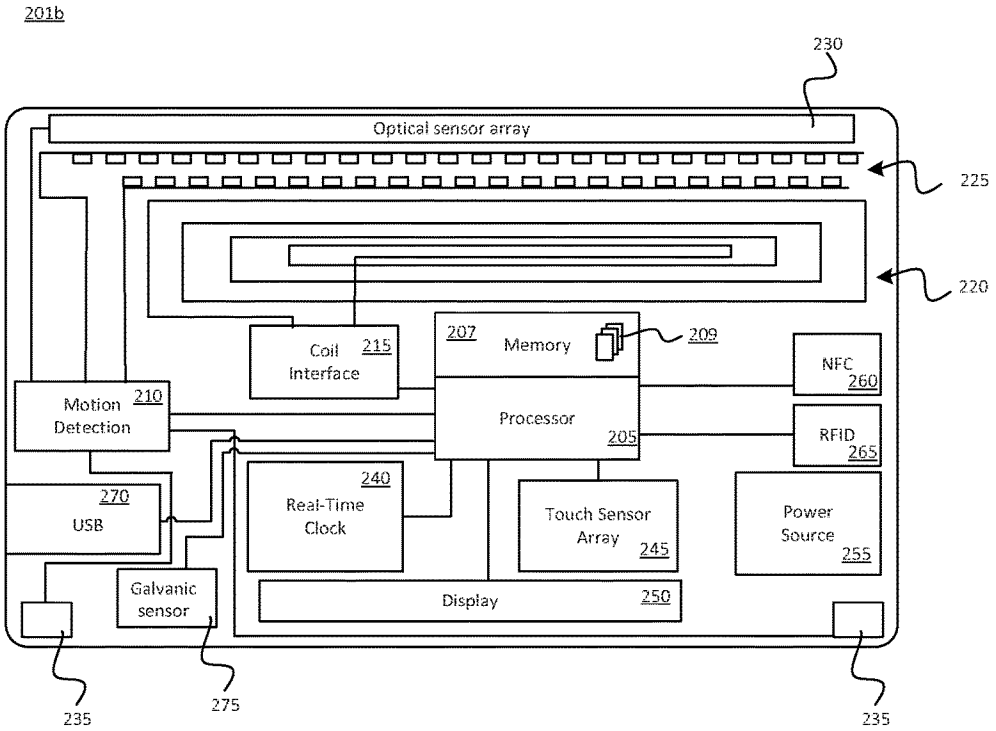
201b
230
Optical sensor array
225
220
Coil Interface 215
207 Memory
209
NFC 260
Motion Detection 210
Processor
205
RFID 265
240
Real-Time Clock
Touch Sensor Array 245
Power Source 255
270
USB
Galvanic sensor
Display 250
235
275
235

FIG. 2B

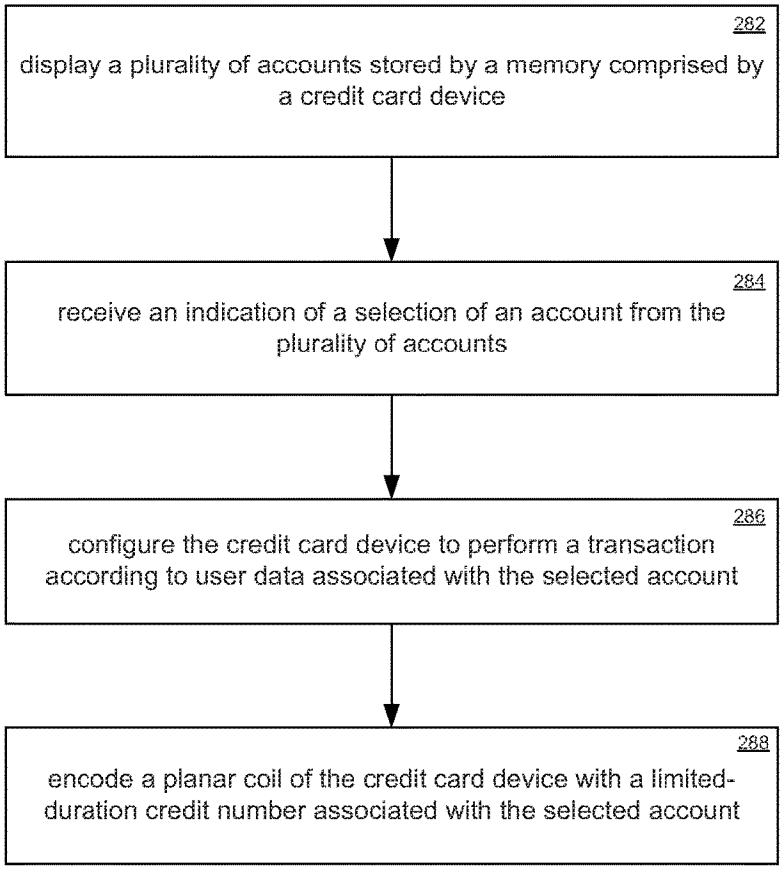
280
282
display a plurality of accounts stored by a memory comprised by a credit card device
284
receive an indication of a selection of an account from the plurality of accounts
286
configure the credit card device to perform a transaction according to user data associated with the selected account
288
encode a planar coil of the credit card device with a limited-duration credit number associated with the selected account

FIG. 2C

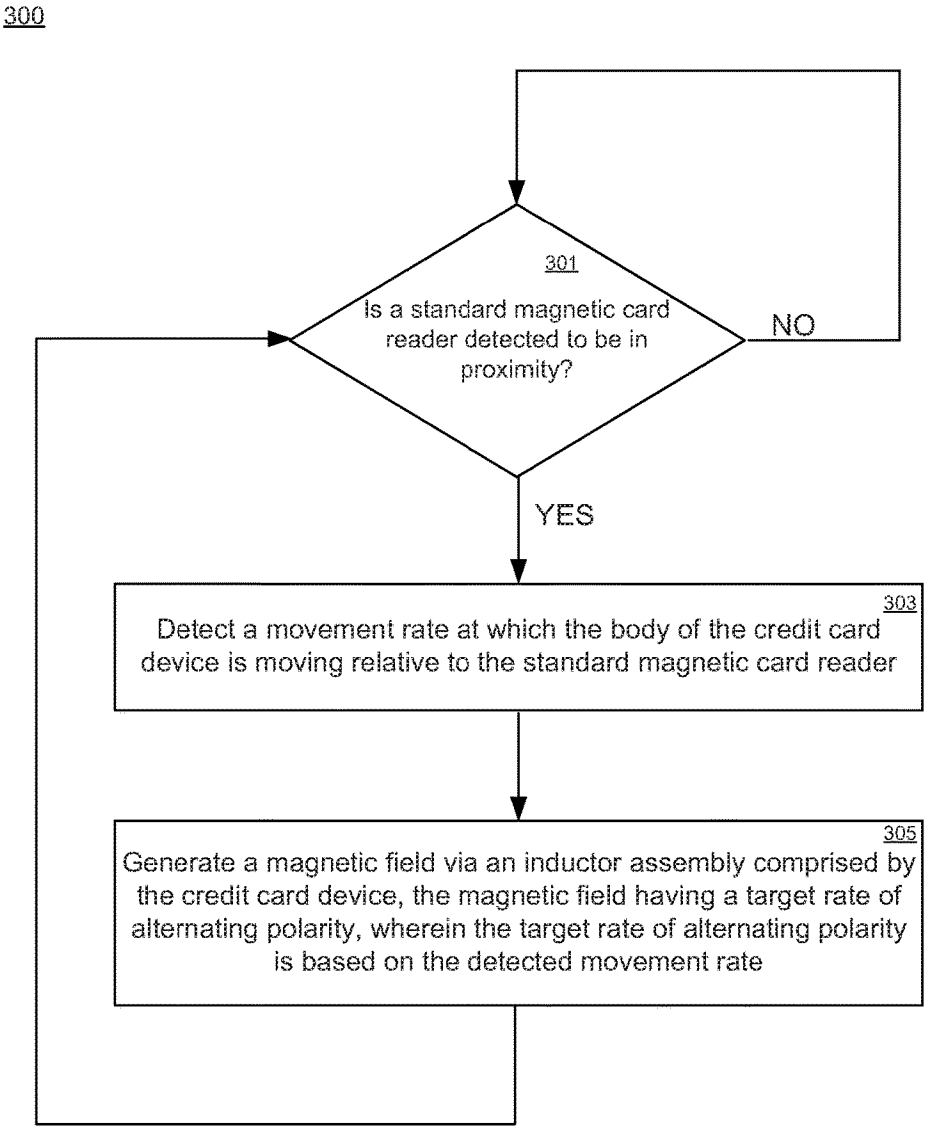
300
301
Is a standard magnetic card reader detected to be in proximity?
NO
YES
303
Detect a movement rate at which the body of the credit card device is moving relative to the standard magnetic card reader
305
Generate a magnetic field via an inductor assembly comprised by the credit card device, the magnetic field having a target rate of alternating polarity, wherein the target rate of alternating polarity is based on the detected movement rate

FIG. 3

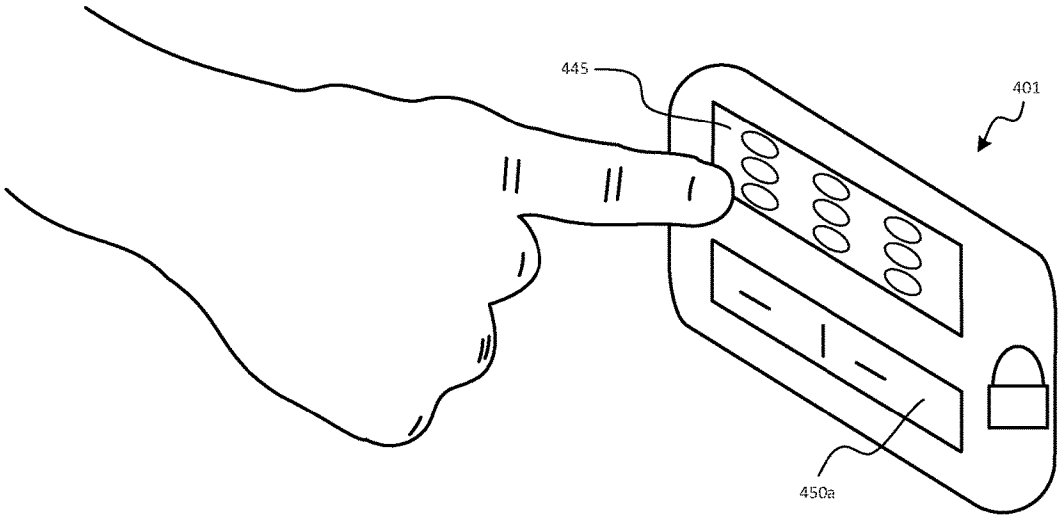

FIG. 4A

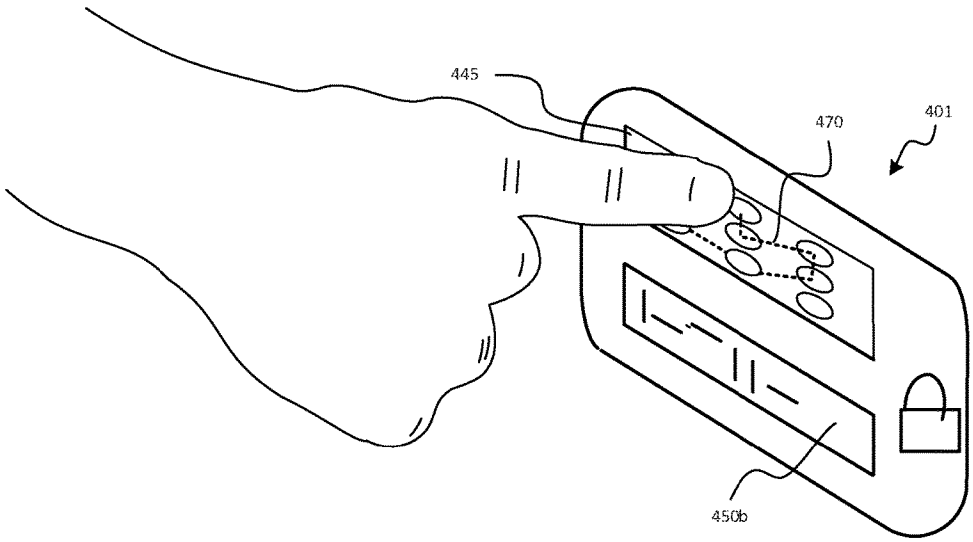

FIG. 4B

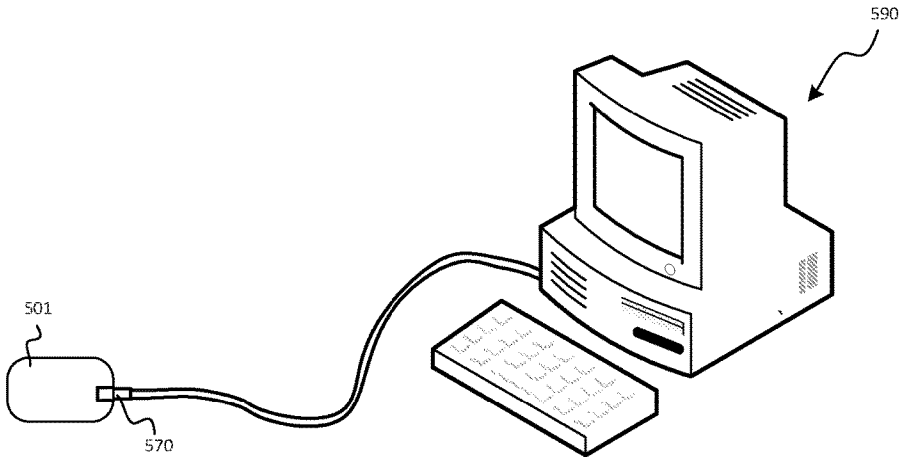

FIG. 5

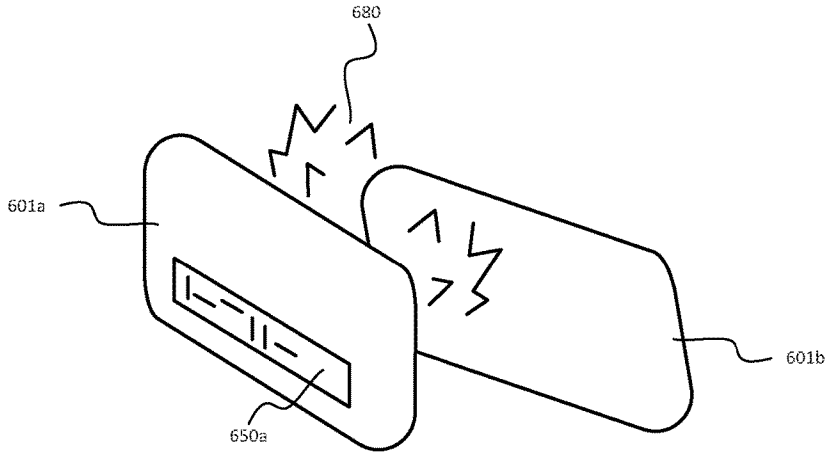

FIG. 6

700

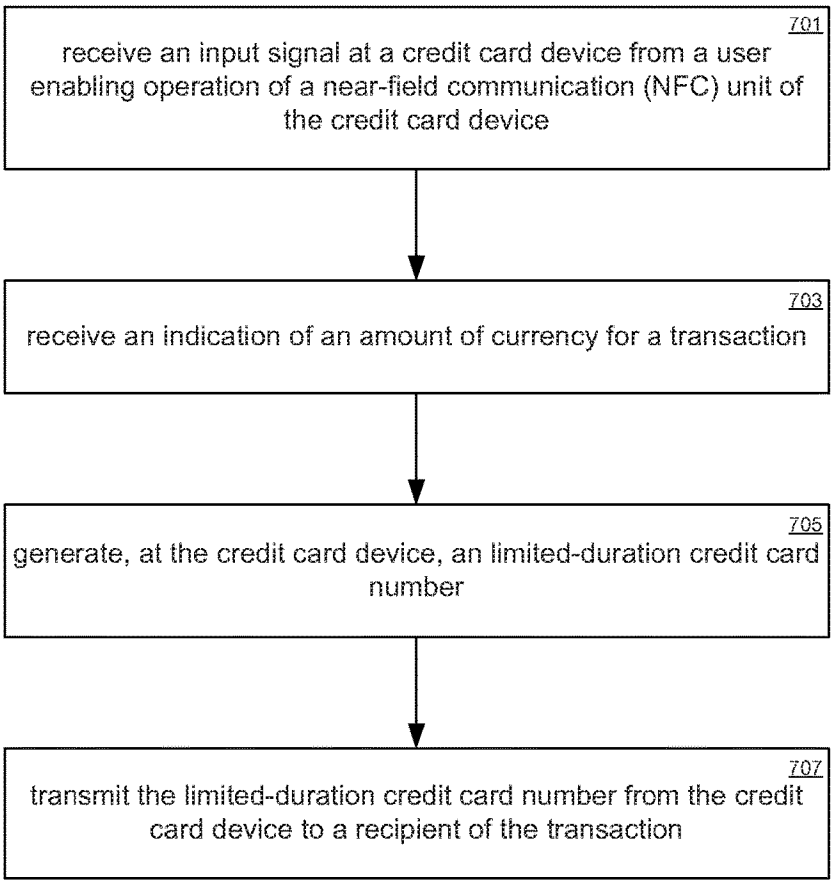
701
receive an input signal at a credit card device from a user enabling operation of a near-field communication (NFC) unit of the credit card device
703
receive an indication of an amount of currency for a transaction
705
generate, at the credit card device, an limited-duration credit card number
707
transmit the limited-duration credit card number from the credit card device to a recipient of the transaction

FIG. 7

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	Davod WYATT
Filer:	Anthony C. Murabito/Mina Oliveri
Attorney Docket Number:	WYAT-0002.USD1C1C1C

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	4	50	200
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	80	80

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1065**

Electronic Acknowledgement Receipt

EFS ID:	36468250
Application Number:	16459150
International Application Number:	
Confirmation Number:	1554
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	Davod WYATT
Customer Number:	136197
Filer:	Anthony C. Murabito/Mina Oliveri
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	WYAT-0002.USD1C1C1C
Receipt Date:	01-JUL-2019
Filing Date:	
Time Stamp:	17:32:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	$1065
RAM confirmation Number	070219INTEFSW17331000
Deposit Account	504160
Authorized User	Mina Oliveri

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	WYAT-0002USD1C1C1C_ADS_07-01-2019.pdf	1793653 a066a9372591f788bbcb0a47596862f9e5061043	no	9
Warnings:					
Information:					
2		WYAT-0002USD1C1C1C_CON_APP_07-01-2019.pdf	174411 cddb79f3cf44ad82286eec30fe69c29c9479a73d	yes	64
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Specification		1	42	
	Claims		43	63	
	Abstract		64	64	
Warnings:					
Information:					
3	Drawings-only black and white line drawings	WYAT-0002_USD1C1C1C_FIGS_07-01-2019.pdf	179138 2d22efeff40de6da35fdf2e95399212a0511b448	no	7
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	38269 15222c919feab1377b5bc7908d8c457be84be618	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2185471		

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/459,150	07/01/2019	2876	1065	WYAT-0002.USD1C1C1C	24	3

CONFIRMATION NO. 1554

FILING RECEIPT

OC000000109707538

136197
David Wyatt c/o Murabito, Hao & Barnes
Two North Market Street
Third Floor
San Jose, CA 95113

Date Mailed: 07/18/2019

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

David WYATT, San Jose, CA;

Applicant(s)

Virtual Electric Inc., San Jose, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 15/701,261 09/11/2017 PAT 10339520 *
which is a CON of 14/981,757 12/28/2015 PAT 9760884
which is a CON of 14/680,979 04/07/2015 PAT 9224083
which is a DIV of 14/217,261 03/17/2014 PAT 9022286
which claims benefit of 61/794,891 03/15/2013
(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 07/17/2019
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/459,150**
Projected Publication Date: 10/24/2019
Non-Publication Request: No
Early Publication Request: No
**** SMALL ENTITY ****
Title

SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD

Preliminary Class

235

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

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countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
16/459,150

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	24 minus 20 =	* 4	x 50 =	200	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 230 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	985		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
AMENDMENT A	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
AMENDMENT A	Application Size Fee (37 CFR 1.16(s))									
AMENDMENT A	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
AMENDMENT B	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
AMENDMENT B	Application Size Fee (37 CFR 1.16(s))									
AMENDMENT B	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

Doc Code: PA..
Document Description: Power of Attorney

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Approved for use through 03/31/2021. OMB 0651-0035
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Application Number	16/459,150
Filing Date	7/01/2019
First Named Inventor	David WYATT
Title	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
Art Unit	2887
Examiner Name	LEE, SEUNG H
Attorney Docket Number	WYAT-0002.USD1C1C1C

SIGNATURE of Applicant or Patent Practitioner

Signature	/Anthony C. Murabito/	Date (Optional)	8/15/2019
Name	Anthony C. Murabito	Registration Number	35295
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of _____ forms are submitted.

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If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

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OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

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OR

☐ The address associated with Customer Number

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Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Virtual Electric Inc.

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	[signature]	Date (Optional)	1/23/18
Name	DAVID WYATT		
Title	CEO/CTO		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ Total of 2 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 1.

Electronic Acknowledgement Receipt

EFS ID:	36882076
Application Number:	16459150
International Application Number:	
Confirmation Number:	1554
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	James P. Hao/Steve Johnson
Filer Authorized By:	James P. Hao
Attorney Docket Number:	WYAT-0002.USD1C1C1C
Receipt Date:	15-AUG-2019
Filing Date:	01-JUL-2019
Time Stamp:	11:21:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	WYAT-0002USD1C1C1C_POA_8-15-2019.pdf	2367261 10e86a5c90a2ce9d4b619edba6f0821ad71801ba	no	2

Warnings:

Information:	
Total Files Size (in bytes):	2367261

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/459,150	07/01/2019	David WYATT	WYAT-0002.USD1C1C1C

CONFIRMATION NO. 1554

POA ACCEPTANCE LETTER

136197
David Wyatt c/o Murabito, Hao & Barnes
111 North Market Street
Suite 700
San Jose, CA 95113

OC000000110527475

Date Mailed: 08/20/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/15/2019.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/dtdinh/

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/459,150	07/01/2019	David WYATT	WYAT-0002.USD1C1C1C

CONFIRMATION NO. 1554

PUBLICATION NOTICE

OC000000112129175

136197
David Wyatt c/o Murabito, Hao & Barnes
111 North Market Street
Suite 700
San Jose, CA 95113

Title:SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD

Publication No.US-2019-0325428-A1
Publication Date:10/24/2019

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/459,150	07/01/2019	David WYATT	WYAT-0002.USD1C1C1C	1554

136197 7590 05/08/2020
David Wyatt c/o Murabito, Hao & Barnes
111 North Market Street
Suite 700
San Jose, CA 95113

EXAMINER
LEE, SEUNG H

ART UNIT	PAPER NUMBER
2887	

NOTIFICATION DATE	DELIVERY MODE
05/08/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

misaac@mhbpatents.com
officeaction@mhbpatents.com
terimurabito@mhbpatents.com

Office Action Summary	Application No. 16/459,150	Applicant(s) WYATT, David	
	Examiner SEUNG H LEE	Art Unit 2887	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-24 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☑ Claim(s) 1-14 and 20-24 is/are allowed.

7) ☑ Claim(s) 15-18 is/are rejected.

8) ☑ Claim(s) 19 is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Claim Rejections - 35 USC § 102

2. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

3. The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claim(s) 15-18 are rejected under pre-AIA 35 U.S.C. 102(a) as being anticipated by Brudnicki et al. (US 2013/0159186).

Re claim 15: Brudnicki teaches a method of performing a transaction comprising receiving an input signal at an electronic device, the input signal corresponding to a request for payment of a transaction at the electronic device, via a recipient proximity communication request to an NFC interface of the electronic device (i.e., a consumer opens an application when the consumer is near the POS terminal, fig. 3A)), displaying a summary of selectable payment account options at a touch-screen

display user-interface of the electronic device (9A), receiving, from a valid device user, a payment selection and approval authorization input on the electronic device (i.e., transmitting the passcode to the issuing engine (2010), paragraph 0048), generating a limited-use number at the electronic device (i.e., receiving temporary payment card information, fig. 3A), and using the limited- use number in place of at least a portion of selected account issuer payment information (i.e., the consumer purchasing product/service with the temporary payment card information), and transmitting the limited-use number from the electronic device to a transaction recipient via the NFC interface (paragraph 0038) (see figs. 1A-10; paragraphs 0038-0075).

Re claim 16: The method further comprising visually conveying on the touch-screen display user-interface, information regarding the transaction including at an indication requesting an authorization input (Figs. 5-6A, 9A; paragraph 0027).

Re claim 17: The method further comprising visually presenting on the touch-screen display user-interface, a plurality of payment options, including at least one of a set of payment method information for each payment option, the set comprising a card image, a payment issuer logo (9A, paragraph 0075)

Re claim 18: The method further comprising receiving a priming operation at the electronic device for priming the electronic device for imminent payment, wherein the priming operation causes the electronic device to successfully identify the user through completing at least one user-validation, of a set of user validations comprising a touching of the device by an identified user, a user entry of a valid passcode (Fig. 5).

Allowable Subject Matter

5. Claims 1-14 and 20-24 are allowed.

6. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

None of prior art teaches a method of performing a transaction comprising receiving an input at an electronic device, wherein the input corresponds to a priming operation of the electronic device by an identified user and wherein the electronic device comprises a near field communications (NFC) interface coupled to the processor, receiving a request for a transaction payment at the electronic device via the NFC interface, generating, by the processor, a limited-use payment information, and using the limited-use payment information in place of the card issuer supplied payment information, transmitting the limited-use payment information from the electronic device to an NFC recipient of the transaction via the NFC interface, and visually conveying a status of the transaction via a user-interface displayed on the touch-screen display as set forth in the claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zhou et al. (US 9646300) and Kurian (US 9292849) teach a method of using mobile devices conducting transactions.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEUNG H LEE whose telephone number is (571)272-2401. The examiner can normally be reached on 7-4:00PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Paik can be reached on 571-272-2404. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SEUNG H LEE/
Primary Examiner, Art Unit 2887

Notice of References Cited	Application/Control No. 16/459,150	Applicant(s)/Patent Under Reexamination WYATT, David	
	Examiner SEUNG H LEE	Art Unit 2887	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-9646300-B1	05-2017	Zhou; Tiger T G	G06Q20/3224	1/1
*	B	US-9292849-B2	03-2016	Kurian; Manu Jacob	G06Q20/385	1/1
*	C	US-20130159186-A1	06-2013	Brudnicki; David	H04W12/06	705/44
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/459,150	WYATT, David
	Examiner	**Art Unit**
	SEUNG H LEE	2887

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06Q20/341 or G06Q20/4012 or G06Q20/3827 or G06Q20/346 or G06Q20/065 or G06Q20/409 or G06Q20/352 or G06Q20/24 or G06K19/07749 or G06K19/0716 or G06K19/06206 or G07F7/0873 or G06Q20/385 or G06Q20/347 or G06Q20/223 or G06Q20/06 or G07F19/00	05/05/2020	sl

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
EAST	05/05/2020	sl
14/680979, 14/981757, 15/701261 (parent cases)	05/05/2020	sl

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

IPR2025-01148
Apple EX1002 Page 104

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/459,150	WYATT, David
	Examiner	**Art Unit**
	SEUNG H LEE	2887

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	05/05/2020								
	1	=								
	2	=								
	3	=								
	4	=								
	5	=								
	6	=								
	7	=								
	8	=								
	9	=								
	10	=								
	11	=								
	12	=								
	13	=								
	14	=								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	O								
	20	=								
	21	=								
	22	=								
	23	=								
	24	=								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L4	30909	(G06Q20/341 or G06Q20/4012 or G06Q20/3827 or G06Q20/346 or G06Q20/065 or G06Q20/409 or G06Q20/352 or G06Q20/24 or G06K19/07749 or G06K19/0716 or G06K19/06206 or G07F7/0873 or G06Q20/385 or G06Q20/347 or G06Q20/223 or G06Q20/06 or G07F19/00).cpc.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:24
L5	129	4 and (nfc same select$4 same payment same limit$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:25
L6	43	4 and (nfc same select$4 same payment same limit$4 same display$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:26
L8	6	(("10339520") or ("9760884") or ("9224083") or ("9022286")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2020/05/05 08:33
L9	0	L8 and (nfc same select$4 same payment same limit$4 same display$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:33
L10	109	(nfc same select$4 same payment same limit$4 same display$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:33
L12	94	10 same (mobile portable)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:34
L13	4186	dynamic same credit same card	US-PGPUB;	OR	OFF	2020/05/05 08:35

			USPAT; EPO; JPO			
L14	7	10 and 13	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:35
L15	23	("20020073025" | "20030101137" | "20070278290" | "20100057553" | "20100082487" | "20110137748" | "20110302089" | "20120006891" | "20140052607" | "20140129422" | "20140143037" | "20140195324" | "20140249941" | "20140279474" | "20150058145" | "20160027005" | "20160086161" | "20160162857" | "20160162887" | "20160335619" | "6633223" | "9292849" | "9489671").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/05/05 08:38
L16	6	("20040168067" | "20090276347" | "20110016047" | "20120173311" | "20130159186" | "6163771").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/05/05 08:39
L17	4	(("10339520") or ("9760884") or ("9224083") or ("9022286")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/05/05 09:39
L18	1	17 and (respons$4 same nfc same generat$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 09:40
S1	30843	(G06Q20/341 or G06Q20/4012 or G06Q20/3827 or G06Q20/346 or G06Q20/065 or G06Q20/409 or G06Q20/352 or G06Q20/24 or G06K19/07749 or G06K19/0716 or G06K19/06206 or G07F7/0873 or G06Q20/385 or G06Q20/347 or G06Q20/223 or G06Q20/06 or G07F19/00).cpc.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/04/27 12:21
S2	1	nfc same transaction same payment same logo same limited same issuer	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/04/27 12:22

S4	311	monitor$4 same master same node same wireless same sensor	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 12:55
S5	18	S4.clm.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 12:55
S6	107	S4 same (slave peripheral)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 12:56
S7	7	S6.clm.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 12:56
S8	17	("20030018927" | "9860688" | "20180165568" | "20150154531" | "9189226" | "20100082870" | "20170039666" | "20180046964" | "9824329" | "20080239282" | "9182231" | "20130107770" | "20070049291" | "6614392" | "20100299401" | "20160233927").PN.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 12:58
S9	9	S6 same (environment$4 temperature)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 13:00
S10	9	("20130250357" | "20150324745" | "7177054" | "8292173" | "7048194" | "7299990" | "7540603" | "8072620" | "20100096181").PN.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 13:04
S11	39	("2015/0324745").URPN.	USPAT	OR	OFF	2020/05/02 08:57
S12	35	label same wireless same master same (slave peripheral)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/02 09:00
S13	39	"517508"	US-PGPUB;	OR	OFF	2020/05/02 09:19

			USPAT; EPO; JPO			
S14	6	(("10339520") or ("9760884") or ("9224083") or ("9022286")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2020/05/04 05:07
S15	55	nfc same transaction same payment same limited same issuer	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/04 05:07
S16	5	S15 same proximity	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/04 05:08

5/5/2020 9:41:28 AM
C:\Users\slee5\Documents\EAST\Workspaces\16-459150.wsp

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Wyatt

Serial: 16/459,150 Group Art Unit: 2887

Filed: 07-01-2019 Examiner: Lee, Seung H.

For: Smart Tokenizing Payment Card and Device and Transaction Processing Thereof, System and Method

Honorable Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

AMENDMENT and RESPONSE

Dear Examiner Lee:

In response to the Office Action mailed 5/8/2020, please enter the indicated amendments and consider the following remarks for filing in the above captioned patent application.

In the Claims:

1. (original) A method of performing a transaction, the method comprising:

receiving an input at an electronic device, wherein the input corresponds to a priming operation of the electronic device by an identified user and wherein the electronic device comprises:

a processor; a touch screen display coupled to the processor; and

a near field communications (NFC) interface coupled to the processor;

receiving a request for a transaction payment at said electronic device via the NFC interface;

displaying, on the touch-screen display, images of:

a card issuer payment method selection, including a last 4-digit partial number of a card issuer supplied account number of a payment card;

a card logo; and

other iconography of the payment card;

generating, by the processor, a limited-use payment information, and using said limited-use payment information in place of said card issuer supplied payment information;

transmitting said limited-use payment information from said electronic device to an NFC recipient of the transaction via said NFC interface; and

visually conveying a status of said transaction via a user-interface displayed on said touch-screen display.

2. (original) The method of Claim 1, wherein the generating the limited-use payment information utilizes at least one information from a set of information comprising:

a device transaction sequence counter;

a device account number; device secret keys;

card issuer keys;

merchant information;

NFC recipient information;

payment reader information;

a time;

a timestamp;

an amount;

a location;

an online location;

transaction information;

payment information;

device information;

user information;

an email address; and

a user identification entry.

3. (original) The method of Claim 1, further comprising:

dynamically generating a cryptogram number for use by the electronic device in place of a card validation value originated from the card issuer, and wherein the dynamically generating the cryptogram number comprises cryptographically combining a device transaction sequence counter count and at least one information of a set of information comprising:

a device account number;

device identifiers;

device secrets;

device keys;

payment issuer secrets;

payment issuer keys;

user information;

a time; and

transaction information; and

wherein further, said dynamically generating the cryptogram number results in a one-time limited-use number via the device incrementing said device transaction sequence counter count on a transaction.

4. (original) The method of Claim 1, wherein a limited-use number comprises a device account number,

and wherein the device account number is of a limited time-duration of valid use,

and wherein further a card issuing authority provides said device account number for use only by the electronic device, in place of card issuer information in performing payment transactions by the electronic device, and further comprising:

performing payment transactions by the electronic device including the limited-use number;

combining the limited-use number and said device account number within a device generated payment information; and

conveying said device generated payment information, in place of card issuer information, when the device is performing payment transactions.

5. (original) The method of Claim 1, further comprising:

generating a limited-use security number for use in place of a card issuer card security code by cryptographically combining information from at least one of a set of information comprising:

user information;

an internet address;

an email address;

a device transaction sequence counter;

a device account number;

device identifiers;

device secrets;

device keys;

issuer secrets;

issuer keys;

a payment card account number;

a payment card security code;

a time;

an expiration date;

an amount;

a merchant locality;

transaction information; and

displaying the limited-use security number on the user-interface of the display.

6. (original) The method of Claim 1, wherein a payment processing authority verifies a limited-use number based on at least one information of the set of information comprising:

a transaction sequence count information;

a device account number;

user account information;

issuer secrets;

issuer keys;

issuer-provided device keys;

transaction information; and

a time of use, and further comprising:

authorizing said transaction, by the payment processing authority, responsive to verifying a valid limited-use number appearing in place of card issuer information; and

rejecting a limited-use number, by the payment processing authority, on at least one unverifiable condition, of a set of unverifiable conditions comprising:

an invalid number generation;

an invalid device account number;

a use outside of a valid time window;

an invalid re-use of a limited-use number; and

an invalid use of an expired limited-duration number.

7. (original) The method of Claim 1, wherein the receiving an input at an electronic device comprises receiving an input via a user interface from one of the set of user interfaces comprising:

a device button;

a device touch-screen interface;

a device touch ID button interface;

an device optical sensor array;

a device skin touch sensor;

a skin-contact sensor;

a device motion detection interface;

a device biometric sensor interface; and

a device user-interface selection.

8. (original) The method of claim 1, wherein the priming operation comprises one operation of the set of operations comprising:

a button press;

a touch ID button press;

a button double-press;

a touch ID sensor touch;

a touch-screen touch;

a touch-input sequence;

a gesture or swipe over a sensor-array;

a skin-contact sense;

an optical-sensor array sense;

an electronic device tap;

a sequence of motions of the electronic device;

a user-interface selection of a payment method; and

a user-interface selection initiating a payment-operation; and,

further comprising enabling the electronic device for payment via successfully completing at least one of a set of user-validations comprising:

a touching from an identified valid user;

a user entry of a valid passcode;

a user entry of a valid PIN;

swiping of a recognized user skin over a device sensor array;

a correct user swiping or gesturing on the electronic device;

a correct sequence of user taps on the electronic device;

a correct user sequence of user motioning of the electronic device;

a skin-contact sensing of an identified user;

a device biometric sensing of a valid user identity; and

a device biometric sensing the electronic device is continuously remaining in the proximity possession of a valid user.

9. (original) The method of Claim 1, further comprising:

obtaining, by the electronic device, a user payment approval, through at least one device user interface of a set of interfaces comprising:

a device display interface;

a device touch-screen display interface;

a device touch interface;

device input buttons;

device key-pad inputs,

a device optical sensor array;

a device motion detection unit;

a device accelerometer;

a device biometric user-sensor; and

a device biometric sensing the electronic device is continuously remaining in the proximity contact of a valid user; and

displaying, on the display, at least one information of a set of information comprising:

a priming status of the electronic device for payment;

a default payment method;

a plurality of selectable payment accounts;

a payment request;

transaction information;

a payment amount;

a merchant identification;

a time;

an expiration date;

a location;

an account balance;

a payment bank logo;

a card image;

a payment card issuer icon;

a payment card network icon;

the last 4-digits of the primary account number;

the last 4-digits of the device account number; and

other payment iconography; and

receiving a user input of at least one user action, from a set of actions comprising:

a payment method selection;

a payment approval authorization;

a payment denial; and

an adjustment of a transaction payment.

10. (original)The method of Claim 1, further comprising:

activating an NFC communication for a limited duration of time responsive to the electronic device priming; and

responsive to the preset duration being exceeded, terminating the NFC communications and aborting the transaction.

11. (original)The method of Claim 1, further comprising completing the transaction on the electronic device, wherein the completing further comprises:

receiving an authorization input on the electronic device from a valid device user, in response to at least one of a set of exceptional conditions comprising:

the electronic device leaving the proximity of the NFC recipient;

the incomplete identifying of a valid device user;

the electronic device leaving the user's possession;

the electronic device leaving the proximity contact of the user;

the electronic device leaving the grasp of the user;

a biometric sensing the electronic device leaving the possession of a user since a last user validation;

the transaction exceeding a pre-set amount limit;

the transaction interval exceeding a pre-set time duration;

a card issuing authority requesting a security check; and

presenting the user with at least one of an set of selectable options comprising: requesting a transaction payment;

continuing with the default payment method;

selecting an alternate payment account;

inputting an approval authorization;

inputting a transaction denial; and

inputting an adjustment of the transaction payment.

12. (original)The method of Claim 1, further comprising:

subsequent to the priming operation, offering a user selection of payment options for user input selection by presenting a selection of payment options in graphical format on said touch-screen display, including at least one of:

a last four digits of a payment account number portion;

a last four digits of a device account number portion;

an expiration date;

a card issuer icon;

a bank logo;

a card processing network logo;

a card image;

a card payment network icon;

graphical images associated with the payment account;

accepting a user input selection of a payment option, from said payment options, via said touch-screen display; and

proceeding with a default payment option in said device payment transaction responsive to a user not selecting any of said payment options.

13. (original)A method of Claim 1, wherein the priming operation comprises:

a button double press; and

a biometric sense of the device continuously remaining in the proximity contact of a valid user, since a last validation; and further comprising:

denying the priming operation for payment when the electronic device is not sensed as being continuously within the proximity contact of a valid user, until after successfully re-validating a user; and wherein re-validating a user requires a correct user passcode re-entry;

disabling a device priming operation on further button pressing;

disabling a payment priming operation after the expiration of a pre-set time duration from a successful priming action; and

disabling a device priming operation responsive to completing a transaction.

14. (original)A method of Claim 1, wherein the priming operation is input after at least one of: a biometric sense of a touch contact of a valid user's skin on a touch ID button of the electronic device, and validating a user passcode entry on the touch-screen display of the electronic device;

disabling a device priming operation on further button pressing;

disabling a payment priming operation after the expiration of a pre-set time duration from a successful priming action; and

disabling a device priming operation responsive to completing a transaction.

15. (currently amended) A method of performing a transaction, the method comprising:

receiving an input signal at an electronic device, the input signal corresponding to a request for payment of a transaction at said electronic device, via a recipient proximity communication request to an NFC interface of the electronic device;

displaying a summary of selectable payment account options at a touch-screen display user-interface of the electronic device;

receiving, from a valid device user, a payment selection and approval authorization input on the electronic device;

generating a limited-use number at said electronic device, and using said limited-use number in place of at least a portion of selected account issuer payment information; and

transmitting said limited-use number from said electronic device to a transaction recipient via the NFC interface;

obtaining a user payment approval through at least one user-interface of the electronic device, of a set of user-interfaces comprising:

a touch-screen interface of the touch-screen display user-interface;

a touch ID button;

input buttons;

a touch key-pad;

an optical sensor array;

a sensor array operable to recognize a swiping of a recognized user skin over the sensor array;

a motion detection unit;

an accelerometer;

a biometric user-sensor;

a device biometric sensor operable to determine the electronic device continuously remains in contact with a valid user while the electronic device is coming within proximity contact of an NFC recipient;

displaying on said display at least one of a set of information comprising:

transaction information;

merchant information;

a time;

a location of the transaction;

a payment bank logo;

a card issuer icon;

a payment card image;

an amount; and

receiving a user input providing for at least one transaction action, from a set of actions comprising:

approving a transaction;

denying a transaction; and

adjusting a transaction.

16. (original)The method of Claim 15, further comprising:

visually conveying on the touch-screen display user-interface, information regarding the transaction, including at least one of:

a payment amount requested;

an indication requesting an authorization input;

an indication of an authorization success;

an indication of an authorization failure;

an option to retry a transaction;

an option to retry a user authorization;

an option to retry validating a user identity;

an indication of a payment successfully completed;

an indication of a payment failure; and

an indication of a payment retry option.

17. (original)The method of Claim 15, further comprising:

visually presenting on the touch-screen display user-interface, a plurality of payment options, including at least one of a set of payment method information for each payment option, the set comprising:

a card image;

a payment issuer logo;

partial payment account numbers;

a card payment network icon;

a graphical image-encoding of a users payment account information;

an amount of currency;

an account balance;

a credit limit;

an amount of remaining credit;

an amount of cryptocurrency;

a cryptocurrency server network; and

receiving a user-selection of a payment method for a transaction via said touch-screen display user-interface.

18. (original)The method of Claim 15, further comprising:

receiving a priming operation at the electronic device for priming the electronic device for imminent payment, wherein the priming operation causes the electronic device to successfully identify the user through completing at least one user-validation, of a set of user validations comprising:

a touching of the device by an identified user;

a user entry of a valid passcode;

a user entry of a valid PIN;

a swiping of a recognized user skin over a sensor array of the electronic device;

a correct user swiping or gesturing on a touch sensor array of the electronic device;

a correct sequence of user taps on the electronic device;

a correct user sequence of user motions of the electronic device;

a skin-contact sense of a valid user; and

a device biometric recognition of a valid user.

19. (canceled)

20. (original) An electronic device comprising:

at least one processor;

a memory coupled to the at least one processor;

a display operable to present a visual user-interface comprising device inputs; display output;

a device input;

an NFC interface operable to receive a transaction request when in proximity to an NFC recipient;

wherein the processor is operable to execute a program to implement a method comprising:

accepting a priming action of the electronic device by an identified device user, from the device input;

enabling the electronic device for imminent performance of a payment operation responsive to the priming action of a valid user;

displaying a summary of selectable payment account options on the display; receiving a payment selection and approval authorization from a valid device user via the device input; and

responsive to receiving an NFC transaction payment request, generating a limited-use payment information for use in place of card issuer payment information,

wherein the NFC interface is operable to transmit said payment information from said electronic device to the NFC recipient of the transaction; and

wherein further the processor is operable to cause the display to visually convey a status of the transaction.

21. (original)The electronic device of Claim 20, wherein the method further comprises:

receiving the priming action of a valid user via the device input, wherein the device input comprises at least one of a set of device inputs comprising:

a button;

a touch ID button;

a touch sensor array;

a touch key-pad;

a motion detection unit;

an accelerometer;

an optical sensor array; and

identifying a valid device user through an input detection, selected from at least one of a set comprising:

a correct passcode entry sequence:

a touch ID recognition of a known user;

a biometric recognition of a valid user;

a biometric sensing of a valid users skin;

a biometric detection that the electronic device continuously remains in contact with a valid user; and

receiving a correct user response input, from a security challenge presented on the display.

22. (original)The electronic device of Claim 20, wherein the memory is accessible to the processor,

wherein said memory comprises a static device-specific device account number of limited-use that originates from a card issuing authority and is limited to use by the electronic device in place of a card issuer account information,

wherein further said static device-specific device account number has an expiration date of limited duration of validity, and

wherein the generating a limited-use payment information comprises the processor generating said limited-use payment information by combining said static device-specific device account number, said device account expiration date,

when said issuer payment account method is selected.

23. (original)The electronic device of Claim 20, wherein the memory is accessible to the processor, and wherein said memory comprises:

a static device-specific device account information including a device account number of limited-use;

and keys, wherein said device-specific device account information originates from a card issuing authority and is for limited-use by the specific electronic device only;

and wherein said static device-specific device account information is valid for a limited duration, and wherein the generating a limited-use payment information comprises the processor generating a one-time limited-use cryptogram number and combining said limited-use static device account information and said one-time use cryptogram number to produce the limited-use payment information.

24. (original)The electronic device of Claim 20 further comprising a cryptographic processor operable to dynamically generate a one-time limited-use cryptogram number by cryptographically combining of at least one information accessible on the electronic device, selected from a set comprising:

a sequence counter;

a device account number;

a device secret;

device keys;

card issuer keys;

a time;

an amount;

an expiration date;

a card security code;

a location;

merchant information;

NFC recipient information;

payment reader information;

an online location;

transaction information;

payment information;

device information;

user information;

an email address;

a user identification entry;

a hash of transaction information;

and a hashed record of transactions, and

wherein said cryptogram number is operable to be used in place of at least a portion of a card issuer payment information, in a payment transaction.

REMARKS

Claims 1-18 and 20-24 are pending in the present application. Claim 15 is amended. Claim 19 is canceled. No new matter is added. Applicants respectfully request reconsideration of the present application in view of the indicated amendments and the following remarks.

The amendments presented herein incorporate indicated allowed material. Thus, Applicants understand all remaining claims to incorporate indicated allowed material, and that such amendments place the present application in condition for allowance.

Allowable Matter

The Official Action indicates that Claims 1-14 and 20-24 are allowable, and that Claim 19 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants thank the Examiner for indicating allowable material.

Amendments

Independent Claim 15 is amended to incorporate the indicated allowable matter of prior dependent Claim 19.

CONCLUSION

Claims 1-18 and 20-24 are pending in the present application. Applicants understand all Claims to be in condition for allowance, and such allowance is earnestly sought.

The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Please charge any additional fees or apply any credits to our PTO deposit account number: 504160.

Respectfully submitted,

MURABITO, HAO & BARNES LLP

Date: 5-20-2020

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Electronic Acknowledgement Receipt

EFS ID:	39496335
Application Number:	16459150
International Application Number:	
Confirmation Number:	1554
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Anthony C. Murabito/Mina Oliveri
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	WYAT-0002.USD1C1C1C
Receipt Date:	20-MAY-2020
Filing Date:	01-JUL-2019
Time Stamp:	16:11:34
Application Type:	Utility under 35 USC 111(a)

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Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		WYAT-0002.pdf	84536 e1fb1ff9a2c67e38f3bcb83f8140ee1c58e138cc	yes	25

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	22
	Applicant Arguments/Remarks Made in an Amendment	23	25

Warnings:	
Information:	
Total Files Size (in bytes):	84536

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/459,150	Filing Date 07/01/2019	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $230 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT	05/20/2020	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 23	Minus	** 24	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/ANITA JOHNSON/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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NOTICE OF ALLOWANCE AND FEE(S) DUE

136197 7590 06/30/2020
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EXAMINER
LEE, SEUNG H

ART UNIT	PAPER NUMBER
2887	

DATE MAILED: 06/30/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/459,150	07/01/2019	David WYATT	WYAT-0002.USD1C1C1C	1554

TITLE OF INVENTION: SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	09/30/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

IPR2025-01148
Apple EX1002 Page 138

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

136197 7590 06/30/2020
David Wyatt c/o Murabito, Hao & Barnes
111 North Market Street
Suite 700
San Jose, CA 95113

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/459,150	07/01/2019	David WYATT	WYAT-0002.USD1C1C1C	1554

TITLE OF INVENTION: SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	09/30/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEE, SEUNG H	2887	235-380000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____
2_____
3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/459,150	07/01/2019	David WYATT	WYAT-0002.USD1C1C1C	1554

136197 7590 06/30/2020
David Wyatt c/o Murabito, Hao & Barnes
111 North Market Street
Suite 700
San Jose, CA 95113

EXAMINER
LEE, SEUNG H

ART UNIT	PAPER NUMBER
2887	

DATE MAILED: 06/30/2020

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/459,150	Applicant(s) WYATT, David	
	Examiner SEUNG H LEE	Art Unit 2887	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 5/20/2020.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-18 and 20-24 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/SEUNG H LEE/
Primary Examiner, Art Unit 2887

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DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. Receipt is acknowledged of the response filed on May 20, 2020, which has been entered in the file.

Allowable Subject Matter

3. Claims 1-18 and 20-24 are allowed.

4. The following is an examiner's statement of reasons for allowance:

None of prior art teaches a method of performing a transaction comprising receiving an input at an electronic device, wherein the input corresponds to a priming operation of the electronic device by an identified user and wherein the electronic device comprises a near field communications (NFC) interface coupled to the processor, receiving a request for a transaction payment at the electronic device via the NFC interface, generating, by the processor, a limited-use payment information, and using the limited-use payment information in place of the card issuer supplied payment information, transmitting the limited-use payment information from the electronic device to an NFC recipient of the transaction via the NFC interface, and visually conveying a status of the transaction via a user-interface displayed on the touch-screen display, and obtaining a user payment approval through at least one user-interface of the electronic device as set forth in the claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEUNG H LEE whose telephone number is (571)272-2401. The examiner can normally be reached on 7-4:00PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Paik can be reached on 571-272-2404. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SEUNG H LEE/
Primary Examiner, Art Unit 2887

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/459,150	WYATT, David
	Examiner	**Art Unit**
	SEUNG H LEE	2887

CPC

Symbol					Type	Version
G06Q	/	20	/	341	F	2013-01-01
G07F	/	19	/	00	I	2013-01-01
G06Q	/	20	/	06	I	2013-01-01
G06Q	/	20	/	223	I	2013-01-01
G06Q	/	20	/	347	I	2013-01-01
G06Q	/	20	/	385	I	2013-01-01
G07F	/	7	/	0873	I	2013-01-01
G06K	/	19	/	06206	I	2013-01-01
G06K	/	19	/	0716	I	2013-01-01
G06K	/	19	/	07749	I	2013-01-01
G06Q	/	20	/	24	I	2013-01-01
G06Q	/	20	/	352	I	2013-01-01
G06Q	/	20	/	409	I	2013-01-01
G06Q	/	20	/	065	I	2013-01-01
G06Q	/	20	/	346	I	2013-01-01
G06Q	/	20	/	3827	I	2013-01-01
G06Q	/	20	/	4012	I	2013-01-01

CPC Combination Sets

Symbol					Type	Set	Ranking	Version
	/		/					

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 23	
/SEUNG H LEE/ Primary Examiner, Art Unit 2887 (Primary Examiner)	20 June 2020 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4B

U.S. Patent and Trademark Office

Part of Paper No.: 20200620

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/459,150	WYATT, David
	Examiner	**Art Unit**
	SEUNG H LEE	2887

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G06Q20/34	/	20	/	34

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE (Assistant Examiner) (Date)		**Total Claims Allowed:** 23	
/SEUNG H LEE/ Primary Examiner, Art Unit 2887 (Primary Examiner)	20 June 2020 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4B

U.S. Patent and Trademark Office

Part of Paper No.: 20200620

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/459,150	WYATT, David
	Examiner	**Art Unit**
	SEUNG H LEE	2887

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10		19										
2	2	11	11	19	20										
3	3	12	12	20	21										
4	4	13	13	21	22										
5	5	14	14	22	23										
6	6	15	15	23	24										
7	7	16	16												
8	8	17	17												
9	9	18	18												

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 23	
/SEUNG H LEE/ Primary Examiner, Art Unit 2887 (Primary Examiner)	20 June 2020 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4B

U.S. Patent and Trademark Office

Part of Paper No.: 20200620

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/459,150	WYATT, David
	Examiner	**Art Unit**
	SEUNG H LEE	2887

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06Q20/341 or G06Q20/4012 or G06Q20/3827 or G06Q20/346 or G06Q20/065 or G06Q20/409 or G06Q20/352 or G06Q20/24 or G06K19/07749 or G06K19/0716 or G06K19/06206 or G07F7/0873 or G06Q20/385 or G06Q20/347 or G06Q20/223 or G06Q20/06 or G07F19/00	06/20/2020	sl

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
EAST	06/20/2020	sl
14/680979, 14/981757, 15/701261 (parent cases)	06/20/2020	sl

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	same as above	06/20/2020	sl

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/459,150	WYATT, David
	Examiner	**Art Unit**
	SEUNG H LEE	2887

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	05/05/2020	06/20/2020							
1	1	=	=							
2	2	=	=							
3	3	=	=							
4	4	=	=							
5	5	=	=							
6	6	=	=							
7	7	=	=							
8	8	=	=							
9	9	=	=							
10	10	=	=							
11	11	=	=							
12	12	=	=							
13	13	=	=							
14	14	=	=							
15	15	✓	=							
16	16	✓	=							
17	17	✓	=							
18	18	✓	=							
	19	O	-							
19	20	=	=							
20	21	=	=							
21	22	=	=							
22	23	=	=							
23	24	=	=							

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L8	31,288	(G06Q20/341 or G06Q20/4012 or G06Q20/3827 or G06Q20/346 or G06Q20/065 or G06Q20/409 or G06Q20/352 or G06Q20/24 or G06K19/07749 or G06K19/0716 or G06K19/06206 or G07F7/0873 or G06Q20/385 or G06Q20/347 or G06Q20/223 or G06Q20/06 or G07F19/00).cpc.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/06/21 14:19
L9	135	L8 and (nfc same select$4 same payment same limit$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/06/21 14:19
L10	112	L8 and (nfc same payment same limit$4 same approv$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/06/21 14:20
L11	7	L8 and (nfc same payment same limit$4 same approv$4 same interface)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/06/21 14:20
L12	10	L8 and (nfc same select$4 same payment same limit$4 same approv$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/06/21 14:28
L13	36	(nfc same select$4 same payment same limit$4 same approv$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/06/21 14:29
L14	6	(("10339520") or ("9760884") or ("9224083") or ("9022286")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2020/06/21 14:30
S1	30,843	(G06Q20/341 or G06Q20/4012 or G06Q20/3827 or G06Q20/346 or G06Q20/065 or G06Q20/409 or G06Q20/352 or G06Q20/24 or G06K19/07749 or G06K19/0716 or G06K19/06206 or G07F7/0873 or G06Q20/385 or G06Q20/347 or G06Q20/223 or G06Q20/06 or G07F19/00).cpc.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/04/27 12:21

S2	1	nfc same transaction same payment same logo same limited same issuer	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/04/27 12:22
S4	311	monitor$4 same master same node same wireless same sensor	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 12:55
S5	18	S4.clm.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 12:55
S6	107	S4 same (slave peripheral)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 12:56
S7	7	S6.clm.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 12:56
S8	17	("20030018927" | "9860688" | "20180165568" | "20150154531" | "9189226" | "20100082870" | "20170039666" | "20180046964" | "9824329" | "20080239282" | "9182231" | "20130107770" | "20070049291" | "6614392" | "20100299401" | "20160233927").PN.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 12:58
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S10	9	("20130250357" | "20150324745" | "7177054" | "8292173" | "7048194" | "7299990" | "7540603" | "8072620" | "20100096181").PN.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 13:04
S11	39	("2015/0324745").URPN.	USPAT	OR	OFF	2020/05/02 08:57
S12	35	label same wireless same master same (slave peripheral)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/02 09:00
S13	39	"517508"	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/02 09:19
S14	6	(("10339520") or ("9760884") or ("9224083") or ("9022286")).PN.	US-PGPUB;	OR	OFF	2020/05/04 05:07

			USPAT; USOCR; EPO; JPO			
S15	55	nfc same transaction same payment same limited same issuer	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/04 05:07
S16	5	S15 same proximity	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/04 05:08
S17	30,909	(G06Q20/341 or G06Q20/4012 or G06Q20/3827 or G06Q20/346 or G06Q20/065 or G06Q20/409 or G06Q20/352 or G06Q20/24 or G06K19/07749 or G06K19/0716 or G06K19/06206 or G07F7/0873 or G06Q20/385 or G06Q20/347 or G06Q20/223 or G06Q20/06 or G07F19/00).cpc.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:24
S18	129	S17 and (nfc same select$4 same payment same limit$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:25
S19	43	S17 and (nfc same select$4 same payment same limit$4 same display$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:26
S20	6	(("10339520") or ("9760884") or ("9224083") or ("9022286")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2020/05/05 08:33
S21	0	S20 and (nfc same select$4 same payment same limit$4 same display$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:33
S22	109	(nfc same select$4 same payment same limit$4 same display$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:33
S23	94	S22 same (mobile portable)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:34
S24	4,186	dynamic same credit same card	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:35

S25	7	S22 and S24	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 08:35
S26	23	("20020073025" | "20030101137" | "20070278290" | "20100057553" | "20100082487" | "20110137748" | "20110302089" | "20120006891" | "20140052607" | "20140129422" | "20140143037" | "20140195324" | "20140249941" | "20140279474" | "20150058145" | "20160027005" | "20160086161" | "20160162857" | "20160162887" | "20160335619" | "6633223" | "9292849" | "9489671").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/05/05 08:38
S27	6	("20040168067" | "20090276347" | "20110016047" | "20120173311" | "20130159186" | "6163771").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/05/05 08:39
S28	4	(("10339520") or ("9760884") or ("9224083") or ("9022286")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/05/05 09:39
S29	1	S28 and (respons$4 same nfc same generat$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/05 09:40

6/21/2020 2:31:39 PM
C:\Users\slee5\Documents\EAST\Workspaces\16-459150.wsp

Bibliographic Data

Application No: 16/459,150

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /SEUNG H LEE/ (Examiner's Signature) | Initials

Title: SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
07/01/2019 **RULE**	235	2887	WYAT-0002.USD1C1C1C

APPLICANTS

Virtual Electric Inc., San Jose, CA,

INVENTORS

David WYATT San Jose, CA, UNITED STATES

CONTINUING DATA

This application is a CON of 15701261 09/11/2017 PAT 10339520

15701261 is a CON of 14981757 12/28/2015 PAT 9760884

14981757 is a CON of 14680979 04/07/2015 PAT 9224083

14680979 is a DIV of 14217261 03/17/2014 PAT 9022286

14217261 has PRO of 61794891 03/15/2013

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

07/17/2019

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

David Wyatt c/o Murabito, Hao & Barnes
111 North Market Street
Suite 700
San Jose, CA 95113
UNITED STATES

FILING FEE RECEIVED

$1,065

PTO/AIA/01 (06-12)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 16/459,150 filed on 2019-07-01.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: David Wyatt Date (Optional): 7/29/20

Signature: D. A. Wyatt

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	40143635
Application Number:	16459150
International Application Number:	
Confirmation Number:	1554
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Anthony C. Murabito/Mina Oliveri
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	WYAT-0002.USD1C1C1C
Receipt Date:	29-JUL-2020
Filing Date:	01-JUL-2019
Time Stamp:	19:40:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	WYAT-0002USD1C1C1C_Declaration-1.pdf	1835170 2618a19bf2dec1e0ca95259a20b88c8a38876a80	no	1

Warnings:

Information:	
Total Files Size (in bytes):	1835170

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C
	Application Number	
Title of Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	David		WYATT	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	San Jose	State/Province	CA	Country of Residence	US

Mailing Address of Inventor:

Address 1	1314 Vanna Ct		
Address 2			
City	San Jose	**State/Province**	CA
Postal Code	95131	**Country**	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	136197		
Email Address	officeaction@mhbpatents.com	Add Email	Remove Email

Application Information:

Title of the Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD		
Attorney Docket Number	WYAT-0002.USD1C1C1C	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	7	**Suggested Figure for Publication (if any)**	7

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C
	Application Number	
Title of Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	136197		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Patented ~~Pending~~	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16459150	Continuation of	15701261	2017-09-11 ~~2019-08-29~~	10339520	2019-07-02

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C
	Application Number	
Title of Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD	

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15701261	Continuation of	14981757	2015-12-28	9760884	2017-09-12
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14981757	Continuation of	14680979	2015-04-07	9224083	2015-12-29
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14680979	Division of	14217261	2014-03-17	9022286	2015-05-05
Prior Application Status	Expired				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
14217261	Claims benefit of provisional	61794891	2013-03-15		

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C
	Application Number	16/459,150
Title of Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD	

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C
	Application Number	
Title of Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C
	Application Number	
Title of Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

- (●) Assignee
- ( ) Legal Representative under 35 U.S.C. 117
- ( ) Joint Inventor
- ( ) Person to whom the inventor is obligated to assign.
- ( ) Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Virtual Electric Inc.		
Mailing Address Information For Applicant:			
Address 1	1314 Vanna Ct		
Address 2			
City	San Jose	**State/Province**	CA
Country	US	Postal Code	95131
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C
	Application Number	
Title of Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Anthony C. Murabito/			Date (YYYY-MM-DD)	~~2019-07-01~~ 2020-08-03
First Name	Anthony	Last Name	Murabito	Registration Number	35295

Additional Signature may be generated within this form by selecting the Add button.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C
	Application Number	
Title of Invention	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	16459150
Filing Date:	01-Jul-2019
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	David WYATT
Filer:	Anthony C. Murabito/Mina Oliveri
Attorney Docket Number:	WYAT-0002.USD1C1C1C

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	70	70
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**70**

Electronic Acknowledgement Receipt

EFS ID:	40181368
Application Number:	16459150
International Application Number:	
Confirmation Number:	1554
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Anthony C. Murabito/Mina Oliveri
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	WYAT-0002.USD1C1C1C
Receipt Date:	03-AUG-2020
Filing Date:	01-JUL-2019
Time Stamp:	18:13:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	$70
RAM confirmation Number	E202083I14181706
Deposit Account	504160
Authorized User	Mina Oliveri

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	WYAT-0002USD1C1C1C1C_UPDATED_ADS_8-3-2020.pdf	101162 8bcafbf666c1c28554781adff908325ec2fc42b8	no	9
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
2	Fee Worksheet (SB06)	fee-info.pdf	30725 3ae27d64148bd9fefdddb713d04bede95d0a9e35	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	131887		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PART B – FEE(S) TRANSMITTAL

Complete and send this form, together with the applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

By fax, send to: (571) 273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate " FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

David Wyatt c/o Murabito, Hao & Barnes LLP
111 North Market Street
Suite 700
San Jose, CA 95113

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

Mina Oliveri	(Typed or printed name)
/Mina Oliveri/	(Signature)
9-16-2020	(Date)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
16/459,150	07/01/2019	David WYATT	WYAT-0002.USD1C1C1C	1554

TITLE OF INVENTION:

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	09/30/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363)

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ " Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1.

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2. 3.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Virtual Electric Inc.

(B) RESIDENCE: (CITY and STATE or COUNTRY): San Jose, CA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees Submitted: ☑ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment (*Please first reapply any previously paid fee shown above*):

☑ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-4160

5. Change of Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29. NOTE: Absent a valid Certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

☐ Applicant asserting small entity status. See 37 CFR 1.27. NOTE: If the application was previously under micro entity status, checking this box will be taken as a notification of loss of entitlement to micro entity status.

☐ Applicant changing to regular undiscounted fee status. NOTE: Checking this box will be taken as a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Anthony C. Murabito/ Date 9-16-2020

Typed or printed name Anthony C. Murabito Registration No. 35,295

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	16459150
Filing Date:	01-Jul-2019
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	David WYATT
Filer:	Anthony C. Murabito/Mina Oliveri
Attorney Docket Number:	WYAT-0002.USD1C1C1C

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	500	500

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**500**

Electronic Acknowledgement Receipt

EFS ID:	40579668
Application Number:	16459150
International Application Number:	
Confirmation Number:	1554
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Anthony C. Murabito/Mina Oliveri
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	WYAT-0002.USD1C1C1C
Receipt Date:	16-SEP-2020
Filing Date:	01-JUL-2019
Time Stamp:	17:47:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	$500
RAM confirmation Number	E20209FH48294335
Deposit Account	504160
Authorized User	Mina Oliveri

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.16 (National application filing, search, and examination fees)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	WYAT-0002USD1C1C1C_IssueFee_Tran_9-16-2020.pdf	273782 b68e21c81d5d050db6f26f559c4239e119221394	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30349 18eea3d7fe8faf42946f2c0bc42f55eaec7ca01f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	304131		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/459,150	10/20/2020	10810579	WYAT-0002.USD1C1C1C	1554

136197 7590 09/30/2020

David Wyatt c/o Murabito, Hao & Barnes
111 North Market Street
Suite 700
San Jose, CA 95113

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

David WYATT, San Jose, CA;
Virtual Electric Inc., San Jose, CA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16459150
Filing Date	2019-07-01
First Named Inventor	David WYATT
Art Unit	2887
Examiner Name	LEE, SEUNG H.
Attorney Docket Number	WYAT-0002.USD1C1C1C

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5276311		1994-01-04	Hennige	
	2	9406011		2016-08-02	Bartenstein , et al.	
	3	9286561		2016-03-15	Olson , et al.	
	4	8870081		2014-10-28	Olson , et al.	
	5	9734345		2017-08-15	Spodak , et al.	
	6	9218557		2015-12-22	Spodak , et al.	
	7	9195926		2015-11-24	Spodak	
	8	9177241		2015-11-03	Spodak , et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16459150
	Filing Date	2019-07-01
	First Named Inventor	David WYATT
	Art Unit	2887
	Examiner Name	LEE, SEUNG H.
	Attorney Docket Number	WYAT-0002.USD1C1C1C

	9	8788418		2014-07-22	Spodak , et al.	
	10	8671055		2014-03-11	Spodak , et al.	
	11	9129270		2015-09-08	Spodak	
	12	10255545		2019-04-09	Mullen , et al.	
	13	10223631		2019-03-05	Mullen , et al.	
	14	10032100		2018-07-24	Mullen , et al.	
	15	9547816		2017-01-17	Mullen , et al.	
	16	8827153		2014-09-09	Rhoades , et al.	
	17	8517276		2013-08-27	Mullen , et al.	
	18	6000832		1999-12-14	Franklin , et al.	
	19	7922082		2011-04-12	Muscato	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16459150
	Filing Date	2019-07-01
	First Named Inventor	David WYATT
	Art Unit	2887
	Examiner Name	LEE, SEUNG H.
	Attorney Docket Number	WYAT-0002.USD1C1C1C

	20	8690059		2014-04-08	Wallner	
	21	8628012		2014-01-14	Wallner	
	22	9022285		2015-05-05	Graylin	
	23	8814046		2014-08-26	Wallner	
	24	9123036		2015-09-01	Graylin , et al.	
	25	9864994		2018-01-09	Huang , et al.	
	26	9412105		2016-08-09	Graylin , et al.	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20020073045	A1	2002-06-13	Rubin, Aviel D. ; et al.	
	2	20030195842	A1	2003-10-16	20030195842	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16459150
	Filing Date	2019-07-01
	First Named Inventor	David WYATT
	Art Unit	2887
	Examiner Name	LEE, SEUNG H.
	Attorney Docket Number	WYAT-0002.USD1C1C1C

	3	20080222047	A1	2008-09-11	Boalt; Adam	
	4	20090048971	A1	2009-02-19	Hathaway; Matthew ; et al.	
	5	20160125417	A1	2016-05-05	Huang; Enyang ; et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16459150
	Filing Date	2019-07-01
	First Named Inventor	David WYATT
	Art Unit	2887
	Examiner Name	LEE, SEUNG H.
	Attorney Docket Number	WYAT-0002.USD1C1C1C

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16459150
	Filing Date	2019-07-01
	First Named Inventor	David WYATT
	Art Unit	2887
	Examiner Name	LEE, SEUNG H.
	Attorney Docket Number	WYAT-0002.USD1C1C1C

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Anthony C. Murabito/	Date (YYYY-MM-DD)	2020-10-26
Name/Print	Anthony C. Murabito	Registration Number	35295

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	40945408
Application Number:	16459150
International Application Number:	
Confirmation Number:	1554
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Anthony C. Murabito/Missy Isaac
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	WYAT-0002.USD1C1C1C
Receipt Date:	26-OCT-2020
Filing Date:	01-JUL-2019
Time Stamp:	14:45:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	WYAT-0002USD1C1C1C_IDS_10-26-2020.pdf	612867 1777746111b75f662ae9c26b81c98e363dada66c	no	7

Warnings:

Information:	
Total Files Size (in bytes):	612867

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/80 (07-17)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 136197

OR

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 136197

OR

[ ]

Firm or individual name		
Address		
City	State	Zip
Country		
Telephone	Email	

Assignee name and address: CARDWARE, INC
2470 CAMROSE AVE.
SAN JOSE, CALIFORNIA 95130

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Signature	Date March 29th, 2022
Name David Wyatt	Telephone 408-892-4421
Title CEO/CTO/President	

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: CARDWARE, INC

Application No./Patent No.: 10,810,579 Filed/Issue Date: 10/20/2020

Titled: SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD

CARDWARE, INC, a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: DAVID WYATT To: CARDWARE, INC

The document was recorded in the United States Patent and Trademark Office at

Reel 058891, Frame 0826, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Jose S. Garcia/	4-8-2022
Signature	Date
Jose S. Garcia	43628
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	45435741
Application Number:	16459150
International Application Number:	
Confirmation Number:	1554
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Jose S. Garcia
Filer Authorized By:	
Attorney Docket Number:	WYAT-0002.USD1C1C1C
Receipt Date:	08-APR-2022
Filing Date:	01-JUL-2019
Time Stamp:	20:35:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	WYAT-0002USD1C1C1C1_AIA_80_POA_to_MHB_Signed.pdf	170922 5e2119e9f430d371f87d7dc705baf305bcf98a34	no	2

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	WYAT-0002USD1C1C1C1_aia0096_Statement_under_3_73c.pdf	211709 c5e635f01f535c421ce29e852b79459235b4f7ff	no	3
Warnings:					
Information:					
			Total Files Size (in bytes):	382631	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/459,150	07/01/2019	David WYATT	

CONFIRMATION NO. 1554

POA ACCEPTANCE LETTER

136197
David Wyatt c/o Murabito, Hao & Barnes
111 North Market Street
Suite 700
San Jose, CA 95113

OC000000133163896

Date Mailed: 04/14/2022

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/08/2022.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sharris/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/459,150	07/01/2019	David WYATT	WYAT-0002.USD1C1C1C

CONFIRMATION NO. 1554

POWER OF ATTORNEY NOTICE

136197
David Wyatt c/o Murabito, Hao & Barnes
111 North Market Street
Suite 700
San Jose, CA 95113

OC000000133163885

Date Mailed: 04/14/2022

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/08/2022.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sharris/

PTO/SB/26a (02-14)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TERMINAL DISCLAIMER IN A PATENT OR PROCEEDING IN VIEW OF ANOTHER PATENT

Docket Number (Optional) WYAT-0002USD1C1C1C1

Application/Control Number: 16/459,150
Filing Date: 07-01-2019
First Named Inventor: DAVID WYATT
Title: **SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD**
Patent No.: 10810579

The patentee, CARDWARE, INC, owner of 100 percent interest in the instant patent hereby disclaims, except as provided below, the terminal part of the statutory term of the instant patent which would extend beyond the expiration date of the full statutory term of patent No. 9022286 (the "**reference** patent"), as the term of said **reference** patent is presently shortened by any terminal disclaimer. The patentee hereby agrees that the instant patent shall be enforceable only for and during such period that the instant patent and the **reference** patent are commonly owned. This agreement runs with the instant patent and is binding upon the grantee, its successors or assigns.

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3. ☑ A statement under 37 CFR 3.73 is attached herewith. Form PTO/SB/96 or PTO/AIA/96, as appropriate, may be used.

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2. ☑ The undersigned is an attorney or agent of record. Reg. No. 43628

/Jose S. Garcia/	4-14-2022
Signature	Date
Jose S. Garcia	408-938-9060
Typed or printed name	Telephone number

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Docket Number (Optional) WYAT-0002USD1C1C1C1

Application/Control Number: 16/459,150
Filing Date: 07-01-2019
First Named Inventor: DAVID WYATT
Title: **SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD**
Patent No.: 10810579

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First Named Inventor: DAVID WYATT
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Patent No.: 10810579

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Docket Number (Optional)
WYAT-0002USD1C1C1C1

Application/Control Number: 16/459,150
Filing Date: 07-01-2019
First Named Inventor: DAVID WYATT
Title: **SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD**
Patent No.: 10810579

The patentee, CARDWARE, INC, owner of 100 percent interest in the instant patent hereby disclaims, except as provided below, the terminal part of the statutory term of the instant patent which would extend beyond the expiration date of the full statutory term of patent No. 10013693 (the "**reference** patent"), as the term of said **reference** patent is presently shortened by any terminal disclaimer. The patentee hereby agrees that the instant patent shall be enforceable only for and during such period that the instant patent and the **reference** patent are commonly owned. This agreement runs with the instant patent and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the patentee does not disclaim the terminal part of the instant patent that would extend to the expiration date of the full statutory term of the **reference** patent, "as the term of said **reference patent** is presently shortened by any terminal disclaimer," in the event that said **reference** patent later: expires for failure to pay a maintenance fee; is held unenforceable; is found invalid by a court of competent jurisdiction; is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321; has all claims canceled by a reexamination certificate; is reissued; or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer.

I. Check either box 1, 2, or 3 below, as appropriate, if there is an assignment:

1. ☐ The current ownership was established by the filing of a statement under 37 CFR 3.73 during prosecution of the application that issued as the instant patent.

2. ☐ The instant patent was issued from an application filed on or after September 16, 2012, and the current patent owner was the applicant under 37 CFR 1.46.

3. ☑ A statement under 37 CFR 3.73 is attached herewith. Form PTO/SB/96 or PTO/AIA/96, as appropriate, may be used.

II. Authorization for Terminal Disclaimer - Check either box 1 or 2 below, if appropriate:

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 43628

/Jose S. Garcia/	4-14-2022
Signature	Date
Jose S. Garcia	408-938-9060
Typed or printed name	Telephone number

☑ The terminal disclaimer fee under 37 CFR 1.20(d) is included.

NOTE: Submit multiple forms if more than one signature is required, see below.*

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

☐ *Total of _____ forms are submitted.

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If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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PTO/SB/26a (02-14)
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TERMINAL DISCLAIMER IN A PATENT OR PROCEEDING IN VIEW OF ANOTHER PATENT

Docket Number (Optional)
WYAT-0002USD1C1C1C1

Application/Control Number: 16/459,150
Filing Date: 07-01-2019
First Named Inventor: DAVID WYATT
Title: **SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD**
Patent No.: 10810579

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Application/Control Number: 16/459,150
Filing Date: 07-01-2019
First Named Inventor: DAVID WYATT
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Patent No.: 10810579

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/Jose S. Garcia/	4-14-2022
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Jose S. Garcia	408-938-9060
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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: CARDWARE, INC

Application No./Patent No.: 10,810,579 Filed/Issue Date: 10/20/2020

Titled: SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD

CARDWARE, INC, a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: DAVID WYATT To: CARDWARE, INC

The document was recorded in the United States Patent and Trademark Office at

Reel 058891, Frame 0826, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

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Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

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5. From: _____ To: _____

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6. From: _____ To: _____

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Jose S. Garcia/	4-14-2022
Signature	Date
Jose S. Garcia	43628
Printed or Typed Name	Title or Registration Number

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	16459150
Filing Date:	01-Jul-2019
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	David WYATT
Filer:	Jose S. Garcia
Attorney Docket Number:	

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	2814	7	170	1190
		Total in USD ($)		**1190**

Electronic Acknowledgement Receipt

EFS ID:	45479747
Application Number:	16459150
International Application Number:	
Confirmation Number:	1554
Title of Invention:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Jose S. Garcia
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	14-APR-2022
Filing Date:	01-JUL-2019
Time Stamp:	17:54:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1190
RAM confirmation Number	E20224DH54520434
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1_sb0026a_TD_1_of_7.pdf	305977 662bfc3ba031ccd94acc9b7028504b9dd3d85e77	no	2
Warnings:					
Information:					
2	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1_sb0026a_TD_2_of_7.pdf	227524 3cb99c2839869538965484 01f656553 49f9d0d9f	no	2
Warnings:					
Information:					
3	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1_sb0026a_TD_3_of_7.pdf	227533 9f1748c9f8121797ffc96770314a289616a1dad5	no	2
Warnings:					
Information:					
4	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1_sb0026a_TD_4_of_7.pdf	227549 5b100fff62702004a3337458cd7474aa8d10e3a7	no	2
Warnings:					
Information:					
5	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1_sb0026a_TD_5_of_7.pdf	227564 737b8ea4228e998cab0d538a316a523e0840b14f	no	2
Warnings:					
Information:					
6	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1_sb0026a_TD_6_of_7.pdf	227549 18644d2847f88ef814c63dec5dbd6a3f98bbe287	no	2
Warnings:					
Information:					

7	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1_sb0026a_TD_7_of_7.pdf	227562 ec6c47e6ca166d95299db8fc3e22af7ccf0cbadc	no	2
Warnings:					
Information:					
8	Assignee showing of ownership per 37 CFR 3.73	WYAT-0002USD1C1C1C1_aia0096_Statement_under_3_73c.pdf	221376 55538a744b10b8a4c05ebc37ea7ee2340d7dcef9	no	3
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	38003 74a9b6830bd764a48194edecf4300ff2d89fafbb	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	1930637	

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<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	**REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK**

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas, Marshall Division on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:22-cv-00141	5/11/2022	Eastern District of Texas, Marshall Division

PLAINTIFF	DEFENDANT
CardWare Inc.	Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.

PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 10,339,520	7/2/2019	CardWare Inc.
2 10,628,820	4/21/2020	CardWare Inc.
3 10,810,579	10/20/2020	CardWare Inc.
4 11,176,538	11/16/2021	CardWare Inc.
5 11,328,286	4/20/2022	CardWare Inc.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

Trials@uspto.gov
571-272-7822

Paper 11
Date: June 13, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

CARDWARE INC.,
Patent Owner.

IPR2023-00196
Patent 10,810,579 B2

Before BRIAN J. MCNAMARA, ELIZABETH M. ROESEL, and SHARON FENICK, *Administrative Patent Judges.*

FENICK, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. Background and Summary

Samsung Electronics Co., Ltd. ("Petitioner") filed a Petition (Paper 2, "Pet.") requesting *inter partes* review of claims 1–23 ("challenged claims") of U.S. Patent No. 10,810,579 B2 (Ex. 1001, "the '579 patent"). CardWare Inc. ("Patent Owner") filed a Preliminary Response (Paper 6, "Prelim. Resp."). With our prior authorization, Petitioner filed a Preliminary Reply (Paper 7, "Prelim. Reply") and Patent Owner filed a Preliminary Sur-reply (Paper 8, "Prelim. Sur-reply").

An *inter partes* review may be instituted only if "the information presented in the petition . . . and any [preliminary] response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a) (2018). For the reasons below, Petitioner has established a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the challenged claims. As discussed below, we have considered whether to exercise our delegated discretion to deny institution pursuant to 35 U.S.C. § 314(a) and determined not to exercise this discretion. Accordingly, we institute an *inter partes* review of the challenged claims on all grounds raised in the Petition.

B. Real Parties in Interest

Petitioner identifies Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. as real parties in interest. Pet. 95.

Patent Owner identifies only itself as a real party in interest. Paper 3 (Patent Owner's Mandatory Notices), 1.

C. Related Matters

Petitioner and Patent Owner each identify *CardWare Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.*, No. 2:22-cv-00141 in the Eastern District of Texas ("the district court litigation") as a related matter. Pet. 96; Paper 3, 1.

D. The '579 Patent

The '579 patent is directed to a multifunction electronic device used in commercial transactions, such as a device that emulates the behavior of a credit card when used in electronic credit card readers and that allows user control of the device for the purpose of authorizing or controlling the use of the device in transactions. Ex. 1001, code (57), 1:23–27, 2:13–30.

The '579 patent describes a "smart credit card device" that includes a processor, touch sensor array, display, near-field communication (NFC) unit. *Id.* at 6:1–6:48, Fig. 2B (elements 205, 245, 250, 260). The smart credit card device can be used for multiple banks or financial institution accounts, instead of a separate credit card for each account. *Id.* at 6:49–54. Using the touch sensor array, a user can select the appropriate account to perform a transaction, after the plurality of accounts stored by the credit card device are displayed. *Id.* at 6:49–7:4, Fig. 2C. The credit card device is then configured according to account information associated with the selected account, such as account number, expiration date, or other user information. *Id.* at 7:4–9. The credit card device may then be configured with a limited-duration credit card number that is associated with the account. *Id.* at 7:9–12. This limited-duration credit card number may be generated according to "the selected account, a timestamp, a transaction amount, an indicated merchant, user key or secrets, on-card unique hardware secrets, credit card authority key or secrets, user input from the card interface, and other

information associated with the transaction." *Id.* at 7:12–18. The limited-duration credit card number may be limited to one transaction, a finite number of transactions, or a specified period of time. *Id.* at 10:13–23. The limited-duration credit card number provides a credit card device with no fixed number, and makes unauthorized use of the credit card device "highly unlikely." *Id.* at 10:49–56.

In one embodiment, accelerometers in the device are used to detect the beginning of a transaction, by detecting a "priming" action for a credit card device. *Id.* at 5:38–41, 13:22–28. The priming action may be a tap of the credit card device or tapping one credit card device against another. *Id.* at 13:25–30. The touch sensor array may also be used for the priming action. *Id.* at 13:30-32. Success or failure of a transaction is displayed on the display of the smart credit card device. *Id.* at 14:5–7.

E. Illustrative Claim

Claims 1, 15, and 19 are independent. Claim 1, reproduced below with bracketed identifiers added as used by the parties, and some spacing and indentation changes made for readability, is illustrative.

> 1. A method of performing a transaction, the method comprising:
> [1a] receiving an input at an electronic device, wherein the input corresponds to a priming operation of the electronic device by an identified user and wherein the electronic device comprises:
> [1b] a processor;
> [1c] a touch screen display coupled to the processor; and
> [1d] a near field communications (NFC) interface coupled to the processor;
> [1e] receiving a request for a transaction payment at said electronic device via the NFC interface;
> [1f] displaying, on the touch-screen display, images of:
> a card issuer payment method selection, including

a last 4-digit partial number of a card issuer supplied account number of a payment card;

[1g] a card logo; and

[1h] other iconography of the payment card;

[1i] generating, by the processor, a limited-use payment information, and using said limited-use payment information in place of said card issuer supplied payment information;

[1j] transmitting said limited-use payment information from said electronic device to an NFC recipient of the transaction via said NFC interface; and

[1k] visually conveying a status of said transaction via a user-interface displayed on said touch-screen display.

Ex. 1001, 18:58–19:18.

F. Evidence

Petitioner relies on the following patent.

Name	Patent Document	Exhibit
Power	US 8,052,052 B1	1016
Casey	US 8,255,323 B1	1006
Amacker	US 8,423,462 B1	1008
Gomez	US 9,600,808 B1	1007
Deibert	US 2008/0172317 A1	1012
Carlson	US 2008/0319905 A1	1013
Royyuru	US 2010/0185545 A1	1004
Phillips	US 2012/0310760 A1	1005
Mullen	WO 2012/154915 A1	1009
Smith	US 2013/0232083 A1	1010

G. Prior Art and Asserted Grounds

Petitioner asserts that claims 1–23 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §[1]	Reference(s)/Basis
1–4, 6–9, 11, 12, 15–23[2]	103	Royyuru, Phillips, Casey
5	103	Royyuru, Phillips, Casey, Gomez
10, 14	103	Royyuru, Phillips, Casey, Deibert
13	103	Royyuru, Phillips, Casey, Deibert, Power
4, 21, 22	103	Royyuru, Phillips, Casey, Carlson
1–9, 11, 12	103	Gomez, Amacker, Mullen, Smith
10, 14	103	Gomez, Amacker, Mullen, Smith, Deibert
13	103	Gomez, Amacker, Mullen, Smith, Deibert, Power
15–20, 22, 23	103	Gomez, Amacker, Mullen
4	103	Gomez, Amacker, Mullen, Smith
22	103	Gomez, Amacker, Mullen, Carlson
21	103	Gomez, Amacker, Mullen, Carlson, Royyuru

Pet. 1–2.

[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. §§ 102, 103. Because the '579 patent claims priority to a provisional application filed before the effective date of the applicable AIA amendment (March 16, 2013), we refer to the pre-AIA version of the relevant statutes. *See* Ex. 1001, code (60), 1:7–19; Pet. 2.

[2] While the table listing the grounds presented and the heading for this ground in the Petition do not list claim 21 as part of this ground, an argument regarding claim 21 is included in the ground. *Compare* Pet. 1, 5, *with id.* at 44–46.

II. DISCRETIONARY DENIAL UNDER 35 U.S.C. § 314(A)

A. Legal Standards

Patent Owner argues that we should exercise discretion to deny institution under 35 U.S.C. § 314(a) because the factors identified in *Apple, Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) ("*Fintiv*"), weigh in favor of denying institution. Prelim. Resp. 27–34; Prelim. Sur-reply. Petitioner argues we should not discretionarily deny institution under *Fintiv*. Pet. 93–95; Pet. Reply.

The precedential decision in *Fintiv* identifies a non-exclusive list of factors parties may consider addressing where there is a related, parallel district court action to determine whether such action provides any basis for discretionary denial. *Fintiv*, 5–16. Those factors include:

> 1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
>
> 2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
>
> 3. investment in the parallel proceeding by the court and the parties;
>
> 4. overlap between issues raised in the petition and in the parallel proceeding;
>
> 5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
>
> 6. other circumstances that impact the Board's exercise of discretion, including the merits.

Id. at 5–6.

In evaluating the factors, we take a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review. *Id.* at 6. The Director has issued additional guidance on the application of *Fintiv*. *See* Katherine K. Vidal, *Interim Procedure for Discretionary*

Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (June 21, 2022)[3] ("*Fintiv* Memo"). Additionally, we are guided by the precedential decisions of the Director in *OpenSky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102, 49–50 (Oct. 4, 2022) (precedential) and *CommScope Techs. LLC v. Dali Wireless, Inc*, IPR2022-01242, Paper 23 (Feb. 27, 2023) (precedential) ("*CommScope*").

We are instructed to consider compelling merits under *Fintiv* factor six only after a determination that the first five *Fintiv* factors favor discretionary denial. *CommScope*, 4–5. Thus, we begin by considering the first five *Fintiv* factors.

B. Fintiv Factors

1. Factor 1 - Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted

"A district court stay of the litigation pending resolution of the PTAB trial allays concerns about inefficiency and duplication of efforts." *Fintiv*, 6. *Fintiv* indicated that, in previous Board decisions, the existence of a district court stay pending Board resolution of an *inter partes* review has weighed strongly against discretionary denial, while a denial of such a stay request sometimes weighs in favor of discretionary denial. *Id.* at 6–8.

Patent Owner notes that a stay was requested and not granted in the district court litigation, and asserts that this factor should be viewed as neutral. Prelim. Resp. 30; Ex. 2003.

Petitioner notes that the dismissal of the stay request was without prejudice, and that it maintains the right to move for a stay if we institute.

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[3] Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf

Prelim. Reply 1, 2. Petitioner argues that the factor should be considered neutral or to disfavor discretionary denial. *Id.* at 2.

The court in the district court litigation noted in its denial of the stay request that it was following "the universal practice" in the district, to deny a stay based on post-grant review requests where institution decisions have not yet been issued, and provided no additional reasoning or indication of future action with respect to any potential renewal of the stay request. Ex. 2003. Because, "[i]n the absence of specific evidence, we will not attempt to predict" whether a district court would stay "based on a variety of circumstances and facts beyond our control and to which the Board is not privy," we find this factor to be neutral. *See Sand Revolution II, LLC v. Cont'l Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative) ("*Sand Revolution*").

2. *Factor 2 - Proximity of the court's trial date to the Board's projected statutory deadline for a final written decision*

The proximity factor in *Fintiv* asks us to evaluate our discretion in light of a trial date that has been set in a parallel litigation. *See Fintiv*, 3, 5 ("*NHK* applies to the situation where the district court has set a trial date to occur earlier than the Board's deadline to issue a final written decision in an instituted proceeding."; "When the patent owner raises an argument for discretionary denial under *NHK* due to an earlier trial date, the Board's decisions have balanced the following factors . . . .") (citing *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential)("*NHK*")). As noted above in the discussion of the first factor, *Fintiv* cites concern regarding "inefficiency and duplication of efforts." *Id.* at 6. In its analysis of the proximity factor, *Fintiv* echoes that concern in its guidance that "[i]f the court's trial date is at or around the

same time as the projected statutory deadline or even significantly after the projected statutory deadline, the decision whether to institute will likely implicate other factors discussed herein, such as the resources that have been invested in the parallel proceeding." *Id.* at 9. Similarly, in *NHK*, the Board expressed the concern that a trial before the deadline for a final written decision addressing the same prior art and arguments would have undermined the Board's objectives of providing an effective and efficient alternative to district court litigation. *See NHK*, 20 (citing *General Plastic Indus. Co., Ltd. v. Cannon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16–17 (PTAB Sept. 6, 2017 (precedential))).

We are instructed that

> when analyzing the proximity of the court's trial date under factor two of *Fintiv*, when other relevant factors weigh against exercising discretion to deny institution or are neutral, the proximity to trial should not alone outweigh all of those other factors. Parties may present evidence regarding the most recent statistics on median time-to-trial for civil actions in the district court in which the parallel litigation resides for the PTAB's consideration. Where the parties rely on time-to-trial statistics, the PTAB will also consider additional supporting factors such as the number of cases before the judge in the parallel litigation and the speed and availability of other case dispositions.

Fintiv Memo, 8–9 (internal citations and footnote deleted).

At the time of filing the Petition, Petitioner argued that given the district court's median time-to-trial data and the anticipated schedule if we institute, the likely disposition of the district court litigation would be anticipated in the same month as a final written decision in this proceeding. Pet. 93–94 (citing Ex. 1103, 35).

Patent Owner contends that as the docket control order sets jury selection for February, 2024, the trial date precedes the anticipated final

written decision deadline by four months. Prelim. Resp. 30–31 (citing Ex. 2001). Patent Owner additionally argues that, if the Board relies on median time-to-trial, then we should use specific time-to-trial data for the presiding judge, which would indicate an even earlier trial date than that scheduled in the docket control order. Prelim. Resp. 31 (citing Ex. 2002, 1).

We "generally take courts' trial schedules at face value absent some strong evidence to the contrary," and here neither party presents strong evidence casting doubt on the trial date set in the district court's order. Because the trial in the district court litigation is scheduled to begin four months before our deadline to reach a decision, this factor weighs marginally in favor of discretionary denial. *Apple v. Fintiv*, IPR2020-00019, Paper 15, 13 (PTAB May 13, 2020) (informative).

3. Factor 3 - Investment in the parallel proceeding by the court and the parties

If, at the time of the institution decision, the district court has issued substantive orders related to the challenged patent, such as a claim construction order, this fact weighs in favor of denial. *See Fintiv*, 9–10. On the other hand, if the district court has not issued such orders, this fact weighs against discretionary denial. *Id.* at 10.

Petitioner argues that the bulk of investment in the district court litigation has yet to occur, and that no part of claim construction or document production had occurred at the time of the filing of the Petition. Pet. 94. Petitioner further argues that it was diligent in filing the Petition and that its diligence "heavily favors" institution. Prelim. Reply 3.

Patent Owner argues that by the time of our decision, document production will be substantially complete and "the claim-construction

process [will] be underway and completed shortly thereafter." Prelim. Resp. 32 (citing Ex. 2001, 3–4).

The docket control order shows that the claim construction hearing is not scheduled until August 1, 2023, and that substantial deadlines for the parties related to claim construction are still upcoming. Ex. 2001, 3. *Fintiv* also directs us to consider whether "the petitioner filed the petition expeditiously." *Fintiv*, 11. While we are mindful of the investment of the parties to date, we find that, at this time, substantial work remains for the parties and no substantive orders related to the challenged patent have been issued by the district court. Additionally, on the record before us the filing of the Petition was expeditious. We determine this factor weighs against exercising discretion to deny institution.

4. Factor 4 - Overlap between issues raised in the petition and in the parallel proceeding

"[I]f the petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding, this fact has favored denial." *Fintiv*, 12. "Conversely, if the petition includes materially different grounds, arguments, and/or evidence than those presented in the district court, this fact has tended to weigh against exercising discretion to deny institution under *NHK*." *Id.* at 12–13. A stipulation as in *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential as to § II.A), if one is entered, would be highly relevant. "Consistent with *Sotera Wireless, Inc.*, the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any grounds that could have

reasonably been raised before the PTAB." *Fintiv* Memo 3 (footnote omitted).

Petitioner offers, in the Petition, a stipulation that, if IPR is instituted, "it will not pursue in the Related Litigation any invalidity grounds against the Challenged Claims of the '579 patent that are the same as those raised in this Petition." Pet. 94–95. It later offers an additional stipulation that "if this IPR is instituted, Petitioner will not pursue an invalidity defense in the E.D. Texas litigation with respect to the claims of the '579 Patent in the instituted IPR based on (i) any of the same grounds in the instituted IPR or (ii) any prior art reference that forms the basis of any ground in the instituted IPR." Prelim. Reply 1–3; Ex. 1110. Petitioner argues that this stipulation "leaves only meaningfully different prior art available for use in the E.D. Texas litigation." Prelim. Reply 3; *see* Ex. 3001 (Petitioner's email to the Board relating to its stipulation).

Patent Owner argues that, in the new stipulation, Petitioner only restricts itself from pursuing "in district court the same grounds or the specific references in those grounds," but "leaves the Petitioner free to pursue related references that might have the same (or substantially the same) disclosure" as the asserted references here, such as continuations or foreign counterparts. Prelim. Sur-reply 1. Patent Owner argues that Petitioner's stipulation has "no practical effect" and, because Petitioner has not offered a *Sotera* stipulation, factor 4 favors denial. *Id.* at 1–2.

While not a *Sotera* stipulation, Petitioner's stipulation appears to be similar to that in *Sand Revolution*. *Sand Revolution II, LLC v. Cont'l Intermodal Grp. Trucking LLC*, IPR2019-01393, Paper 24 at 11–12 (PTAB June 16, 2020) (informative) ("*Sand Revolution*") (finding that a stipulation not to pursue the same grounds in the parallel litigation "mitigates to some

degree the concerns of duplicative efforts"). We recognize that *Sand Revolution*-type stipulations are narrower in scope than *Sotera*-type stipulations. However, Petitioner's stipulation still reduces potential overlap with the district court litigation. In *Sand Revolution*, such a stipulation weighed marginally in favor of not exercising discretion. *Sand Revolution*, 12.

Additionally, we note that we have not been apprised by either party whether, in fact, the same art and arguments are anticipated to be the subject of the district court litigation. *See Fintiv*, 12.

We determine this factor weighs marginally against exercising discretion to deny institution.

5. Factor 5 - Whether the petitioner and the defendant in the parallel proceeding are the same party

If the petitioner is unrelated to the defendant in the parallel proceeding, that might weigh against discretionary denial. *See Fintiv*, 13–14.

Patent Owner argues that Petitioner is the defendant in several of the parallel proceedings. Prelim. Resp. 61. Petitioner does not dispute this. Prelim. Reply 3.

As with *Fintiv* factor 2, therefore, this factor weighs marginally in favor of exercising our discretion to deny the Petition.

C. Conclusion

We have considered the circumstances and facts before us in view of the first five *Fintiv* factors. Because our analysis is fact driven, no single factor is determinative of our conclusion. Considering these five *Fintiv* factors, we determine that they do not favor a discretionary denial. As we do not find that the first five *Fintiv* factors favor discretionary denial, we

therefore do not make a determination regarding compelling merits under *Fintiv* factor 6, and our consideration ends with this conclusion. *CommScope*, 4–5.

III. REASONABLE LIKELIHOOD UNDER 35 U.S.C. § 314(A)

A. Legal Standards

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring [*inter partes*] review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review). Furthermore, Petitioner must explain with particularity how the prior art would have rendered the challenged claims unpatentable. 35 U.S.C. § 312(a)(3); 37 C.F.R. § 42.104(b)(4) ("The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.").

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art;

(3) the level of skill in the art; and (4) when presented, objective indicia relating to obviousness.[4] *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner argues that:

> A person of ordinary skill as of the Critical Date of the '579 patent ("POSITA") would have had (1) a bachelor's degree in computer science, computer engineering, electrical engineering, or a related field, and (2) one to two years of experience working with payment processing and/or digital authentication systems, including familiarity with short-range wireless technologies. Graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education.

Pet. 5 (internal citations omitted) (citing Ex. 1003 ¶¶ 43–49).

At this point, Patent Owner does not dispute this assertion regarding the proper level of ordinary skill in the art. Prelim. Resp. 11–12. For purposes of this Decision, we apply Petitioner's definition of a POSITA.

C. Claim Construction

Each party submits that no claim construction is necessary at this stage. Pet. 3; Prelim. Resp. 11. We agree. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy." (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

[4] The record at this point contains no contentions regarding such objective indicia relating to obviousness.

D. Obviousness of Claims 1–4, 6–9, 11, 12, and 15–23 over Royyuru, Phillips, and Casey

Petitioner argues that claims 1–4, 6–9, 11, 12, and 15–23 are unpatentable as obvious over a combination of Royyuru, Phillips, and Casey. Pet. 5–47. Patent Owner presents arguments relating to limitation 1i of claim 1 (and similar limitations in independent claims 15 and 19), and relating to the propriety of the proposed combination. Prelim. Resp. 12–18.

1. Royyuru

Royyuru describes a mobile device, such as a smart card or cellular telephone, used as a presentation instrument to initiate the processing of a financial transaction related to a financial account. Ex. 1004 ¶¶ 5, 21, 32. The mobile device can be encoded with a real Primary Account Number (PAN) and a card-level key (e.g. Institution Key Card Variant (IKCV)) stored on the mobile device or with the real PAN and an "unpredictable number" sent by an intermediate device. *Id.* ¶¶ 5, 32, 57. The IKCV may be generated for the mobile device when the mobile device is being customized and be a based on but distinct from an institution key for the issuer of the presentation instrument. *Id.* ¶¶ 46, 57. A dynamic PAN (or "Pseudo-PAN") is generated by an application within the mobile device, and that dynamic PAN is used in the transaction in place of the real PAN. *Id.* ¶¶ 46, 47, 49, 57. The dynamic PAN can be generated based on the real PAN and the IKCV. *Id.* ¶¶ 5, 33, 54, 57. "The dynamic PAN can comprise an encrypted form of a real PAN of the financial account that is valid for a single transaction." *Id.* ¶ 33; *see id.* ¶¶ 54, 57. A Dynamic Transaction Cryptogram (DTC) may also be generated at the mobile device and sent to the payment processor system with the dynamic PAN, allowing the transaction to be authenticated based on the DTC. *Id.* ¶ 34. The DTC may

be generated based on a unique card-level key and a personal identification number (PIN) provided by the consumer or other information known to the user of the mobile device. *Id.* ¶¶ 47, 53.

Royyuru describes the detection of the initiation of a transaction using the mobile device, for example by passing the mobile device on or near a point-of-sale (POS) device. *Id.* ¶¶ 33, 47, 53. The device then generates and provides a dynamic PAN and DTC, which is provided, via the POS device to a payment processor system. *Id.* ¶¶ 53–55.

Royyuru further describes the interaction between the mobile device and the POS device as possibly being contactless, e.g. through NFC transmissions, or as occurring through contact between the device and a reader. *Id.* ¶ 35.

2. Phillips

Phillips describes a portable device that can be used for contactless payments and that displays credit or debit card account choice images to a user who can select one of the images in order to select an account for use in a transaction. Ex. 1005 ¶¶ 5, 17, 35–37. The images displayed for an account may include payment account numbers, cardholder name, the name or logo of the payment card association or issuer, among other information. *Id.* ¶ 36. A payment application program in the memory of the mobile device stores payment card account numbers and associated information. *Id.* ¶ 29. The portable device can interact with a merchant proximity reader, which allows the portable device to receive a merchant identifier to automatically select a particular payment card for use in a purchase transaction with that merchant. *Id.* ¶ 57.

When a particular payment card has been selected, a user may be required to enter a PIN in order to transact using the selected card. *Id.* ¶¶ 35,

38, 57, 62, 66. The mobile device then communicates with the merchant proximity reader associated with a POS terminal to consummate the transaction. *Id.* ¶ 66.

3. Casey

Casey provides for payment transactions using an electronic device with a touch screen, through which a user may select a payment instrument such as a credit card, provide confirmation information, and view a displayed receipt for the transaction. Ex. 1006, 3:10–35, 10:47–53. Upon accessing a payment service or electronic wallet, virtual representations of available payment instruments may be displayed through the electronic device. *Id.* at 9:9–12. A user may select one by tapping the corresponding graphical element on the display. *Id.* at 9:12–15. A PIN, password, or other identifier may be required to verify the payment instrument. *Id.* at 9:15–22, 12:46–13:3, 15:28–31. A confirmation screen may then be presented so the user can confirm the payment transaction, including price and related charges. *Id.* at 9:26–32, 10:24–35, 15:31–56. This screen may include graphical elements that may be moved by a user to confirm the payment transaction. *Id.* at 9:32–35, 9:58–10:2, 10:36–51, 14:13–24. A receipt may then be displayed for the payment transaction. *Id.* at 10:47–51, 14:25–36, 16:5–7.

4. Combination of Royyuru, Phillips, and Casey

Petitioner argues that one of ordinary skill in the art would have applied certain teachings of Phillips and Casey to Royyuru's system. Pet. 10–16. Patent Owner disputes that one of ordinary skill in the art would have combined Royyuru and Phillips. Prelim. Resp. 16–18. For the reasons discussed below, we find that Petitioner's arguments and evidence in support of the proposed combination meet the threshold for institution.

Petitioner argues that one of ordinary skill in the art would have modified Royyuru's payment request NFC communication between the user device and merchant device to include information regarding the transaction, including merchant information (as Petitioner argues is taught in Phillips and Casey) and product and price information (as Petitioner argues is taught in Casey). Pet. 10–11 (citing Ex. 1004 ¶¶ 22, 44, 47; 1005 ¶¶ 23, 27,57, 72; Ex. 1006, 8:52–9:8, Fig. 5; Ex. 1003 ¶¶ 132–133). Petitioner argues that one of ordinary skill in the art would have done so to provide information to the user to better ensure that they are approving the correct transaction and to allow the user to visually review transaction data before approving the transaction, as taught in Casey. *Id.* at 12 (citing Ex. 1006, 9:9–36, 13:24–51, 14:12–49; Ex. 1003 ¶ 133).

Petitioner additionally argues obviousness of modifying Royyuru to add authentication and confirmation techniques prior to completion of a transaction, such as entering a PIN (as Petitioner argues is taught in Phillips and Casey) or moving a graphical element to confirm or deny a transaction (as Petitioner argues is taught in Casey). *Id.* at 12 (citing Ex. 1005 ¶¶ 35, 38, 59, 61–62, 66, 68; Ex. 1006, 9:9–36, 13:24–51; Ex. 1003 ¶ 134). Petitioner argues that this modification would have allowed a user to review, reconsider, and ensure the validity of a transaction. *Id.* at 13 (citing Ex. 1005 ¶¶ 35, 47; Ex. 1006, 3:20–35, 9:9–36; Ex. 1003 ¶ 134).

Petitioner's next argued modification to Royyuru is the inclusion, from Phillips, of multiple payment options and a graphical interface including payment method indicia. *Id.* at 13–14 (citing Ex. 1005 ¶¶ 36–42, Fig. 8; Ex. 1003 ¶ 135). Petitioner argues that one of ordinary skill in the art would have done this to provide a user with more choices and options and allowed the user to select payment options appropriate for a given scenario,

while reducing the need for the user to carry additional physical payment options. *Id.* at 14 (citing Ex. 1003 ¶ 135). Petitioner argues that while additional information would be needed to be stored in memory, the benefits would have outweighed these drawbacks. *Id.* at 15 (citing Ex. 1003 ¶ 135).

Patent Owner argues that one of ordinary skill in the art would not have combined Royyuru and Phillips in this way, because Royyuru teaches that its DTC, used in the authentication of a transaction, is generated using a unique card key that is particular to every card. Prelim. Resp. 17 (citing Ex. 1004 ¶¶ 47, 57). Patent Owner argues that Petitioner's combination is incompatible with Phillips' teaching that the different issuers of the accounts used in its multi-card configuration would come from different financial institutions, different from the provider of the user's device. *Id.* (citing Ex. 1005 ¶¶ 4, 5, 36, 40). Patent Owner contends that Petitioner does not adequately explain how the combination it proposes would function, given the use in Royyuru of the card-level IKCV in authentication. *Id.* at 18.

However, at this stage, we determine that Petitioner has provided sufficient evidence that one of ordinary skill in the art would have had a reason to make the proposed combination and would have had a reasonable expectation of success in achieving the claimed method. Although Patent Owner argues that Royyuru's card-level-based authentication is based on one IKCV per device, we note that Royyuru describes the possibility of multiple card-level keys. Ex. 1004 ¶ 6 ("determining the real PAN . . . using a key maintained by the payment processor system and corresponding to *one of* the card-level keys of the device") (emphasis added). Additionally, we note that Phillips' Figure 8 includes several payment cards but each appears to have the same issuer bank name, and thus one card-level key tied to one issuer might be used for multiple accounts. Ex. 1005 ¶ 39, Fig. 8. Although

Patent Owner argues that Petitioner "asserts that a POSITA would have *re-imagined* Royyuru as a mobile-phone with a touch screen display, supplied by a separate device maker" (Prelim. Resp. 16–17 (emphasis added)), we note that Royyuru describes its presentation instrument as, for example, a cellular telephone. Pet. 17, 39–40; Ex. 1004 ¶¶ 21, 46. We additionally take into account Dr. Shamos' testimony regarding the costs in memory usage of including additional cards. Pet. 14–15 (citing Ex. 1003 ¶ 135).

Petitioner additionally argues that including Phillips' preselection of a default payment option and Casey's display of transaction status such as a payment receipt would have been obvious, in order to improve user flexibility and satisfaction. Pet. 14–15 (citing Ex. 1005 ¶¶ 5, 17, 29, 59, 66; Ex. 1006, 10:47–53, 14:25–36, 16:3–20; Ex. 1003 ¶¶ 136–137).

With respect to Petitioner's proposed combination of Royyuru, Phillips, and Casey, on the present record and for the purposes of institution, Petitioner's showing regarding the proposed combination is sufficient.

5. Analysis of Claim 1

Petitioner argues, with respect to the preamble and limitations 1a through 1d of claim 1, that Royyuru describes a method of processing a financial transaction including receiving an input to an electronic device (Royyuru's "mobile device"/"presentation instrument") that includes a processor, touch screen display, and NFC module. Pet. 16–18 (citing Ex. 1004 ¶¶ 2, 5–10, 21, 35, 40, 47; Ex. 1003 ¶¶ 55–59, 139–143). Petitioner cites Royyuru's "pass[ing] or tap[ping] the presentation instrument" at a POS device, presumably for the priming operation of limitation 1a. Pet. 17 (citing Ex. 1004 ¶ 47; Ex. 1003 ¶ 140); *see also id.* at 32–33 (explicitly describing the priming as the tapping of the presentation instrument at the POS device). Petitioner additionally argues that PIN entry

additionally may be a priming operation and identification of a user with reference to the combination of Royyuru and Phillips, in the entry of a PIN. *Id.* at 17 (citing Ex. 1005 ¶¶ 35, 38, 39, 66; Ex. 1003 ¶ 140).

Petitioner argues that limitation 1e, "receiving a request for a transaction payment at said electronic device via the NFC interface" is taught by Royyuru's and Phillips' descriptions of a mobile device receiving a transaction initiation request from a POS device via NFC. *Id.* at 18 (citing Ex. 1004 ¶¶ 9, 22, 44, 47, 57; Ex. 1005 ¶¶ 23, 27, 57, 72; Ex. 1003 ¶ 144).

For limitations 1f, 1g, and 1h, which require the display, on a touch-screen display, of images of a card issuer payment selection method, Petitioner cites Figure 8 of Phillips and the related disclosure, which include a menu allowing selection from a payment cards, with a display including partial account numbers, card logos, and other iconography of a payment card. *Id.* at 18–21 (citing Ex. 1005 ¶¶ 36, 37, 39–41, Fig. 8; Ex. 1003 ¶¶ 145–154).

For limitation 1i, Petitioner argues that Royyuru teaches "generating . . . a limited-use payment information, and using said limited-use payment information in place of said card issuer supplied payment information" in its DTC and its dynamic PAN. Pet. 21–23. Petitioner argues that the DTC is generated at the device using a unique card level key or by combining several fields including the PAN, service code, expiration date, and an application transaction counter (ATC) and encrypting them using the card key (CK). *Id.* at 21–22 (citing Ex. 1004 ¶¶ 5–10, 32, 33, 47, 57; Ex. 1003 ¶¶ 155–156). Petitioner argues that the dynamic PAN is generated based on the real PAN and a card-level IKCV stored on the device. *Id.* at 22 (citing Ex. 1004 ¶¶ 5, 57). Petitioner argues that each of these is discussed as being valid for a single transaction and therefore are "limited-use" and are used in

place of the real PAN. *Id.* at 22–23 (citing Ex. 1004 ¶¶ 6–10, 33, 32, 57; Ex. 1003 ¶ 156).

Petitioner contends that limitation 1j is taught or suggested by the provision of the DTC and the dynamic PAN to the POS device via an NFC interface. Pet. 23 (citing Ex. 1004 ¶¶ 34, 47, 51, 52, 54, 57, Fig. 3; Ex. 1003 ¶ 157). And, with respect to limitation 1k, requiring the step of visually conveying a status of the transaction, Petitioner argues that, in its proposed combination, Casey's display of a receipt for the payment transaction teaches this limitation. *Id.* at 24 (citing Ex. 1006, 10:47–53, Fig. 8; Ex. 1003 ¶¶ 158–159).

With respect to Petitioner's contentions, Patent Owner disputes that Petitioner has made a sufficient showing with respect to limitation 1i of claim 1. Patent Owner argues that:

> Petitioner fails to show that either the DTC or dynamic PAN, or the combination of the two, is used "in place of" card issuer payment information as required by the challenged claims.
>
> Petitioner's argument fails because, in the system of Royyuru, the PAN or primary account number is used in the transaction and is not replaced by other information. . . . However, Royyuru does not teach using some other, generated payment information "in place of" the card issuer payment information (i.e., the PAN) but rather uses the PAN throughout the transaction flow. Specifically, Royyuru teaches using a "dynamic PAN" that is simply "an encrypted form of [the] real PAN." Ex. 1004, ¶0005. The payment processor determines the real PAN by decrypting the dynamic PAN. *Id.* ¶0006. The decrypted PAN is then sent to a financial institution to process the transaction. *Id.* Thus, Royyuru does not replace the PAN, as required by the challenged claims, but simply encrypts the PAN during transmission from the device to the payment processor system. . . .

> [A]lthough Royyuru's choice of words [in paragraphs 32 and 57, cited by Petitioner] suggests a substitution of the real PAN with something else, the rest of Royyuru makes clear that what is really meant is simply encryption of the real PAN.

Prelim. Resp. 14–15. Patent Owner additionally argues, with respect to the DTC, that Petitioner does not show that the DTC is used "in place of" issuer information, as required by limitation 1i of claim 1. *Id.* at 15–16.

We determine that on the present record Petitioner has sufficiently shown, for the purposes of institution, that the dynamic PAN (limited-use payment information") is used in place of the actual PAN ("card issuer supplied payment information") in transmissions to the NFC recipient to perform a transaction. Royyuru describes that the prior art is vulnerable to attack because devices capable of skimming transmissions might read transaction information, including the account number, supplied via NFC to a merchant. Ex. 1004 ¶ 3. Petitioner argues that the dynamic PAN is provided, along with the DTC, so that the real PAN can be determined to process the transaction, and is sent in place of the real PAN. Pet. 6, 22 (citing Ex. 1004 ¶¶ 7, 32, 57; Ex. 1003 ¶ 156). As Patent Owner argues, Royyuru teaches that the dynamic PAN may be "an encrypted form of [the] real PAN." Prelim. Resp. 14 (quoting Ex. 1004 ¶ 5) (alteration in the original). But as Petitioner contends, the dynamic PAN may also be "computed by the device for each transaction by combining the digits from the card number with the ATC and with the unpredictable number sent by the RFID or NFC reader and then encrypting these digits with the IKCV." Pet. 22 (quoting Ex. 1004 ¶ 57). On the present record, Petitioner's argument does not appear to be that Royyuru's teaching is of "simply" an encrypted form of the real PAN.

As discussed, Patent Owner contends that an encrypted form of the real PAN could not teach or suggest "limited-use payment information" supplied "in place of" the real PAN. Prelim. Resp. 14–15. This implies an argument that the recited "limited-use payment information" used "in place of said card issuer supplied payment information" must exclude an encrypted form of an account number. To the extent that this argument is maintained, it appears to invoke claim construction, and, if so, the parties are welcome to address the proper construction of the claim term.

On the present record, Petitioner has provided sufficient evidence that "limited-use payment information" as recited in claim 1 is taught or suggested by the dynamic PAN of Royyuru.

On the present record and for the purposes of institution, we determine that Petitioner shows that there is a reasonable likelihood that the petitioner would prevail in showing claim 1 of the '579 patent to be obvious over its proposed combination of Royyuru, Phillips, and Casey.

6. Claims 2–4, 6–9, 11, 12, and 15–23

With respect to claims 2–4, 6–9, 11, 12, and 15–23, Petitioner contends these claims are obvious over the combination of Royyuru, Phillips, and Casey. Pet. 24–47. Patent Owner presents no additional arguments with respect to these claims and this ground.

We have reviewed Petitioner's contentions. Although we do not provide a detailed analysis with respect to all of these contentions, we note the following, as our institution is necessarily on all of the challenged claims and on all grounds of unpatentability asserted for each claim. *See* 37 C.F.R. § 42.108(a).

a) Claim 3

Petitioner relies on either the dynamic PAN or the DTC for the "limited-use payment information" of claim limitation 1i of claim 1, from which claims 2–4, 6–9, 11, and 12 depend. Pet. 21–23. Petitioner refers back to this argument with respect to the "limited-use number" of claim 15 and its dependent claims 16–18, and the "limited-use payment information" of claim 19 and its dependent claims 20, 22, and 23. Pet. 38, 41–42.[5] In addition to arguing that the DTC (as well as the dynamic PAN) in Royyuru teaches or suggests the "limited-use payment information" of claim 1, Petitioner argues that the DTC teaches or suggests claim 3's "cryptogram number for use by the electronic device in place of a card validation value originated from the card issuer." Pet. 26–27. On the present record, it is unclear whether the same element of Royyuru, the DTC, could teach or suggest both the "limited-use payment information" and the "cryptogram number." Additionally, Petitioner argues that the DTC is provided as part of "Track 1" verification information and that standard Track 1 data would include (along with other data) a card validation value. Pet. 27 (citing Ex. 1004 ¶ 59; Ex. 1003 ¶¶ 167, 280). Petitioner, relying on Dr. Shamos' testimony, argues that one of ordinary skill in the art would have recognized from this that the DTC is being provided "in place of a card validation value" as required by claim 3, however it is unclear why the DTC, and not some other portion of Track 1 data, would be transmitted in place of a card validation value.

[5] Petitioner references its arguments with respect to limitation 1e with respect to limitation 15d of claim 15, but this appears to be a typographical error. *Compare* Pet. 38, *with* Ex. 1003 ¶¶ 215–216.

b) Claim 19

Claim 19 requires a processor (limitation 19a) operable to execute a program to implement steps (limitation 19f) including: "accepting a priming action of the electronic device by an identified device user" (limitation 19g) and "enabling the electronic device for imminent performance of a payment operation responsive to the priming action of a valid user" (limitation 19h). The implemented steps further include "responsive to receiving an NFC transaction payment request, generating a limited-use payment information . . ." (limitation 19k). Petitioner argues that the scanning or tapping of the presentation instrument on or near the POS device in Royyuru teaches or suggests the priming action of limitation 19g. Pet. 40-41 (referring to arguments for limitation 1a of claim 1 and claims 7 and 8; citing Ex. 1004 ¶ 44; Ex. 1003 ¶¶ 247–248). Petitioner appears to cite the same passing or tapping of the presentation instrument as teaching an NFC transaction payment request in limitation 19k. Pet. 42 (citing Ex. 1004 ¶¶ 9, 47). Petitioner does not explain how the same user action teaches or suggests a priming action and an NFC transaction payment request.

We note that Petitioner additionally argues that, as taught in Phillips and Casey, the entry of a valid PIN or swiping may be a priming action. *Id.* at 41 (citing Ex. 1005 ¶¶ 35, 59, 62, 66, 70; Ex. 1006, 9:9-36, 12:64–13:51, Figs. 5–8).

E. Other Obviousness Grounds Including Royyuru, Phillips, and Casey

Petitioner additionally argues that dependent claims 4, 5, 10, 13, 14, 21, and 22 are obvious over combinations of Royyuru, Phillips, and Casey, with additional references Gomez (claim 5), Deibert (claims 10 and 14), Power (claim 13), and Carlson (claims 4, 21, and 22). Pet. 47–59. Patent

Owner does not present any additional arguments with respect to these claims.

We have reviewed Petitioner's contentions. Although we do not provide a detailed analysis with respect to all of these contentions, we note the following.

With respect to claim 5, Petitioner argues that one of ordinary skill in the art would have combined Gomez's displayed cryptogram on a device with Royyuru, Phillips, and Casey, "to allow the user to manually enter [the cryptograms] into a website of an online merchant." Pet. 48. However, it is unclear how this relates to the prior description of the proposed combination of Royyuru, Phillips, and Casey as directed to a mobile device that communicates with a merchant POS or merchant device via NFC, with a touch screen on the mobile device for user input. *See* Pet. 10–13, 32–33.

F. Obviousness of Claims 1–9, 11, and 12 over Gomez, Amacker, Mullen, and Smith

Petitioner argues that claims 1–9, 11, and 12 are unpatentable as obvious over a combination of Gomez, Amacker, Mullen, and Smith. Pet. 59–93. Patent Owner presents arguments relating to limitation 1i of claim 1 and relating to the propriety of the proposed combination. Prelim. Resp. 18–27.

1. Gomez

Gomez describes a payment card system in which a secure authentication cryptogram, based on a seed value stored in the card and a temporal signal value such as a real-time clock or sequence number of an attempted use. Ex. 1007, 1:58–2:4, 7:17-26. A static payment card identifying number can not be used without the authentication cryptogram, generated uniquely for the transaction. *Id.* at 2:19-25.

In the Gomez system, a payment card is presented at a POS terminal, and account information including card ID, authentication cryptogram, and other account information is transmitted to the POS terminal. *Id.* at 5:48-6:2, Fig. 2. The information is analyzed and communicated, along with additional transaction information, to an authentication server, to determine whether the authentication cryptogram is valid for the transaction. *Id.* at 6:7–23, Fig. 2. This may be performed through swiping a re-writable magnetic stripe through a card reader or via NFC. *Id.* at 7:49-65, 8:16–23. If the authentication server determines that the authentication cryptogram is valid, it provides an actual payment card account number and account name for use in processing the transaction. *Id.* at 6:23–27, 17:43–51. This information is used in an approval request to the card association corresponding to the payment card being used. *Id.* at 6:39–51, 17:51–62.

Gomez's card may additionally confirm the correct user is presenting the card by checking a user's fingerprint or requiring a PIN number to be entered. *Id.* at 7:9–16, 9:21–33. In one embodiment, the card provides an indication, such as a small light, after the authentication cryptogram has been generated, when the card is ready to swipe at the POS terminal. *Id.* at 10:18–26.

Additionally, in one system, there may be different actual payment card accounts linked to the payment card, and preferences for default accounts to use, in addition to providing options for the user to select a specific card, for example by displaying different accounts sequentially on a display and providing a selection capability for a user. *Id.* at 18:43–19:3, 20:1–59.

2. Amacker

Amacker describes a mobile wallet server that stores personal and payment information for a user. Ex. 1008, 2:13–25. The mobile wallet server may be used to initiate a purchase from a retailer. *Id.* at 2:26–28. The person may communicate a mobile device identifier to the retailer, which may transmit a transaction request to the mobile device using the identifier. *Id.* at 2:37–41. The mobile wallet server may present response options to the user to allow the user to accept the transaction by sending payment or other stored information to the retailer to complete a pending purchase process, or to reject the transaction. *Id.* at 2:42–57, 6:3–14.

The mobile wallet system may have a user interface to display data to a user, including a wallet presenter to enable the user to view or select information, such as payment card selections, for the user. *Id.* at 5:1-41.

3. Mullen

Mullen describes a mobile device that stores information from physical account cards and provides payment information to authorize purchases. Ex. 1009, code (57), ¶¶ 4–8, 23, 29. A user interface on the mobile device may render virtual cards for a user, and allow a user to select from among several virtual cards for a transaction. *Id.* ¶¶ 314–328, Figs. 36–40.

4. Smith

Smith describes processing a financial transaction using a mobile cloud account number (MCA) that corresponds to and is based on attributes of a real card account number (RCA). Ex. 1010, code (57). Smith describes an embodiment in which the MCA includes the last four digits of the RCA, and these digits are displayed in a user interface to a user, while the other digits of the account number are obscured. *Id.* ¶ 83.

5. Combination of Gomez, Amacker, Mullen, and Smith

Petitioner argues that one of ordinary skill in the art would have applied certain teachings of Amacker, Mullen, and Smith to Gomez's system. Pet. 63–68. Patent Owner disputes that one of ordinary skill in the art would have combined Gomez and Amacker. Prelim. Resp. 23–27. For the reasons discussed below, we find that Petitioner's arguments and evidence in support of the proposed combination meet the threshold for institution.

Petitioner contends that one of ordinary skill in the art would have modified Gomez to provide a larger touchscreen display for the Gomez payment card or to integrate it into a mobile device, as taught by Amacker and Mullen. Pet. 63 (citing Ex. 1007, 5:48–57, 10:34–42; Ex. 1008, 4:51–60, 6:21–30; Ex. 1009 ¶¶ 41, 151, 326, 458; Ex. 1003 ¶¶ 311–312). Petitioner contends that one of ordinary skill would have done so in order to have provided additional room for information regarding payment cards and transaction details and easier intuitive user manipulation, and to reduce the number of devices a user carries. *Id.* at 63–64 (citing Ex. 1003 ¶¶ 310–312).

Petitioner additionally argues that one of ordinary skill would have incorporated Amacker's receipt and display of a payment request into Gomez's payment card. *Id.* at 64–66 (citing Ex. 1008, 2:37–3:3, 3:27-57, 4:37–5:17, Fig. 2; Ex. 1003 ¶¶ 313–314). Petitioner argues that the displayed request could allow the user to ensure they approve of the transaction and prevent fraud. *Id.* at 65–66 (citing Ex. 1003 ¶ 314).

Petitioner further argues that one of ordinary skill would have modified Gomez to provide additional graphical information when allowing a user to select a payment method from among various methods, in order to allow a user to more easily identify a desired card. *Id.* at 66 (citing

Ex. 1007, 20:30–42, 21:5–20; Ex. 1008, 5:18–41; Ex. 1009 ¶¶ 37, 326, 328, 353; Ex. 1003 ¶¶ 315–316). Petitioner argues that one of ordinary skill in the art would have modified Gomez's display to enable displaying four digits for a payment number, as per Mullen's teaching of partial display of payment numbers, or Smith's disclosure of displaying the last four digits, to allow a user to better identify payment options and still prevent fraud by obscuring the complete number. *Id.* at 67–68 (citing Ex. 1009 ¶¶ 433–434; Ex. 1010 ¶ 83; Ex. 1003 ¶ 317).

Petitioner argues that one of ordinary skill would have modified Gomez to provide for the generation of the authentication cryptogram to be in response to a transaction request, to ensure that a limited-duration cryptogram is valid for an intended transaction as taught by Amacker, thereby saving processing resources. *Id.* at 67 (citing Ex. 1008, 2:37–3:3, 3:42–47, 4:37–50, 6:37–61; Ex. 1003 ¶ 318). Additionally, Petitioner asserts that one of ordinary skill would have combined Mullen's teaching of displaying receipt information with Gomez's payment card user device, to provide additional assurance to the customer that the correct transaction occurred. *Id.* at 67–68 (citing Ex. 1009 ¶¶ 38, 210, 287, 339, 340; Ex. 1003 ¶ 319).

Patent Owner argues that Petitioner has not shown that one of ordinary skill would have incorporated Amacker's teachings regarding receiving and displaying a payment request into Gomez's user device. Patent Owner argues that the system of Gomez is intended to be usable in a traditional payment system without any infrastructure changes, while Amacker requires the recipient (merchant) to initiate contact with the mobile wallet server to request information, which request may be accepted or rejected. Prelim. Resp. 11, 24–25 (citing Ex. 1008, 2:37–49, 6:49–61).

Thus, Patent Owner argues, Petitioner's argued modification of Gomez would defeat the benefit of requiring no changes in the payment system infrastructure. *Id.* at 25. Additionally, Patent Owner argues, since in Gomez the user has already swiped the card through a magnetic card reader, it would be redundant and costly (in terms of user time and effort) to require the user to perform an initiation and then a transaction request, as in Amacker. *Id.* at 25, 26–27. Patent Owner argues that the combination would require a user to activate the card, provide the card identifier to the merchant, and then receive and approve or deny a transaction request from the merchant. *Id.* at 27. Patent Owner argues that these steps are cumbersome and repetitive and therefore the combination would not have been made by one of ordinary skill in the art. *Id.* Patent Owner additionally argues that Amacker is intended to reduce dissemination of personal information to additional storage locations, but that this is exactly what Gomez does. *Id.* at 25–26 (citing Ex. 1008, 2:49–57).

On the present record, and for the purposes of institution, we determine that Petitioner has provided sufficient evidence in support of its proposed combination of prior art references. Although Patent Owner argues that Amacker is not usable in a traditional payment system without infrastructure changes and that the resulting transaction would require more user time and effort, on the present record, Petitioner argues that the modification would include a preliminary procedure that provides additional security for a user before entering a payment transaction. Pet. 65–66. Although this constitutes a change from Gomez, Petitioner argues that the modification would have provided benefits to a user and, according to Petitioner, there would have been no effect on the payment transaction and infrastructure after the preliminary procedure (e.g. contact between a

merchant POS device and an acquirer or payment processor, card association, etc., as described in Gomez) (*see*, *e.g.*, Ex. 1007, 5:48–6:64, Fig. 2). With respect to Patent Owner's argument that Amacker is intended to reduce dissemination of personal information to additional storage locations, we note that this may be a drawback of Petitioner's proposed combination, but a motivating benefit may compensate for drawbacks in the combination. *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n. 8 (Fed. Cir. 2000). We also take into account Dr. Shamos' testimony that the combination would have allowed extra assurance to the user regarding its intended transaction (Ex. 1003 ¶ 314).

With respect to Petitioner's proposed combination of Gomez, Amacker, Mullen, and Smith, on the present record and for the purposes of institution, Petitioner's showing regarding the proposed combination is sufficient.

6. Analysis of Claim 1

Petitioner contends that the combination of Gomez, Amacker, Mullen, and Smith teaches the preamble and limitations 1a through 1d in the combination's smartphone-implemented payment device used for purchase transaction approval at a retail merchant. *Id.* at 68–69 (citing, *inter alia*, Ex. 1007, 2:59–64, 3:65–67, 8:53–57; Ex. 1008, 2:13–25, 4:51–60; Ex. 1009 ¶¶ 41, 458; Ex. 1003 ¶¶ 321–327).

Petitioner argues that the "priming operation" of limitation 1a is taught by Gomez's described entry of a fingerprint or PIN into the payment card. *Id.* at 68 (citing Ex. 1007, 2:59–64, 5:13–18, 7:9–16, 9:12–33, 13:40–44; Ex. 1003 ¶ 324). Petitioner argues that the receipt of a request for transaction payment of limitation 1e is taught in Amacker's request for

payment information for completing an in-person transaction. *Id.* at 69 (citing Ex. 1008, 2:37–3:3, 3:42–57, 4:37–50, 6:37–61; Ex. 1003 ¶ 328).

With respect to the display of limitations 1f, 1g, and 1h, Petitioner argues that this is taught or suggested in Gomez's multiple accounts, Amacker's display of relevant payment options, and Mullen's interface, with the details of what is displayed taught by the references disclosures regarding displays relating to of account information. *Id.* at 70–73 (citing, *inter alia*, Ex. 1007, 20:30–59, 21:5–20, Fig. 9; Ex. 1008, 5:18–41; Ex. 1009 ¶¶ 37, 326–328, 353, 433, 434, Figs. 36–40; Ex. 1003 ¶¶ 329–336).

For the limited-use payment information of limitation 1i, Petitioner argues that this is taught or suggested by Gomez's secure authentication cryptogram, generated for each attempted use of the card. Pet. 73–74 (citing Ex. 1007, 1:58–2:4, 5:13–18; Ex. 1003 ¶¶ 337–338). Petitioner contends that this authentication cryptogram is used in place of the card issuer supplied payment information, because "the authentication cryptogram is combined with the static EPIC account number to form limited-use payment information and provided to the merchant rather than the issuer supplied payment information." *Id.* at 74 (citing Ex. 1007, 1:55–2:39, 5:19–24, 5:48–6:51, 17:40–62, 18:4–13, 18:50–19:3; Ex. 1003 ¶¶ 338–339).

Petitioner argues that this cryptogram is transmitted to the payment processing system using NFC, and that Gomez and Mullen teach limitation 1k's visually conveyance of the status of the transaction at the user-interface. *Id.* at 74–75 (citing Ex. 1007, 2:50–54, 7:49–54, 8:16–23; Ex.1009 ¶¶ 38, 210, 287, 339–340; Ex. 1003 ¶¶ 339–342).

Patent Owner contends that the Gomez, Amacker, Mullen, and Smith combination does not teach limitation 1i's generation of limited-use payment information used in place of issuer payment information. Prelim. Resp. 19–

23. Patent Owner argues that Gomez requires a static payment card number (EPIC account number) and an authentication cryptogram must be used, and that to maintain compatibility with traditional POS systems, the authentication cryptogram is encoded in a different field of the payment card information. *Id.* at 20–21 (citing Ex. 1007, 1:48–63, 5:13–24, 5:50–57, 5:67–6:2, 11:19–27, Fig. 9). Thus, Patent Owner argues, a different existing data field than that previously used for the credit card number is repurposed to transmit the cryptogram, and the cryptogram is therefore not used in place of card issuer payment information. *Id.* at 21. Patent Owner contends that "it is the EPIC account number alone that is used 'in place of' a live credit card number, while the authentication cryptogram is ***additional***, not replacement, information." *Id.* at 22. However, Petitioner's contention is that the EPIC account number and the authentication cryptogram ***together*** are the limited-use payment information, used in place of the issuer payment information. Pet. 73–74. Gomez discloses that these two data items are used in an account authentication request which, if successful, provides an "actual payment card account number and account name" to the acquirer to use for processing a transaction. Ex. 1007, 5:19–24, 5:7–27, 5:48–51 ("[T]he EPIC account number and authentic cryptogram [are] replaced with a 'live' payment card account number and account name."). To the extent that Patent Owner's argument relies on a claim construction that limits "using said limited-use payment information in place of said card issuer supplied payment information" to require that the limited-use payment information be encoded in the same location previously used for the card issuer supplied payment information (*see* Prelim. Resp. 21), the parties are welcome to address this issue in the proceeding. On the present record, Petitioner has provided sufficient evidence, including Dr. Shamos'

testimony, to support its contention that claim 1 would have been obvious over the combination of Gomez, Amacker, Mullen, and Smith.

7. Claims 2–9, 11, and 12

With respect to claims 2–9, 11, and 12, Petitioner contends these claims are obvious over the combination of Gomez, Amacker, Mullen, and Smith. Pet. 75–83. Patent Owner presents no additional arguments with respect to these claims and this ground.

We have reviewed Petitioner's contentions. Although we do not provide a detailed analysis with respect to all of these contentions, we note the following with respect to claim 3.

Petitioner argues that claim 3 does not require that the cryptogram number be distinct from the limited-use payment information of claim 1, and therefore argues that Gomez's authentication cryptogram additionally teaches or suggests the dynamically generated cryptogram number, used in place of a card validation value, as recited in claim 3. However, "[w]here a claim lists elements separately, the clear implication of the claim language is that those elements are distinct components of the patented invention." *Becton, Dickinson & Co. v. Tyco Healthcare Group, IP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (internal quotation marks, brackets, and citations omitted).

G. Other Obviousness Grounds Including Gomez, Amacker, and Mullen

Petitioner additionally argues that independent claims 15 and 19 and dependent claims 4, 10, 13, 14, 16–18, and 20–23 are obvious over combinations of Gomez, Amacker, and Mullen, with additional references Smith and Deibert (claims 10 and 14), Smith, Deibert, and Power (claim 13), and Smith (claim 4), Carlson (claim 22) and Carlson and Royyuru (claim

21). Pet. 83–93. Patent Owner does not present any additional arguments with respect to these claims.

IV. CONCLUSION

For the above reasons, we determine that Petitioner establishes a reasonable likelihood that it would prevail in showing that at least one of claims 1–23 of the ’579 patent is unpatentable. Accordingly, we institute an *inter partes* review of all challenged claims on all grounds asserted against those claims in the Petition.

V. ORDER

It is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–23 of the ’579 patent is instituted commencing on the entry date of this Decision; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of trial.

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Paper No. 23
Entered: November 21, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

CARDWARE INC.,
Patent Owner.

IPR2023-00196 (Patent 10,810,579 B2)
IPR2023-00211 (Patent 10,339,520 B2)
IPR2023-00314 (Patent 10,628,820 B2)
PGR2023-00012 (Patent 11,328,286 B2)
PGR2023-00013 (Patent 11,328,286 B2)[1]

Before ELIZABETH M. ROESEL, SHARON FENICK, and IFTIKHAR AHMED, *Administrative Patent Judges*.

FENICK, *Administrative Patent Judge*.

TERMINATION
Due to Settlement After Institution of Trial and
Granting-in-Part Joint Motion to File Settlement Agreement
as Business Confidential Information
35 U.S.C. § 317; 37 U.S.C. § 327; 37 C.F.R. § 42.7

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[1] This Order addresses issues that are the same in each of the identified proceedings. We exercise our discretion to issue one Order to be filed in each proceeding. The parties are not authorized to use this style heading in subsequent papers.

I. INTRODUCTION

With the Board's authorization, Petitioner and Patent Owner (collectively, "the Parties") filed a joint motion to terminate in each of the above-captioned proceedings. Paper 21 ("Joint Motion").[2] Along with the Joint Motion, the Parties filed a copy of a settlement and license agreement (Ex. 2004, "Settlement Agreement") and a joint request that the Settlement Agreement be treated as business confidential information and be kept separate from the files of the patents involved in the above-captioned proceedings. Paper 22 ("Joint Request").

II. DISCUSSION

In the Joint Motion, the Parties represent that the Settlement Agreement resolves their disputes involving the patents at issue in the above-captioned proceedings. Joint Motion 1–2. The Parties also represent that "there are no other collateral agreements or understandings, oral or written, between the parties made in connection with, or in contemplation of, the termination of the present proceeding, and Ex. 2004 represents a true and accurate copy of the agreement." *Id.* at 1.

We instituted trial in each of the above-captioned *inter partes* review and post-grant review proceedings, but we have not yet decided the merits of the proceedings, and final written decisions have not been entered. Notwithstanding that the proceedings have moved beyond the preliminary

[2] The relevant papers and exhibits filed in the above-captioned proceedings are substantively the same. We cite to the record in IPR2023-00196, unless otherwise indicated.

stage, the Parties have shown adequately that termination of the proceedings is appropriate. Under these circumstances, we determine that good cause exists to terminate the proceedings.

In the Joint Request, the Parties request that the Settlement Agreement be treated as business confidential information and be kept separate from the files of the patents involved in the above-captioned proceedings. Joint Request 1.

We grant this much of the Joint Request. After reviewing the Settlement Agreement between Petitioner and Patent Owner, we find that the Settlement Agreement contains confidential business information regarding the terms of settlement. We determine that good cause exists to treat the Settlement Agreement as business confidential information pursuant to 37 C.F.R. § 42.74(c).

The Parties further

> request that the Board order that in the event a person or entity makes a written request, as stated in 37 C.F.R. § 42.74(c)(1)-(2), for access to the settlement agreement, that any such written request be served upon the parties on the day the written request is provided to the Board.

Id. We deny this portion of the Joint Request, which is not supported by the statute or the rule and not consistent with the Board's practice.

This Order does not constitute a final written decision pursuant to 35 U.S.C. § 318(a) or § 328(a).

III. ORDER

Accordingly, it is:

ORDERED that the Joint Motions to terminate (IPR2023-00196, Paper 21; IPR2023-00211, Paper 22; IPR2023-00314, Paper 16; PGR2023-00012, Paper 17; PGR2023-00013, Paper 17) are *granted*, and IPR2023-00196, IPR2023-00211, IPR2023-00314, PGR2023-00012, and PGR2023-00013 are *terminated*; and

FURTHER ORDERED that the Joint Requests to treat the Settlement Agreement as business confidential information (IPR2023-00196, Paper 22; IPR2023-00211, Paper 23; IPR2023-00314, Paper 17; PGR2023-00012, Paper 18; PGR2023-00013, Paper 18) are *granted-in-part*, in the manner described above, and the Settlement Agreement (IPR2023-00196, Ex. 2004; IPR2023-00211, Ex. 2004; IPR2023-00314, Ex. 2004; PGR2023-00012, Ex. 2038; PGR2023-00013, Ex. 2036) shall be kept separate from the files of U.S. Patent Nos. 10,810,579 B2, 10,339,520 B2, 10,628,820 B2, 11,328,286 B2, and 11,328,286 B2, and made available only to Federal Government agencies on written request, or to any person on a showing of good cause, pursuant to 37 C.F.R. § 42.74(c).

IPR2023-00196 (Patent 10,810,579 B2)
IPR2023-00211 (Patent 10,339,520 B2)
IPR2023-00314 (Patent 10,628,820 B2)
PGR2023-00012 (Patent 11,328,286 B2)
PGR2023-00013 (Patent 11,328,286 B2)

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ACKNOWLEDGEMENT OF LOSS OF ENTITLEMENT TO ENTITY STATUS DISCOUNT

APPLICATION #	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET #	REQUEST ID
16/459,150	07/01/2019	David WYATT		267395

The entity status change request below filed through Patent Center on 08/29/2024 has been accepted.

Certifications

APPLICANT CHANGING TO REGULAR UNDISCOUNTED FEE STATUS

Signature

I certify, in accordance with 37 CFR 1.4(d)(4), that I am one of the signatories making the entity status change.

Signature	**Name**	**Registration #**
/Anthony C. Murabito/	Anthony Murabito	35295

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Title	:	SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD
In re Application of	:	David WYATT
Patent No.	:	10,810,579
Issued On	:	09/30/2020
Application No.	:	16/459,150 Confirmation No. : 1554
Filed	:	07/01/2019
Applicant	:	Virtual Electric Inc.
Group Art Unit	:	2887
Examiner	:	SEUNG H. LEE

Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION TO EXCUSE ERROR AND TO PAY FEE DEFICIENCY
PURSUANT TO 37 C.F.R. § 1.28(c)

Sir:

A small entity assertion was made in this application. This assertion of small entity status and any payment of fee(s) as a small entity were made in good faith. Through error, the United States Patent and Trademark Office ("Office") was not notified of a loss of entitlement to small entity status as required by 37 C.F.R. § 1.27(g)(2). There was no attempt to fraudulently establish status as a small entity or pay fees as a small entity. Moreover, there was no intent to deceive in establishing status as a small entity or paying fees as a small entity. The Office is hereby notified that status as a small entity is no longer claimed. Consequently, the error of not notifying the Office of the loss of entitlement to small entity status as required by 37 C.F.R. § 1.27(g)(2) qualifies as an excusable error in connection with the payment of a fee deficiency as described below.

Applicant herewith submits $1,200.00 in payment of a deficiency between fees paid in connection with the above-identified application as a small entity, and the fees that were due for other than a small entity. The amount of this deficiency is calculated as follows:

Fee Type	**Date Paid as Small Entity**	**Current Fee (Other than small entity)**	**Fee Paid (Small entity)**	**Deficiency Owed**
MAINTENANCE FEE DUE AT 3.5 YEARS	04/19/2024	$2,000.00	$800.00	$1,200.00
TOTAL				$1,200.00

The Director is hereby authorized to charge the deficiency of $1,200.00, or any additional fee that may be due, or to credit any overpayment, in connection with this paper, to Deposit Account No. 50-4160.

Respectfully submitted,

MURABITO HAO & BARNES, LLP

Date: September 24, 2024

/Jose S. Garcia/

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/459,150	**09/24/2024 03:42:45 AM Z ET**	**-**

Title of Invention

SMART TOKENIZING PAYMENT CARD AND DEVICE AND TRANSACTION PROCESSING THEREOF, SYSTEM AND METHOD

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	10810579
CONFIRMATION #	1554	FILED BY	Jose Garcia
PATENT CENTER #	67292338	FILING DATE	07/01/2019
CUSTOMER #	136197	FIRST NAMED INVENTOR	David WYATT
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
WYAT-0002-11C10US FEE DEFICIENCY PAYMENT PETITION.pdf	2	Petition for review by the Office of Petitions	94 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
WYAT-0002-11C10US FEE DEFICIENCY PAYMENT PETITION.pdf	3ED142F2CB18F55948927697BCD093EC41B0E1405761B6B6526644C7FAF5621006233C0458E23AF5A3D3E143951E91F577FF5E27C77CE5B87CA4BAD88F722E3B

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as

described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :Suad Mohammed

Sale Accounting Date:10/16/2024

Sale Item Reference Number	Effective Date
16459150	09/24/2024

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I20240FF12116822	1559	1.28(C) SUBMISSIONS FOR MAINT. FEES	$1,200.00	Deposit Account

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/459,150	07/01/2019	David WYATT	WYAT-0002-11C10US	1554

136197 7590 10/22/2024
David Wyatt c/o Murabito, Hao & Barnes
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EXAMINER
LEE, SEUNG H

ART UNIT	PAPER NUMBER
2887	

NOTIFICATION DATE	DELIVERY MODE
10/22/2024	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
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In re Patent No. 10,810,579	:	
Issue Date: October 20, 2020	:	
Application No. 16/459,150	:	
Filed: July 1, 2019	:	NOTICE
For: SMART TOKENIZING PAYMENT	:	
CARD AND DEVICE AND	:	
TRANSACTION PROCESSING	:	
THEREOF, SYSTEM AND METHOD	:	

This is a Notice regarding the request for acceptance of a fee deficiency submission under 37 CFR 1.28(c) filed September 24, 2024.

The Office no longer investigates or rejects original or reissue applications under 37 CFR 1.56. 1098 Off. Gaz. Pat. Office 502 (January 3, 1989). Therefore, nothing in this Notice is intended to imply that an investigation was done.

The fee deficiency submission under 37 CFR 1.28(c) is **ACCEPTED**.[1] Accordingly, status as a small entity has been removed and any future fee(s) submitted must be paid at the undiscounted rate.

Inquiries related to this communication should be directed to Ann Marie Ziegler at (571) 272-7151.

/ANN MARIE ZIEGLER/
Ann Marie Ziegler
Paralegal Specialist, Office of Petitions

[1] The applicant is advised of the typographic error listed in the petition filed on September 24, 2024, which lists the date that the patent was issued September 30, 2020, instead of October 20, 2020.