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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C1C
	Application Number	
Title of Invention	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE	

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

Correspondence Information:

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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	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE		
Attorney Docket Number	WYAT-0002.USD1C1C1C1C	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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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 — Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	Continuation of	16459150	2019-07-01	10810579	2020-10-20

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C1C
	Application Number	
Title of Invention	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE	

Prior Application Status	Patented				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	10339520	2019-07-02
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		

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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

☐ 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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C1C
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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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	Application Number	
Title of Invention	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE	

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			
City	San Jose	**State/Province**	CA
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

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
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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)	2020-10-20
First Name	Anthony	Last Name	Murabito	Registration Number	35295

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USD1C1C1C1C
	Application Number	
Title of Invention	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE	

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.

MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

RELATED APPLICATIONS

[0001] This is a Continuation application of co-pending, commonly-owned U.S. Patent Application Serial No. 16/459,150, now U.S. Patent 10,810,579, filed July 1, 2019, which in turn was a Continuation application of co-pending, commonly-owned U.S. patent application Ser. No. 15/701,261, now U.S. Pat. No. 10,339,520, filed Sep. 11, 2017, which in turn was a Continuation application U.S. patent application Ser. No. 14/981,757, filed Dec. 28, 2015, now U.S. Pat. No. 9,760,884, which in turn was a continuation of U.S. patent application Ser. No. 14/680,979, filed Apr. 7, 2015, now U.S. Pat. No. 9,224,083, which in turn was a Division of U.S. patent application Ser. No. 14/217,261, filed Mar. 17, 2014, now U.S. Pat. No. 9,022,286, which in turn claims priority from Provisional Application 61/794,891, filed Mar. 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 electronic or smart payment devices and, more specifically, to more secure, smart multi-function smart tokenizing electronic payment 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 multi-function electronic 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 device-to-device transactions. Methods are also described for generating a limited-duration payment number when performing a transaction for the purpose of creating a limited-use payment 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 multi-function electronic 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 device-to-device transaction between two devices by a detected proximity of a first device and a second device and an input of information by a first user via said touch sensor array, and wherein the device-to-device transaction comprises an exchange of stored currency and said user data between the first device and the second 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 multi-function electronic device from a user enabling operation of a near-field communication (NFC)

unit of the device; receiving an indication of an amount of currency for a transaction; generating at said device a limited-duration payment number; and transmitting said limited-duration payment number from said 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 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 device and the microprocessor on the 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 a device, according to an embodiment of the present disclosure.

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

[0019] Figure 6 is an illustration of two 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 multi-function electronic 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 multi-function electronic device. 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 card reader. As the magnetic strip of a conventional 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 multi-function electronic 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 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. Figure 1 illustrates a payment transaction 100 performed between a multi-function electronic device 101 and a conventional magnetic reader 150. The multi-function electronic 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 multi-function electronic 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 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 multi-function electronic 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 card interaction with a conventional magnetic reader the multi-function electronic 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 multi-function electronic device 101 and the magnetic reader head 155. These features, as well as other characteristics of the multi-function electronic device of the present disclosure, can be better appreciated by a description of the internal components and functions of multi-function electronic device 101.

[0027] Figures 2A and 2B depict exemplary embodiments of a smart multi-function electronic 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 Figures 2A-2B. In Figure 2A, multi-function electronic device 201a is shown in a block diagram view. Multi-function electronic device 201a comprises a processor 205 and a memory unit 207, the processor 205 operatively coupled to the components of multi-function electronic 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 multi-function electronic 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 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 multi-function electronic 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 multi-function electronic device 201a is detected to be passing across the magnetic reader head.

[0029] Figure 2B depicts a multi-function electronic device 201b according to an embodiment of the present disclosure. Device 201b comprises a processor 205 and a memory unit 207, the processor 205 operatively coupled to the components of multi-function electronic 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 multi-function electronic 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. Multi-function electronic 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 radio frequency antenna, 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 multi-function electronic devices 201a and 201b is described in greater detail in the following description.

[0030] A further aspect of the present disclosure provides a single multi-function electronic device that can be used for multiple banks or financial institutions. For example, instead of carrying a separate payment card for each account of a variety of payment card companies, a customer need only to carry a single device according to

embodiments of the present disclosure. The capability of the multi-function electronic device to generate a multitude of payment numbers provides the ability of the multi-function electronic device to be associated with multiple accounts. Furthermore, inputs at the touch sensor array on the multi-function electronic device can be used to select the appropriate bank or credit provider account stored in the memory unit of the multi-function electronic device.

[0031] Figure 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 multi-function electronic 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 multi-function electronic 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 multi-function electronic device is encoded with a limited-duration payment number that is associated with the selected account. The limited-duration payment 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, payment 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 multi-function electronic 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 device 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 card reader. The reader module of a conventional 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 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 multi-function electronic 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 multi-function electronic 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 multi-function electronic device 201a. The set of accelerometers 235 are positioned in the multi-function electronic device 201a in order to effectively measure the position and acceleration of the multi-function electronic 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 multi-function electronic 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 multi-function electronic 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 multi-function electronic 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 multi-function electronic device 201a – thus, a higher determined multi-function electronic 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 multi-function electronic 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] Figure 3 illustrates an exemplary process 300 for determining the rate to alternate the polarity of the generated magnetic field of the multi-function electronic 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 multi-function electronic 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 multi-function electronic 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 multi-function electronic 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 multi-function electronic device. In this manner, while a standard magnetic card reader is detected to be in proximity to the multi-function electronic device, the movement rate of the multi-function electronic

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 the magnetic card reader.

SECURITY

[0038] Security is an area of concern for payment 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 payment card in order to later make fraudulent transactions on the account. Embodiments of the present disclosure address security concerns of a payment card owner on several fronts.

[0039] In one aspect, security of the multi-function electronic device is enhanced by providing a means of locking the multi-function electronic device in order to prevent use, until such time that a valid user input is entered. Embodiments of the present disclosure provide a multi-function electronic 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 Figures 2A-2B). Figures 4A-4B illustrate a user interacting with a multi-function electronic device 401 via a keypad or touch sensor array 445. In Figure 4A, the multi-function electronic 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 the key-pad or the 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 multi-function electronic 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 multi-function electronic device 401 are consistent with the spirit and scope of the present disclosure.

[0040] In order to unlock the multi-function electronic device 401 and enable a transaction or other usage, the user inputs data via the touch sensor array 445. Figure 4B illustrates the user inputting a password via a gesture 470, which operates to unlock the multi-function electronic device 401. The display 450b is able to display a message indicating the multi-function electronic 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 multi-function electronic 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 multi-function electronic device 401, to cause the battery to supply power, or to place the multi-function electronic 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 multi-function electronic 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 multi-function electronic device 401, to which the user would need to respond correctly using the input buttons of touch sensor 445 on the card.

LIMITED-DURATION PAYMENT NUMBER

[0043] A further security feature of the multi-function electronic device provided in the present disclosure is the capability of producing a limited-duration payment number for performing transactions using accounts of the card. The multi-function electronic 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 multi-function electronic device and verified by the payment authority according to the timestamp and the transmitted user information. The limited-duration payment number is able to be produced at the time the multi-function electronic 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 payment 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 payment number is attempted to be used for a transaction, the transaction is denied and an automatic notification is able to be made to a payment 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 the payment number to the 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 multi-function electronic device is a static number, but the number transmitted during a transaction is a limited-duration payment number as described above. The number displayed on the multi-function electronic device may not necessarily be a static number. For example, the first four and last four digits of the payment number are able to be fixed, while the remaining eight digits can be dynamically generated. As the device is read by the machine, part or all of the number may be dynamically produced at the time the device is read. As described above, the dynamic part of the limited-duration payment 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 multi-function electronic device can also be dynamically generated.

[0045] Effectively, embodiments of the present disclosure provide a multi-function electronic device that has no fixed number, as illustrated in Figure 11, and therefore the account cannot be compromised. Only the number generated at the instant of the multi-function electronic device transaction matters. Accordingly, unauthorized use of the

multi-function electronic device is highly unlikely, because a transaction cannot be conducted with an expired limited-duration payment number, or only the static portion of the payment number. In one embodiment of the present disclosure, sufficient dynamically generated numbers are provided for on the multi-function electronic device such that a unique payment number can be generated for each transaction. In this embodiment, the multi-function electronic device of the present disclosure effectively acts as a unique per-transaction payment device.

[0046] With reference to Figure 2A, 2B, in one embodiment, the process steps enabling a card transaction are as follows. A multi-function electronic device (e.g., multi-function electronic device 201b) is connected to a computer system (e.g. computer system 590, Figure 5), via any of the connection means available to the multi-function electronic device (USB 270, NFC 260, and RFID 265). User data and other essential information, such as account information, are downloaded to the multi-function electronic 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 multi-function electronic device 201b for transactions. In an alternative embodiment, rather than a currency amount being downloaded to the multi-function electronic device 201b, the user account information (e.g., username and password) is stored such that a subsequent authorized multi-function electronic 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 multi-function electronic 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 multi-function electronic 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 multi-function electronic device 201b during a transaction for account authentication. According to an embodiment of the present disclosure, a user that has "primed" the multi-function electronic 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 multi-function electronic device 201b detected by accelerometers 235, or a gesture, swipe, or a key input received by touch sensor array 245.

[0048]

[0049] A transaction is able to be communicated using the planar coil 220. In one embodiment, when the transaction is a payment transaction, a limited-duration payment number is generated. A user inputs an amount for the transaction using the touch sensor array 245, and the limited-duration payment number is generated to correspond with the entered amount. The binary data corresponding to this limited-duration payment 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 payment number.

ONLINE TRANSACTIONS

[0050] Figure 5 displays the multi-function electronic device 501 in connection with a computing device 590. In one embodiment, the multi-function electronic device 501 is able to be used to make online purchases. In one embodiment, the multi-function electronic 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 multi-function electronic 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 multi-function electronic device 501 can uniquely generate a limited-duration payment number (as described above) for online purchases. The multi-function electronic 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 payment number is able to be displayed on the front display of the multi-function electronic device 501. In one embodiment, the multi-function electronic 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 payment number, enhancing the security of the payment account by substantially negating the possibility of a theft of the payment number used to perform the transaction leading to account compromise. See also, for example, Figure 10.

[0051] 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 multi-function electronic device 201b to a computer system (for instance, computer system 590), the transaction information stored on multi-function electronic device 201b could be "replayed" by the computer system in order to finalize the transaction.

[0052] In one embodiment, a means of limiting an available credit amount are provided. According to the download process described above, the multi-function electronic device is able to have a total credit available. The multi-function electronic device is able to reference the total credit available in subsequent transactions, and will provide limited-duration payment numbers corresponding to amounts up to, but not exceeding, the remaining credit available to the multi-function electronic device. An attempt to perform a transaction having an amount exceeding the remaining credit available will not result in a valid limited-duration payment number, and therefore an authenticated transaction cannot proceed. In general, the multi-function electronic

Comment [DW1]: This is correct, and must remain "credit"

device will only successfully generate a limited-duration payment 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.

DEVICE-TO-DEVICE TRANSACTIONS

[0053] 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 device 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. See, for example, Figures 8 and 10. For simplicity, the following describes a device-to-device transaction, but it will be understood that card-to-device transactions are similarly provided.

[0054] Figure 6 illustrates a device-to-device transaction according to one embodiment. A first multi-function electronic device 601a comprises a display 650a, and is in contact with a second multi-function electronic device 601b. A contact interaction between the devices is indicated by interaction 680. In one embodiment, the contact interaction is a tapping of a device 601a against another device 601b. In another embodiment, an optical sensor array at one or both of the devices detects interaction 680. In another embodiment, interaction 680 indicates a swipe of a device 601a across another device 601b. In one embodiment a user input through the key-pad initiates and

enables a transaction from first device to second device. In one embodiment the presence of second device in preparation for device-to-device transaction is confirmed through "polling", the process of which involves transmission of data between devices, and confirmed receipt of transmitted data by response received from second device received at first device, including information confirming receipt of the information, by second device.

[0055] The planar coil comprised by each of multi-function electronic device 601a and multi-function electronic 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 multi-function electronic device 601a and multi-function electronic 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 device (e.g., multi-function electronic device 601a) receiving the transaction information operates its planar coil in an antenna mode. This enables multi-function electronic device 601a and multi-function electronic device 601b to authentically perform a transaction, and to transfer a currency between multi-function electronic device 601a and multi-function electronic device 601b. As described above, in an embodiment the transaction is able to use a limited-duration payment number to encode the transaction.

[0056] 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 multi-function electronic device 601a across multi-function electronic device 601b. Further, the set of accelerometers can detect a "priming" action for a multi-function electronic device, i.e.,

an indication for a multi-function electronic device that a transaction is imminent. The priming action can be a tap of the multi-function electronic device 601a, or tapping the multi-function electronic device 601a against the multi-function electronic device 601b. In one embodiment, a touch sensor array is able to be used for the priming action.

[0057] In an embodiment of a device-to-device transaction, one device (e.g. 601a, the device of the user having a currency debit) generates the limited-duration payment number, which is transmitted via the device's planar coil. The multi-function electronic 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 payment number, identifying both the correct account and the amount of the transaction.

[0058] In one embodiment, the multi-function electronic 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 multi-function electronic device 201b is able to perform a transaction, as described above, using a cryptocurrency as the specified account. In one embodiment, the multi-function electronic 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 device 201b to a computing device provides a means of connecting to the cryptocurrency servers and finalizing the transaction. Further, the

multi-function electronic 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.

[0059] In a device-to-device cryptocurrency exchange, a record of the transaction can be made according to the following. A first device (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 device memory, while a second device (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 device 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 devices 601a and 601b.

ACCOUNT THEFT AND UNINTENDED USE PREVENTION

[0060] 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 payment numbers and other security features provided for by the

device of the present disclosure and previously described, a further security feature regarding the wireless communication means of the multi-function electronic device is described herein.

[0061] In one embodiment, wireless communication means of the multi-function electronic 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 multi-function electronic 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. See also, for example, Figure 8. In an embodiment the galvanic sensor 275 is comprised of metallic contacts disposed on opposite sides of, and isolated by, the body of multi-function electronic 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 multi-function electronic 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 multi-function electronic device 201b (e.g., the processor unit 205, the NFC 260, and the RFID 265).

[0062] 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 multi-function electronic 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 device 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 the motion is not normally generated at idle and during periods of inactivity. For example the motion not being generated accidentally while the device 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 the device memory, such that performing the correct sequence when prompted can confirm the possession of the device by the known owner, thus initiating activation and enabling usage.

[0063] Figure 7 depicts a process of selectively enabling the communication capability of the multi-function electronic device according to an embodiment of the present disclosure. The process 700 begins at step 701, where an input signal is received at the multi-function electronic 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 multi-function electronic device motion; and a galvanic sensor indication that the device is in a user grasp. The input received from the user enables operation of a near-field communication (NFC) unit of the multi-function electronic 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.

[0064] The multi-function electronic 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 multi-function electronic device generates a limited-duration payment number, which at step 707 is transmitted to a recipient of the transaction. In one embodiment, the limited-duration payment number has a limited recurrence, and is limited in scope of use to a predetermined number of authorized transactions.

[0065] 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.

[0066] 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.

[0067] 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.

[0068] 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.

[0069] 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.

[0070] 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 payment number. In one embodiment of the present invention, enough dynamically generated numbers are provided for on the credit card such that a unique payment 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.

[0071] In embodiments of the present invention comprising dynamically created payment 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.

[0072] 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.

[0073] 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 payment 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

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, payment authority secrets is combined to generate a limited-use payment 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, payment authority and other information is similarly combined by credit card processing facility to generate

a payment 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 payment 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.

[0074] 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.

[0075] 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 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 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;

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 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;

a 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 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 a 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 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 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 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 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 a user interface of said electronic device.

16. The method of claim 15, further comprising:

visually conveying on the 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 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 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. 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.

20. The electronic device of claim 19, 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.

MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

ABSTRACT

An embodiment includes a multi-function electronic 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 the device to emulate behavior of a credit card when used in electronic credit card readers. Additionally, methods are described to allow user control of the device for the purpose of authorizing or controlling use of the device in the application of credit, debit and cash transactions, including cryptocurrency and device-to-device transactions. Methods are also described for generating a limited-duration payment number when performing a transaction for the purpose of creating a limited-use payment number, which is limited in scope of use to a predetermined number of authorized transactions. Furthermore the device may interact with other similar devices in proximity for the purpose of funds or credit/debit transfers.

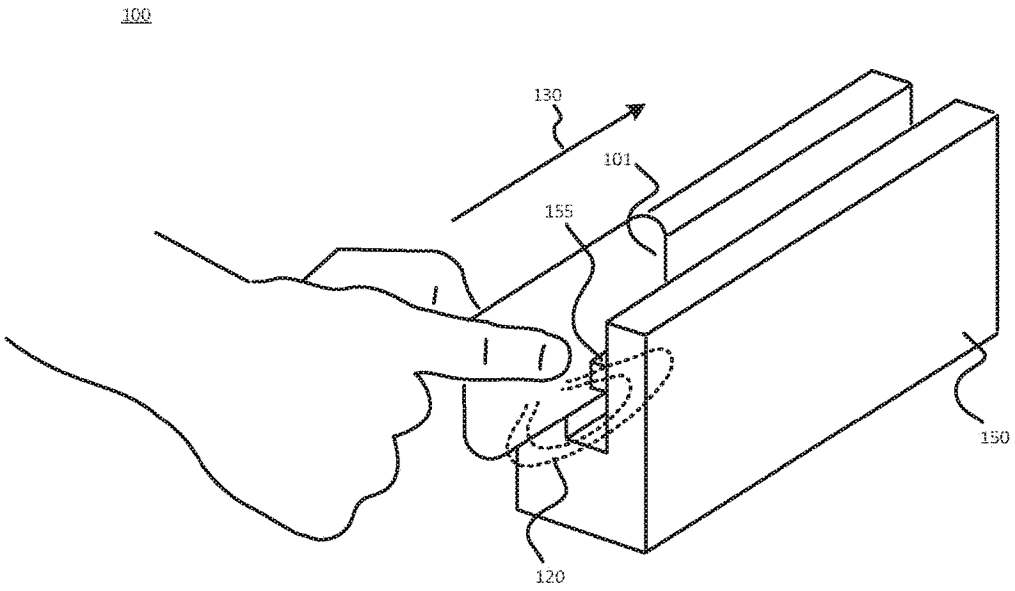

FIG. 1

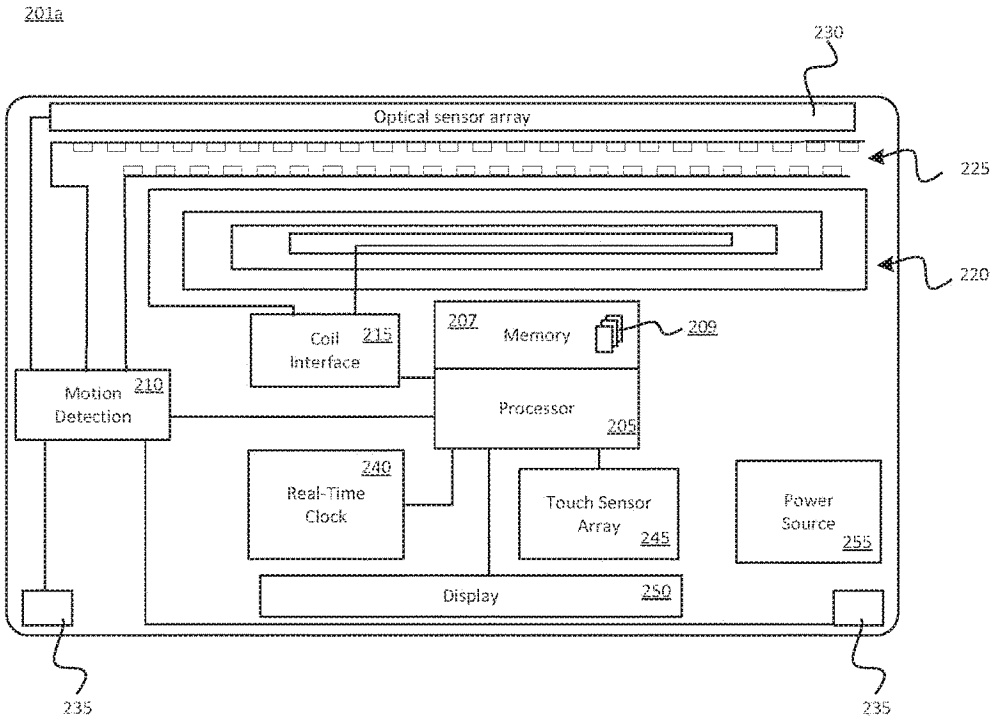
201a
230
Optical sensor array
225
220
Coil Interface 215
207
Memory
209
Motion Detection 210
Processor
205
240
Real-Time Clock
Touch Sensor Array 245
Power Source 255
Display 250
235
235

FIG. 2A

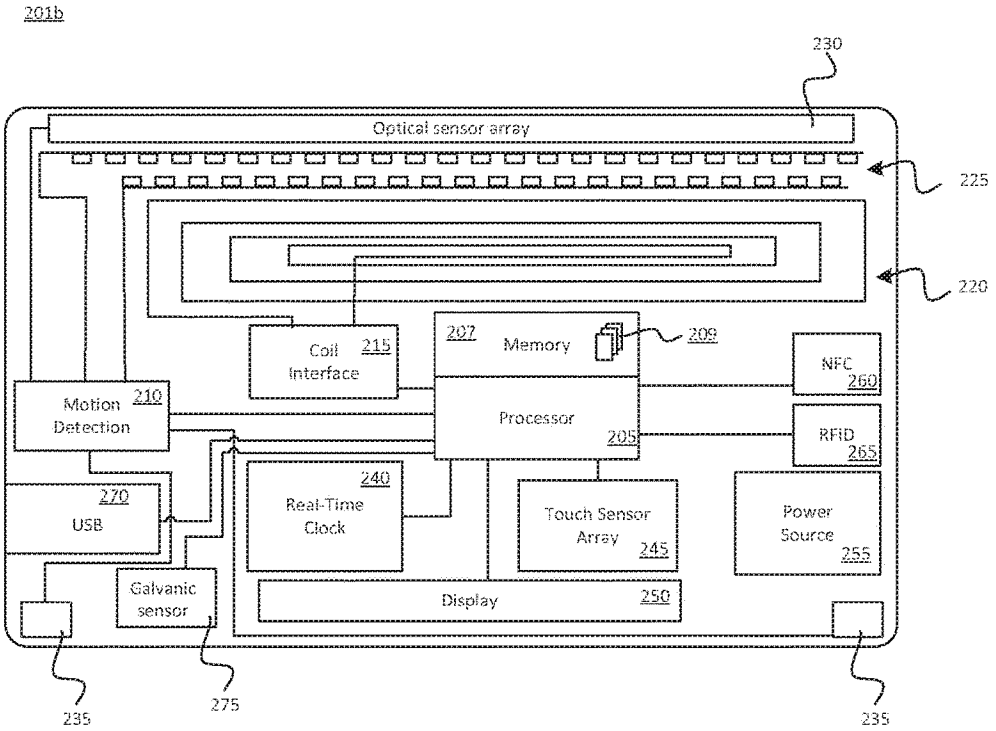
201b
230
Optical sensor array
225
220
Coil Interface 215
207
Memory
209
NFC 260
Motion Detection 210
Processor
205
RFID 265
270
USB
240
Real-Time Clock
Touch Sensor Array 245
Power Source 255
Galvanic sensor
Display 250
235
275
235

FIG. 2B

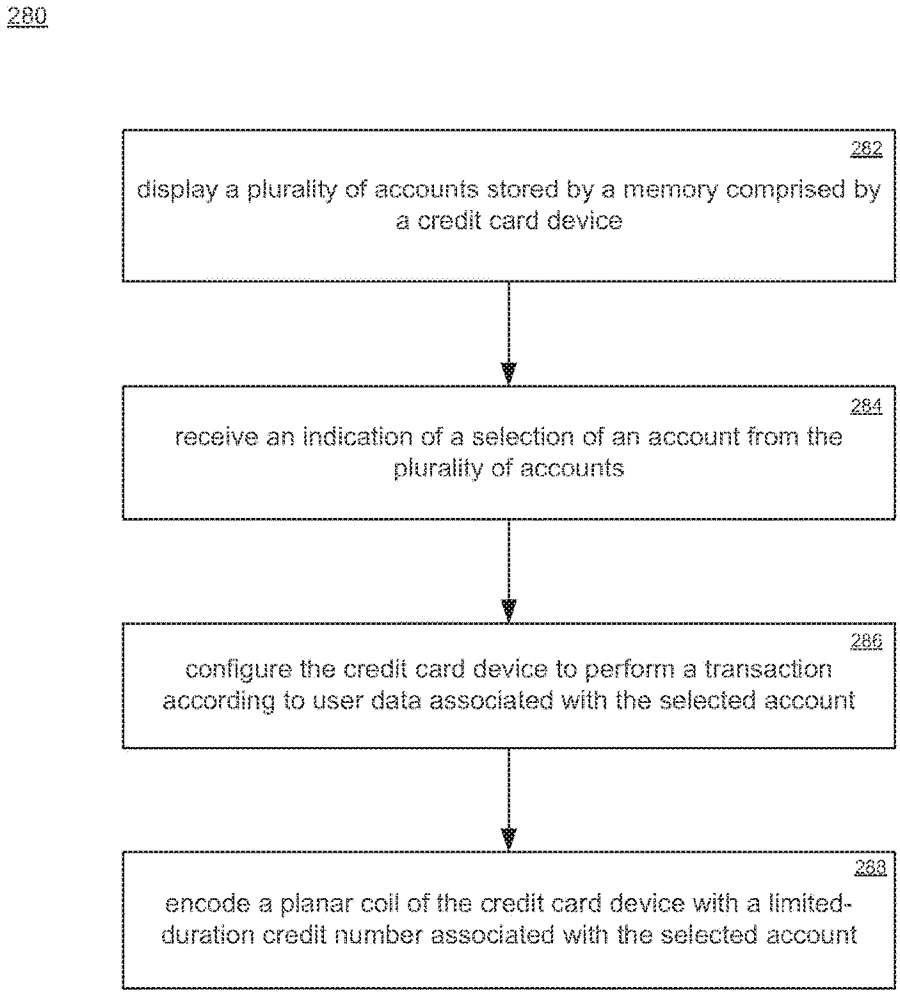
280
282
display a plurality of accounts stored by a memory comprised by a credit card device
284
receive an indication of a selection of an account from the plurality of accounts
286
configure the credit card device to perform a transaction according to user data associated with the selected account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

FIG. 2C

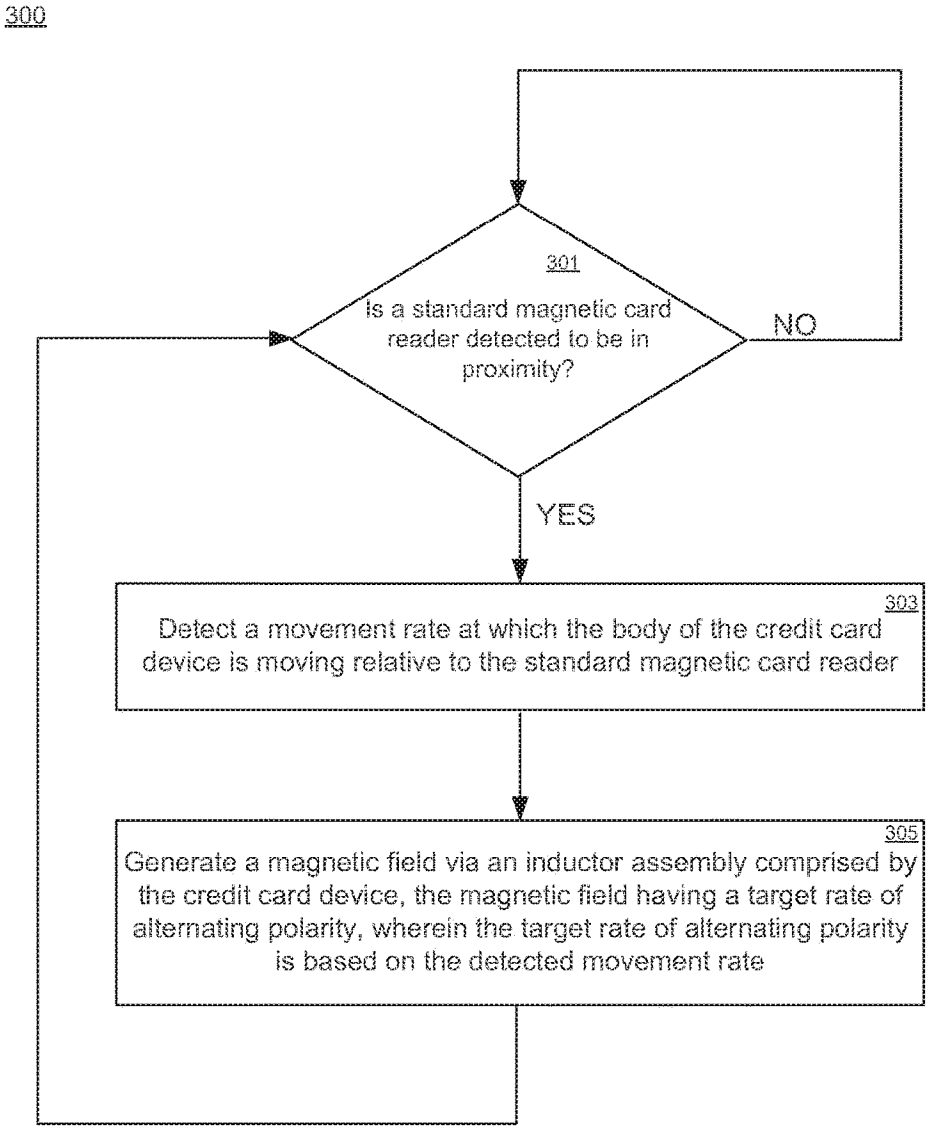
300
301
Is a standard magnetic card reader detected to be in proximity?
NO
YES
303
Detect a movement rate at which the body of the credit card device is moving relative to the standard magnetic card reader
305
Generate a magnetic field via an inductor assembly comprised by the credit card device, the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

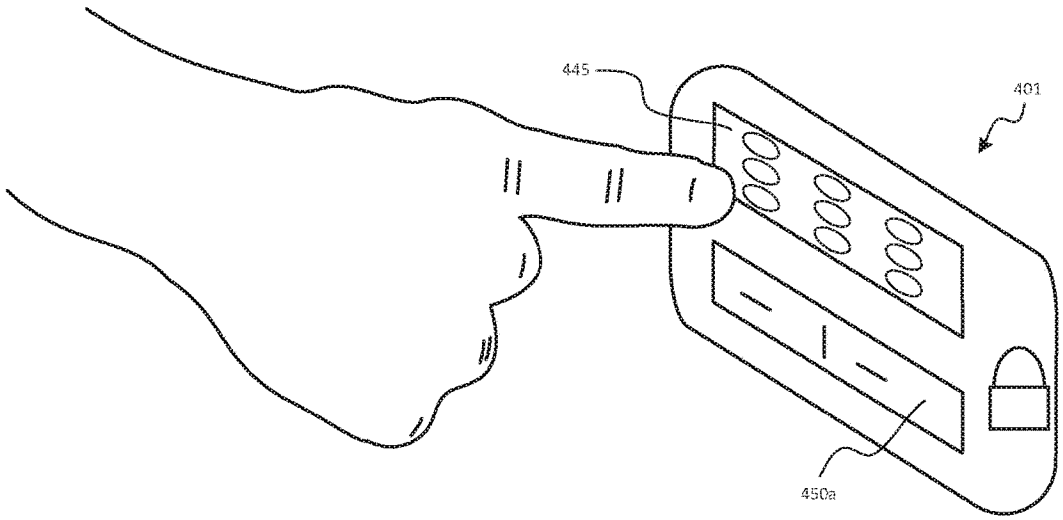

FIG. 4A

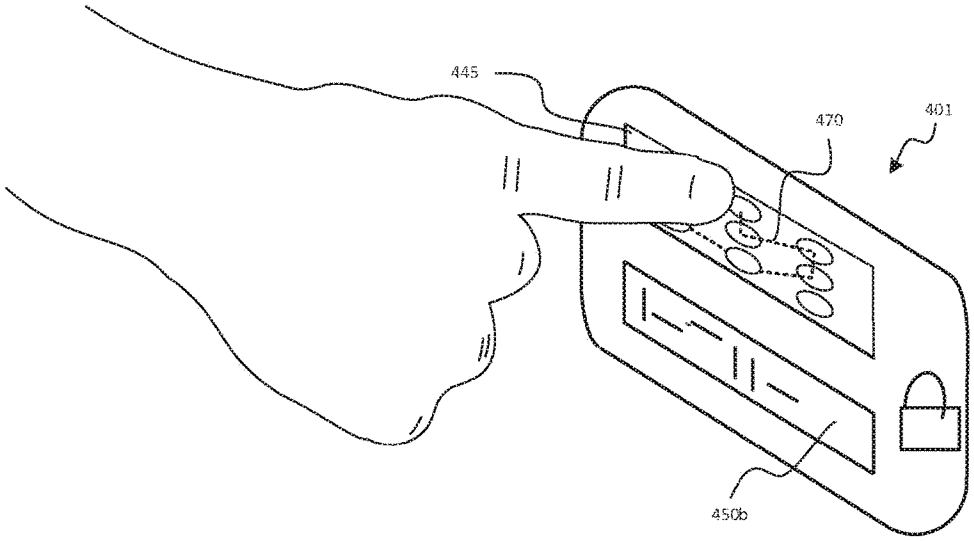

FIG. 4B

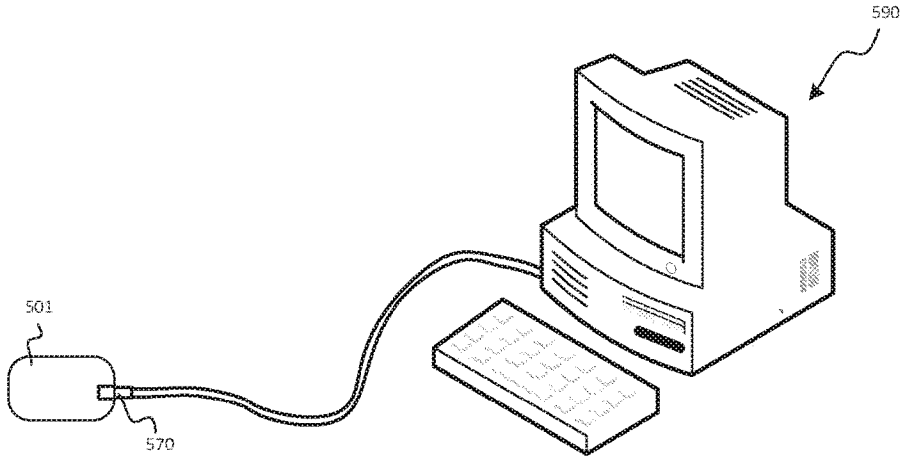

FIG. 5

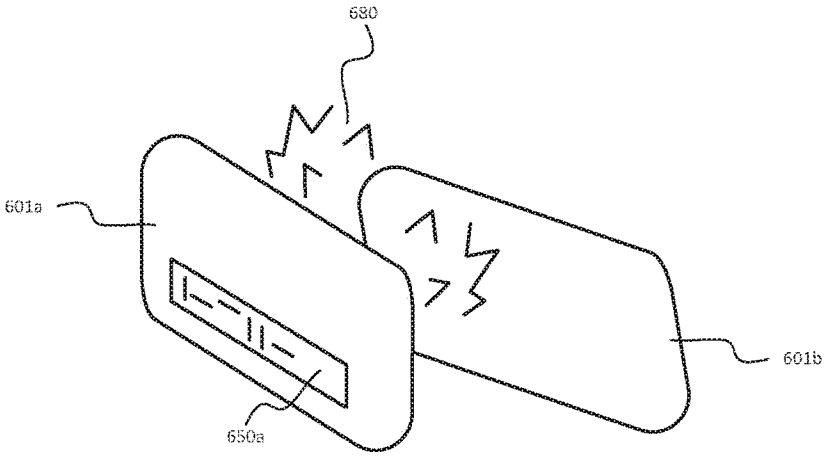

FIG. 6

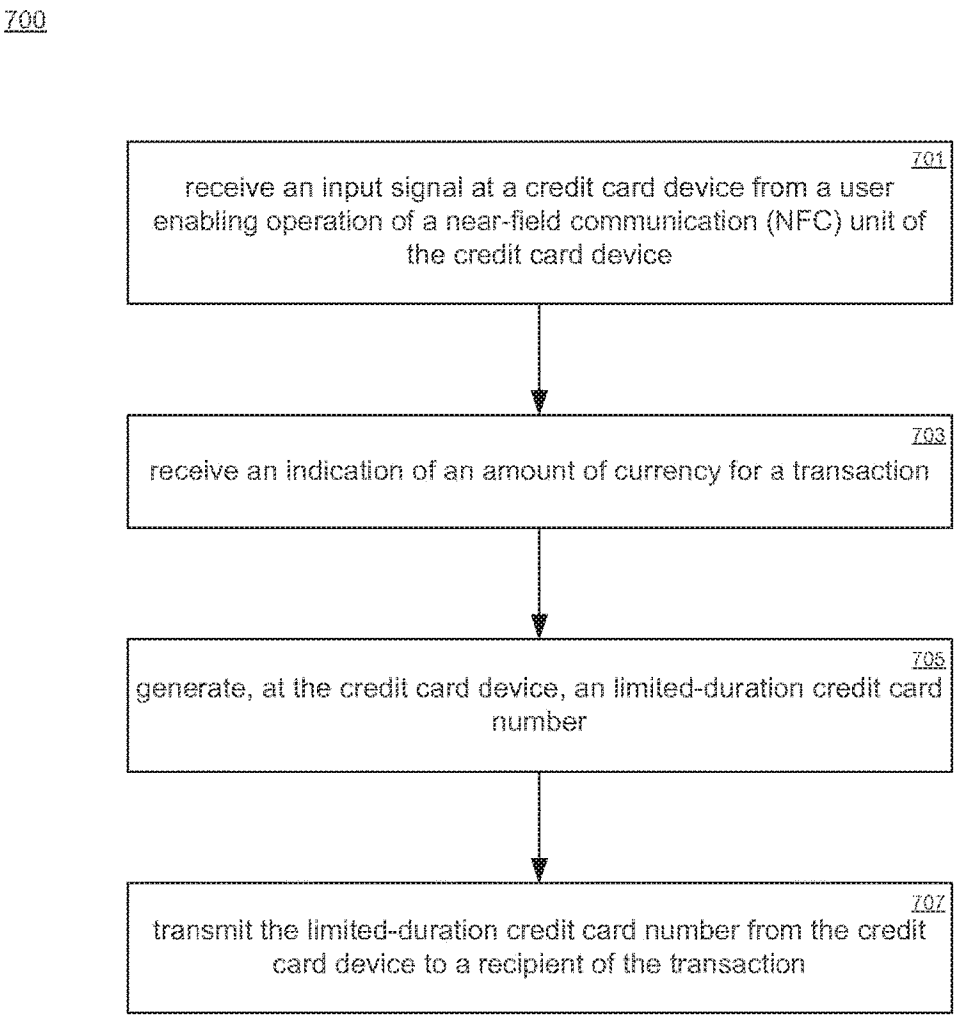
700
701
receive an input signal at a credit card device from a user enabling operation of a near-field communication (NFC) unit of the credit card device
703
receive an indication of an amount of currency for a transaction
705
generate, at the credit card device, an limited-duration credit card number
707
transmit the limited-duration credit card number from the credit card device to a recipient of the transaction

FIG. 7

WYAT-0002.US

PTO/AIA/01 (06-12)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [x] The attached application, or
- [ ] United States application or PCT international application number _____

filed on _____.

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): 3/17/14

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:	40898855
Application Number:	17075637
International Application Number:	
Confirmation Number:	1990
Title of Invention:	MULTI-FUNCTION SMART TOCKENIZING ELECTRONIC PAYMENT DEVICE
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.USD1C1C1C1C
Receipt Date:	20-OCT-2020
Filing Date:	
Time Stamp:	21:21:38
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	Application Data Sheet	WYAT-0002USD1C1C1C_ADS_ 10-20-2020.pdf	1793734 d2a2dc08529a84a51598683f973ab74a57f16bde	no	9

Warnings:

Information:					
2		WYAT-0002USD1C1C1C_CON_APP_10-20-2020.pdf	281216 366e8441e70e3fe676fef55ee447b353117128f4	yes	61
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Specification		1	43	
	Claims		44	60	
	Abstract		61	61	
Warnings:					
Information:					
3	Drawings-only black and white line drawings	WYAT-0002USD1C1C1C_FIGURES_10-20-2020.pdf	3004122 3664da0e8082e77b687af4d8bf7d9e2a8cdf839c	no	7
Warnings:					
Information:					
4	Oath or Declaration filed	WYAT-0002USD1C1C1C_DEC_FROM_PARENT_10-20-2020.pdf	69977 049fb9a8b7b25d07cfa88c9c27b06162a61c06e0	no	1
Warnings:					
Information:					
		Total Files Size (in bytes):	5149049		

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.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/075,637	10/20/2020	David WYATT	WYAT-0002.USD1C1C1C1C

CONFIRMATION NO. 1990

FORMALITIES LETTER

OC000000121331641

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

Date Mailed: 11/16/2020

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
  The surcharge is due for any one of:
  - late submission of the basic filing fee, search fee, or examination fee,
  - late submission of inventor's oath or declaration,
  - filing an application that does not contain at least one claim on filing, or
  - submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. Small entity discount is in effect. If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- $ **80** basic filing fee.
- $ **80** surcharge.
- $ **350** search fee.
- $ **400** examination fee.
- $(**0**) previous unapplied payment amount.
- $ **910** TOTAL FEE BALANCE DUE.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice". https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

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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**.

/ttran/

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
17/075,637

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	80		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	350		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 240 =	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	830		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($)	ADDITIONAL FEE($)		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.

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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
17/075,637	10/20/2020	2876	0.00	WYAT-0002.USD1C1C1C1C	20	3

CONFIRMATION NO. 1990

FILING RECEIPT

OC000000121331640

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

Date Mailed: 11/16/2020

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 16/459,150 07/01/2019 PAT 10810579
which 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

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: 11/13/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/075,637**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

Preliminary Class

235

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

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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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NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	17/075,637
Filing Date	10-20-2020
First Named Inventor	David WYATT
Title	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
Art Unit	2876
Examiner Name	TBD
Attorney Docket Number	WYAT-0002.USD1C1C1C1C

SIGNATURE of Applicant or Patent Practitioner

Signature	/Anthony C. Murabito/	Date (Optional)	
Name	Anthony C. Murabito	Registration Number	35,295
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.

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.**

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

PTO/AIA/82B (07-13)
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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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☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number 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 application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 136197

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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	D.C. Wyatt	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.

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Electronic Acknowledgement Receipt

EFS ID:	42728311
Application Number:	17075637
International Application Number:	
Confirmation Number:	1990
Title of Invention:	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
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.USD1C1C1C1C
Receipt Date:	14-MAY-2021
Filing Date:	20-OCT-2020
Time Stamp:	15:47:02
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-0002USD1C1C1C1C_POA_05-14-2021.pdf	2357671 cdc49c525dc61dd1d51ac0e8a36675a40232ad5b	no	2

Warnings:

Information:	
Total Files Size (in bytes):	2357671

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)		
	)		
Wyatt, David	)	Examiner:	TBD
	)		
Serial No.: 17/075,637	)	Art Unit:	TBD
	)		
Filing Date: October 20, 2020	)	Confirmation No:	1990
	)		
For: MULTI-FUNCTIONAL SMART TOCKENIZING ELECTRONIC PAYMENT DEVICE NETWORK	)		

Commissioner for Patents & Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

To Whom It May Concern:

Please amend the above referenced patent application as set forth herein.

Applicant respectfully asserts that no new matter has been added.

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 26 of this paper.

IN THE CLAIMS:

Please cancel Claims 1-20

Please insert the following new claims 21-50:

1-20 (Cancelled)

21. (New) A method of performing a payment transaction, the method comprising:

receiving an input at an electronic device corresponding to a priming operation of the electronic device by an authorized user; and,

wherein the authorizing of a user of the electronic device comprises recognizing a user input using a human input sensor, and wherein the human input sensor is any one of a touch sensor, a touch-screen display interface, a gesture sensor, a motion sensor, and a biometric sensor; and,

receiving a request for a transaction payment at said electronic device via an NFC interface of the device; and,

displaying, on a display of the device, a transaction payment request and at least a portion of an original static issuer-supplied payment account information associated with a payment method, for a user selection in paying the payment request; and,

retrieving from a memory attached to a processor of the device, a device-specific static limited-use payment information, associated with said selected payment method; and,

dynamically generating, by a processor of the device, device-specific limited-use payment information, for said selected payment method; and,

using said limited-use payment information in place of at least a portion of said selected original issuer-supplied payment information for the transaction; and,

combining of said dynamically-generated limited-use payment information with said static limited-use payment information, to generate a complete device payment information; and,

transmitting said complete device payment information from said electronic device to a recipient reader via said NFC interface to the recipient NFC reader for a processing of the payment transaction; and,

receiving information at said electronic device corresponding to a transaction status of the payment transaction, wherein such transaction status is at least partly dependent on validation of the transmitted complete device payment information by a payment processor authority and a payment issuer authority; and,

visually conveying the transaction payment authorization status via a user-interface displayed on said display.

22. (New) The method of Claim 21, further comprising receiving confirmation via said NFC interface of the validity of said complete device payment information from an NFC payment reader facility.

23. (New) The method of Claim 21, further comprising receiving said confirmation result of said complete device payment information authentication status from a payment processing authority via at least one interface of a set of interfaces comprising: said device NFC interface, a wireless interface of said device.

24. (New) The method of Claim 21, wherein the generating the limited-use payment information is comprising:

a device-specific account number; and,

a device-internal transaction sequence counter count; and,

an information unique to the user and device which does not pass in the transaction; and,

at least one payment authority-supplied information which does not pass in the transaction,wherein the complete device payment information is only valid for use in place of an issuer payment method in authorizable payments when comprising all valid device generated limited-use information elements, and

wherein said generating is limiting in-scope-of-use said generated payment information, for said user-selected issuer payment method option, to a unique-per-device unique-per-use one-time transacting by said combining device; by combining said information elements including: said transaction-specific sequence count information, said device-specific information, said user-specific information, and said authority-specific information.

25. (New) The method of Claim 21, wherein the generating the limited-use payment information further comprises securely combining by at least one processor of the device of:

a device payment transaction sequence counter count, and

at least one of a set comprising:

a device-specific internal information associated with said device and also known to a payment processing authority; and,

at least one payment processing authority-specific information provided by a payment processing authority; and,

a payment issuer specific information provided by a payment issuer.

26. (New) The method of Claim 24, wherein the generating the limited-use payment information further utilizes a secure combining of said information, by at least one processor of the device, into a singular cryptogram number, capable of passing in at least a portion of the device transaction payment information.

27. (New) The method of Claim 23, wherein the generating the limited-use payment information utilizes a unique device generated information limited-in-use to said selected issuer-payment method, in payment transactions performed by said device, in place of said selected issuer-payment information; and,

wherein said device account information will be rejected as invalid when not including a valid device generated limited-use information.

28. (New) The method of Claim 26, wherein the generating the limited-use payment information further utilizes a secure combination with a device key, and a payment issuer secret.

29. (New) The method of Claim 23, wherein the generating of the limited-use payment information utilizes a secure combination of a device transaction sequence counter count, a device account number, a device-unique information, and a payment processing authority recognizable information; and,

wherein said generating of said limited-use payment information, is authorizable for a payment, for the singular counted transaction, for said selected payment method, by said device, in said transaction; and,

wherein an authorizing by said payment processing authority, is a comparing of said device-generated limited-use payment information, to a valid transaction payment information generated by said payment processing authority using same secure combination method, and same information elements of a valid payment transaction by said device; and,

a generating at said valid payment information at a payment processing authority includes a processing authority storing of expected device transaction sequence counter count, expected issuer payment information, an expected a device user information, and the device account number; and,

an adjusting of said transaction sequence counter count on a per transaction basis; and,

an authorizing of a payment information as valid when said processing authority is verifying the limited-use transaction payment information generated by the device, and the processing authority generated valid limited-use payment transaction information, are matching.

30. (New) The method of Claim 21, wherein the generating the limited-use payment information utilizes a recipient NFC facility provided information.

31. (New) The method of Claim 21, wherein the generating the limited-use payment information utilizes a merchant identifying information.

32. (New) The method of Claim 21, wherein the generating the limited-use payment information utilizes a transaction facility information.

33. (New) The method of Claim 21, wherein the generating the limited-use payment information utilizes a payment amount.

34. (New) The method of Claim 21, wherein the generating the limited-use payment information utilizes a payment facility type.

35. (New) The method of Claim 21, wherein the generating the limited-use payment information utilizes an online transaction information.

36. (New) The method of Claim 23, wherein the generating the limited-use payment information further utilizes a secure combination of said information with a device account number, a device sequence counter count, device-specific information, payment processing authority specific information; and,

a verifying of said combination by a payment processing authority, performing same secure combination of same information as retained at the authority; and,

a payment processing authority comparing said device generated payment information, and said payment processing authority generated payment information, for a verifying of a limited-use payment as valid; and,

a conveying of said validation result as a declining or accepting of said transaction payment; and,

upon a proper validating of said result, a conveying of original issuer payment information to an original payment method issuer, for a settlement of said transaction.

37. (New) The method of Claim 21, further comprising:

dynamically generating a cryptogram number for use by the electronic device in place of a card validation value originated from the payment issuer, and wherein the dynamically generating the cryptogram number comprises cryptographically combining a transaction sequence counter count, payment processing authority secrets, and a device account number; and

wherein further, said dynamically generating of said cryptogram results in a one-time limited-use card validation value number, via the incrementing of said transaction sequence counter count on a per-transaction basis, and using said updated transaction sequence counter count in said generation of said cryptogram; and,

wherein said cryptogram is used in place of issuer supplied card validation value number, in performing said transaction payment by the device.

38. (New) The method of Claim 23, wherein the visual conveying of the transaction status is further comprising at least one, of a set of visual information including:

a confirmation result of payment authority authenticating said device-transmitted limited-use payment information,

a confirmation result of payment authority authenticating said device-transmitted complete device payment information,

an NFC transaction status,

a transaction payment amount,

a payment facility wherein the transaction was performed,

a merchant information,

an original issuer payment account information,

an original payment issuer information,

a request for an authorized-user approval of the transaction,

a payment processing status,

an issuer payment approval status, and

a payment completion status.

39. (New) A method of performing an online payment transaction, the method comprising:

receiving an input signal at an electronic device, the input signal corresponding to a request for payment of an online payment transaction by said electronic device, via a wireless interface of the electronic device;

a displaying of the payment request notification at a touch-screen display user-interface of the electronic device; and,

upon an authorizing of a valid device user, displaying at least one user-selectable payment account option, and requesting a user approval of payment, via the touch-screen display user-interface;

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

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

combining said at least one limited-use numbers, with said selected account information, to form a complete payment information; and,

wherein the receiving of a user payment approval authorization through the user-interface of the electronic device, is comprising a displaying on said

display at least a portion of information comprising: the payment request, the merchant, the amount, and the transaction information; and,

receiving a user input providing for at least one transaction authorization actions, from a set of actions including: approving a transaction, denying a transaction, selecting a user information, a payment amount adjustment, and selecting a transaction payment method; and,

on receiving said user payment approval authorization input, a transmitting by the wireless interface of the approved complete payment information for the online transaction.

40. (New) The method of Claim 39, further comprising:

dynamically generating a cryptogram number for use by the electronic device in place of a card validation value originated from the payment issuing authority, and wherein dynamically generating the cryptogram number comprises cryptographically combining a device transaction sequence counter count, a user information, a payment account number, information and secrets known to a payment processing authority; and

wherein further, said dynamically generating said card validation value number results in a one-time limited-use payment information, on incrementing the device transaction sequence counter count on each transaction payment, and said device combining said current transaction sequence count at the instant of generating said cryptogram number.

41. (New) The method of Claim 39, wherein at least a portion of said limited-use number comprises a static device account number,

and wherein the static device account number is of a limited scope of valid use to a specific device,

and wherein further a payment processing authority provides said device account number unique for the specific electronic device, in place of payment issuer information, in performing payment transactions by the electronic device, and further comprising:

performing a payment transaction by the electronic device including the dynamically generated limited-use number;

combining the dynamically-generated number and the static device account number within a device-generated complete payment information; and

conveying said device-generated complete payment information, in place of a selected payment issuer information, when the device is performing payment transactions; and

wherein a using of said static device account number without a valid dynamically generated limited-use number, shall be deniable as invalid, and outside a valid scope of device-limited usage.

42. (New) The method of Claim 39, further comprising:

generating a limited-use security code 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: a device transaction sequence

counter; a device account number; a payment account information, device secrets; payment processing authority secrets; and

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

43. (New) The method of Claim 39, wherein a payment processing authority verifying and authorizing a transmitted limited-use number based on a time of use, and cryptographically combining a transaction sequence count information; a device account number; a user account information; a payment issuer information; a payment processing authority secrets; a transaction information; and,

further comprising: receiving an authorization of said transaction, responsive to verifying a valid limited-use number appearing in a transaction information in place of the payment issuer information; and

a rejecting by the payment processing authority, on a detecting as invalid at least one verification test, from a set of tests comprising:

a mis-matching of the transacted limited-use number, and the authority cryptographically-combined number;

a transactional use of a device account number outside of its limited scope of valid payment reader facility use;

a transactional use outside of a valid time window;

a transactional re-use of a number limited to a one-time use; and,

a transactional use of an expired number outside of a limited time-of-use.

44. (New) The method of Claim 39, wherein the user selecting of a payment method at an electronic device comprises receiving a user touch input selection, via the user interface, of a displayed payment method option, on the device touch-screen display interface.

45. (New) A non-transitory, computer-readable medium storing computer executable instructions that when executed by one or more processors, cause the one or more processors to:

accept a priming action of the electronic device by an identified valid device user, identified from the device inputs;

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

display a summary of online purchase information including the merchant information and the purchase amount; and,

display at least one selectable issuer payment account methods on a display; and,

receive a payment selection and approval authorization from said valid device user via a human input sensing at the device; and responsive to receiving a valid user transaction payment approval, generate a device-specific limited-use payment information for use in

place of at least a portion of said selected issuer payment account information on the device,

form a complete combined device payment information from a dynamically generated portion and a statically generated portions stored in a memory of the device,

wherein the communication interface is operable to transmit said complete device payment information from said electronic device to the recipient of the online purchase transaction; and

wherein further the processor is operable to receive an approval and a denial confirmation from an online payment facility of the complete device payment information, and cause the display to visually convey a status of the online purchase transaction.

46. (New) The non-transitory, computer-readable medium of Claim 45, wherein the executable instructions further cause the one or more processors to:

receive the priming action of a user via the device human input sensors;

identify an authorized valid device user through a human to device inputs, selected from at least one security challenge, of a set of human to device input challenges comprising:

a correct passcode touch entry sequence,

a correct touch gesture,

a touch input of a known device user,

a biometric recognition of a valid user,

a biometric sensing of a valid user's skin touch,

a touch input sensor recognition of a unique customer identifier,

a security question which a valid user could answer correctly, and

receiving a correct user response input, from a security challenge presented on the device display; and

responsive to receiving an incorrect user response input, offer a reduced number of additional challenge attempts before failing the user authorization at the device, and denying the payment authorization.

47. (New) The non-transitory, computer-readable medium of Claim 45, wherein the one or more processors include a cryptographic processor, and wherein the executable instructions further cause the one or more processors to:

cryptographically compute a dynamically generated one-time-use cryptogram number,

and combine said dynamically generated portion with a static device-specific account number known to a payment processing authority and limited in use to the device use in place of an issuer payment method; and,

wherein further said cryptogram number is created by said device processor cryptographic combination of device transaction sequence counter count, a payment account information, a user information, and information stored in the device and specific to the device and which is not communicated in the transaction; and,

wherein said transaction sequence counter, said information and said secrets are known to both said device, and to said payment processing authority; and,

wherein further said static device-specific device account number is known to a payment issuer, and has a device-specific expiration date of limited duration of validity; and,

wherein the generating said complete combined device payment information comprises a device combining said static device-specific device account number, said device account expiration date, said user information, said payment account information, and said dynamically generated cryptogram,

and transmitting said complete device payment information when said issuer payment account method is selected.

48. (New) The non-transitory, computer-readable medium of Claim 45, wherein the executable instructions further causes the one or more processors to perform:

a combining of a static device-specific payment account information, a device generated information, and other user and account information stored on the device which is uniquely identifying the specific user, specific selected account, and the specific device; and,

a generating of a limited-use payment information by the one or more device processors cryptographically generating at least one one-time limited-use cryptogram numbers; and,

wherein the one or more device processors are further operable to combine said limited-use static device account information and said one-time use cryptogram number(s) to produce the complete combined device payment information; and,

wherein the one or more device processors are further operable to transmit said complete payment information in place of said user-selected payment account information in a device payment transaction; and,

wherein the one or more device processors are further operable to display at least a portion of said user-specific selected account information associated with said complete device payment information used during said transaction, via a user interface disposed of the device.

49. (New) The non-transitory, computer-readable medium of Claim 45, wherein the executable instructions further cause the one or more processors to dynamically generate a one-time limited-use cryptogram number, via a known cryptographic combination of at least one information unique to the electronic device, and also known to at least one of a payment processing authority and a payment issuer authority, and selected from a set of information known and stored at both said payment authorities, and on said device, including:

a transaction sequence counter,

a device account number,

a device account expiration date,

a device secret,

a payment processing authority secret,

a user information,

a payment account information,

a payment issuer information,

a payment amount, transactional information; and,

wherein said one or more processors uses said one-time limited-use cryptogram number in place of at least a portion of an issuer's static payment information, in a payment transaction using said payment account; and,

wherein said payment authorities are operable to recognize from the transactional payment information, the correct set of user, device and account specific information to be cryptographically combined into an authority computed cryptogram, for comparing with device transmitted limited-use payment information; and,

wherein said payment processing authorities are operable to deny as invalid a transaction including a cryptogram not matching an authority computed cryptogram; and,

wherein said payment authorities are operable to approve as valid a transaction including a cryptogram matching the payment processing authority computed cryptogram; and,

wherein said device is operable to receive an approval and a denial status of said transaction, from said payment authorities, and visually convey said transaction status in the user-interface on the display disposed of the device.

50. (New) The electronic device of Claim 45, further comprising a processor and a non-transitory, computer-readable medium storing computer executable instructions that when executed by the one or more processors, cause the one or more device processors to dynamically generate a one-time limited-use cryptogram number by a cryptographic combination, of at least one information known to: the device, the payment issuer authority, and a payment processing authority, and unique to the electronic device, and selected from a set of information including:

a transaction sequence counter;

a user payment account number;

a device payment account number;

a device secret; device keys;

a payment issuer original account information;

a payment issuer device account information;

a payment processing authority secret;

a transaction information;

and a user private information; and,

wherein said cryptogram is operable to be used in place of at least a portion of an issuer's static payment information, in a payment transaction for said selected payment account; and,

wherein said payment processing authority is operable to deny as invalid, a transaction including a cryptogram not matching a payment processing authority computed cryptogram; and,

wherein said payment processing authority is operable to approve as valid, a transaction including a cryptogram matching the payment processing authority computed cryptogram; and,

wherein said user device is operable to receive an approval and a denial status of said transaction information validation, and visually convey said transaction status in the user-interface on the display disposed of the device; and,

wherein said user device is operable to emulate the behavior of an issuer account payment transaction, when said complete device payment information is used in electronic payment facilities.

REMARKS

Claims 1-20 are cancelled herein. Claims 21-50 are added. No new matter has been added as a result of the claim amendments herein. Please enter the instant preliminary amendment before examination of the above captioned patent application.

Please charge any additional fees or apply any credits to our PTO deposit account number: 50-4160.

Respectfully submitted,
MURABITO HAO & BARNES LLP

Date: June 16, 2021 /Anthony C. Murabito/

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Electronic Patent Application Fee Transmittal

Application Number:	17075637
Filing Date:	20-Oct-2020
Title of Invention:	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
First Named Inventor/Applicant Name:	David WYATT
Filer:	Anthony C. Murabito/Mina Oliveri
Attorney Docket Number:	WYAT-0002.USD1C1C1C1C

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	80	80
UTILITY SEARCH FEE	2111	1	350	350
UTILITY EXAMINATION FEE	2311	1	400	400
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	9	50	450
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:				
Extension - 5 months with $0 paid	2255	1	1580	1580
Miscellaneous:				
			Total in USD ($)	**2940**

Electronic Acknowledgement Receipt

EFS ID:	43009486
Application Number:	17075637
International Application Number:	
Confirmation Number:	1990
Title of Invention:	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
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.USD1C1C1C1C
Receipt Date:	16-JUN-2021
Filing Date:	20-OCT-2020
Time Stamp:	19:49:22
Application Type:	Utility under 35 USC 111(a)

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Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	$2940
RAM confirmation Number	E20216FJ50054228
Deposit Account	504160
Authorized User	Mina Oliveri

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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	Applicant Response to Pre-Exam Formalities Notice	MissingParts_6-16-21.pdf	72359 b914d4e5aff3b834135bb240c783c096742a6f36	no	2
Warnings:					
Information:					
2		WYAT-0002USD1C1C1C1C_PRELIMINARY_AMDT.pdf	135463 a23e24ed3b2db030f3ee1cdc6d8922099422998f	yes	22

Multipart Description/PDF files in .zip description

Document Description	Start	End
Preliminary Amendment	1	1
Claims	2	21
Applicant Arguments/Remarks Made in an Amendment	22	22

Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	40869 945fd2cf23728db0c58bce8d39d285689f74bac5	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	248691	

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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.
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
17/075,637	10/20/2020	David WYATT	WYAT-0002.USD1C1C1C1C

CONFIRMATION NO. 1990

FORMALITIES LETTER

OC000000121331641

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

Date Mailed: 11/16/2020

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
  The surcharge is due for any one of:
  - late submission of the basic filing fee, search fee, or examination fee,
  - late submission of inventor's oath or declaration,
  - filing an application that does not contain at least one claim on filing, or
  - submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. Small entity discount is in effect. If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- $ **80** basic filing fee.
- $ **80** surcharge.
- $ **350** search fee.
- $ **400** examination fee.
- $(**0**) previous unapplied payment amount.
- $ **910** TOTAL FEE BALANCE DUE.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice". https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

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**.

/ttran/

United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :C46539

Sale Accounting Date:06/21/2021

Sale Item Reference Number	Effective Date
17075637	06/16/2021

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I20216K056463976	2202	CLAIMS IN EXCESS OF 20	$50.00	Deposit Account

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. 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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/075,637	Filing Date 10/20/2020	☐ 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 $240 =	
☐ 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	06/22/2021	(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))	* 30	Minus	** 30	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $240 =	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.	HSLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/TIFFANY Y VINES/
*** 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.**

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

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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
17/075,637	10/20/2020	David WYATT	WYAT-0002.USD1C1C1C1C

CONFIRMATION NO. 1990

POA ACCEPTANCE LETTER

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

OC000000126412921

Date Mailed: 06/22/2021

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 05/14/2021.

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**.

/ylueng/

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
17/075,637

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	80		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	350		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	30 minus 20 =	* 10	x 50 =	500	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 240 =	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	1330		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($)	ADDITIONAL FEE($)		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.

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Alexandria, Virginia 22313-1450
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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
17/075,637	10/20/2020	2876	1410	WYAT-0002.USD1C1C1C1C	30	3

CONFIRMATION NO. 1990

UPDATED FILING RECEIPT

OC000000128439790

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

Date Mailed: 06/22/2021

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: The patent practitioners associated with Customer Number 136197

Domestic Priority data as claimed by applicant

This application is a CON of 16/459,150 07/01/2019 PAT 10810579
which 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

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: 11/13/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/075,637**

Projected Publication Date: 09/30/2021

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

Preliminary Class

235

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

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).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

PTO/SB/08a (02-18)
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 contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17075637
Filing Date	2020-10-20
First Named Inventor	David Wyatt
Art Unit	2876
Examiner Name	TBD
Attorney Docket Number	WYAT-0002.USD1C1C1C1C

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	8851370		2014-10-07	DiMuro	
	2	9646301		2017-05-09	DiMuro	

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					

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							

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NON-PATENT LITERATURE DOCUMENTS Remove

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	17075637
	Filing Date	2020-10-20
	First Named Inventor	David Wyatt
	Art Unit	2876
	Examiner Name	TBD
	Attorney Docket Number	WYAT-0002.USD1C1C1C1C

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.

[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	17075637
	Filing Date	2020-10-20
	First Named Inventor	David Wyatt
	Art Unit	2876
	Examiner Name	TBD
	Attorney Docket Number	WYAT-0002.USD1C1C1C1C

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)	2021-08-04
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:	43427744
Application Number:	17075637
International Application Number:	
Confirmation Number:	1990
Title of Invention:	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
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.USD1C1C1C1C
Receipt Date:	04-AUG-2021
Filing Date:	20-OCT-2020
Time Stamp:	16:43:13
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-0002USD1C1C1C1C_updated_IDS.pdf	1033978 3c1b07fb1d16e04ed517cee50579b87392a9346d	no	4

Warnings:

Information:	
Total Files Size (in bytes):	1033978

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
17/075,637	10/20/2020	David WYATT	WYAT-0002.USD1C1C1C1C

CONFIRMATION NO. 1990

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

PUBLICATION NOTICE

OC000000128792895

Title:MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

Publication No.US-2021-0304187-A1
Publication Date:09/30/2021

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

136197 7590 10/13/2021
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: 10/13/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/075,637	10/20/2020	David WYATT	WYAT-0002.USD1C1C1C1C	1990

TITLE OF INVENTION: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	01/13/2022

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.

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Apple EX1002 Page 136

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 10/13/2021
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.
17/075,637	10/20/2020	David WYATT	WYAT-0002.USD1C1C1C1C	1990

TITLE OF INVENTION: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	01/13/2022

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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Apple EX1002 Page 137

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.
17/075,637	10/20/2020	David WYATT	WYAT-0002.USD1C1C1C1C	1990

136197 7590 10/13/2021
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: 10/13/2021

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. 17/075,637	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 6/16/2021.
   ☐ 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 21-50 . 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 8/04/2021.
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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Apple EX1002 Page 140

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Prelim. Amdt./Amendment

2. Receipt is acknowledged of the Preliminary Amendment filed on June 16, 2021.

Allowable Subject Matter

3. Claims 21-50 are allowed.

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

Brown et al. (US 7580898), Lee et al. (US 9928496), and Mullen (US 7793851) teach the dynamic credit cards.

However, none of prior art teaches a method of performing a payment transaction comprising retrieving from a memory attached to a processor of the device, a device- specific static limited-use payment information, associated with the selected payment method; and, dynamically generating, by a processor of the device, device-specific limited-use payment information, for the selected payment method; and, using the limited-use payment information in place of at least a portion of the selected original issuer-supplied payment information for the transaction; and, combining of the dynamically-generated limited-use payment information with the static limited-use payment information, to generate a complete device payment information (claim 21), receiving, from a valid device user, a payment selection and authorization approval

input on the electronic device; generating at least one limited-use numbers at the electronic device, and using the limited-use number in place of at least a portion of selected account issuer payment information; and combining the at least one limited-use numbers, with the selected account information, to form a complete payment information; and, on receiving the user payment approval authorization input, a transmitting by the wireless interface of the approved complete payment information for the online transaction (claim 39), receive a payment selection and approval authorization from the valid device user via a human input sensing at the device; and responsive to receiving a valid user transaction payment approval, generate a device-specific limited-use payment information for use in place of at least a portion of the selected issuer payment account information on the device, form a complete combined device payment information from a dynamically generated portion and a statically generated portions stored in a memory of the device (claim 45) along with other limitations recited 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 https://ppair-my.uspto.gov/pair/PrivatePair. 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. 17/075,637	Applicant(s)/Patent Under Reexamination WYATT, David	
	Examiner SEUNG H LEE	Art Unit 2887	Page 1 of 1

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*	B	US-9928496-B2	03-2018	Lee; Jin-Hyoung	G06Q20/353	1/1
*	C	US-7580898-B2	08-2009	Brown; Kerry D.	G06Q20/341	705/50
*	D	US-10339520-B2	07-2019	Wyatt; David	G06Q20/346	1/1
	E					
	F					
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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)
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	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.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/075,637	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	09/29/2021								
1	21	=								
2	22	=								
3	23	=								
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/075,637	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	09/29/2021	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	09/29/2021	sl
NPL	09/29/2021	sl
14/680979, 14/981757, 15/701261, 16/459150 (parent cases)	09/29/2021	sl

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	same as above	09/29/2021	sl

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/075,637	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
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G06Q	/	20	/	347	I	2013-01-01
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G06Q	/	20	/	346	I	2013-01-01
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G06Q	/	20	/	4012	I	2013-01-01

CPC Combination Sets

Symbol					Type	Set	Ranking	Version
	/		/					

NONE (Assistant Examiner) (Date)		**Total Claims Allowed:** 30	
/SEUNG H LEE/ Primary Examiner, Art Unit 2887 (Primary Examiner) (Date)	29 September 2021	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office Part of Paper No.: 20210927

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/075,637	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:** 30	
/SEUNG H LEE/ Primary Examiner, Art Unit 2887 (Primary Examiner) (Date)	29 September 2021	O.G. Print Claim(s) 1	O.G. Print Figure 1

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Apple EX1002 Page 148

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/075,637	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
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5	29	7	38	27	47										

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 30	
/SEUNG H LEE/ Primary Examiner, Art Unit 2887 (Primary Examiner)	29 September 2021 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

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Apple EX1002 Page 149

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17075637
Filing Date	2020-10-20
First Named Inventor	David Wyatt
Art Unit	2876
Examiner Name	TBD
Attorney Docket Number	WYAT-0002.USD1C1C1C1C

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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	8851370		2014-10-07	DiMuro	
	2	9646301		2017-05-09	DiMuro	

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First Named Inventor	David Wyatt
Art Unit	2876
Examiner Name	TBD
Attorney Docket Number	WYAT-0002.USD1C1C1C1C

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]
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Examiner Signature	/SEUNG H LEE/	Date Considered	09/28/2021

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[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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINE THROUGH CITATION

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17075637
	Filing Date	2020-10-20
	First Named Inventor	David Wyatt
	Art Unit	2876
	Examiner Name	TBD
	Attorney Docket Number	WYAT-0002.USD1C1C1C1C

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).

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☐ 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.

X 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)	2021-08-04
Name/Print	Anthony C. Murabito	Registration Number	35295

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	35,569	(G06Q20/341 or G06K19/07749 or G06Q20/347 or G06Q20/06 or G06Q20/409 or G06Q20/4012 or G06Q20/346 or G06Q20/3827 or G06K19/0716 or G07F19/00 or G06Q20/223 or G06Q20/24 or G06Q20/385 or G07F7/0873 or G06K19/06206 or G06Q20/065 or G06Q20/352).cpc.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2021/09/29 06:36
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L4	862	2 same issuer same account	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2021/09/29 06:40
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L33	87	32 and nfc	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2021/09/29 08:39
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S6	107	S4 same (slave peripheral)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2020/05/01 12:56
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Bibliographic Data

Application No: 17/075,637

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: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/20/2020	235	2887	WYAT-0002.USD1C1C1C1C
RULE			

APPLICANTS

Virtual Electric Inc., San Jose, CA,

INVENTORS

David WYATT, San Jose, CA, UNITED STATES

CONTINUING DATA

This application is a CON of 16459150 07/01/2019 PAT 10810579

16459150 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**

11/13/2020

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

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Suite 700
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UNITED STATES

FILING FEE RECEIVED

$2,940

IEEE Xplore®

Search History

Sep 29, 2021, 9:43:29 AM

Set #	Search Query	Details Results | Date & Time
100	(((smart and token)) AND (limited and number)) AND (nfc and interface)	0 | Sep 29, 2021, 9:43:23 AM
99	((limited and number)) AND (nfc and interface)	2 | Sep 29, 2021, 9:43:00 AM
98	((nfc and interface)) AND (smart and token)	2 | Sep 29, 2021, 9:42:35 AM
97	((smart and token)) AND (limited and number)	10 | Sep 29, 2021, 9:42:06 AM
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81	card and substrate	267 | Sep 27, 2021, 9:33:47 AM

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Electronic Patent Application Fee Transmittal

Application Number:	17075637
Filing Date:	20-Oct-2020
Title of Invention:	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
First Named Inventor/Applicant Name:	David WYATT
Filer:	David Wyatt
Attorney Docket Number:	WYAT-0002.USD1C1C1C1C

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	600	600

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**600**

Electronic Acknowledgement Receipt

EFS ID:	44025836
Application Number:	17075637
International Application Number:	
Confirmation Number:	1990
Title of Invention:	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	David Wyatt
Filer Authorized By:	
Attorney Docket Number:	WYAT-0002.USD1C1C1C1C
Receipt Date:	14-OCT-2021
Filing Date:	20-OCT-2020
Time Stamp:	02:37:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$600
RAM confirmation Number	E20210D343323006
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	Issue Fee Payment (PTO-85B)	Notice-of-allowance.pdf	230001 f474085310cc6cb83693443cbaa9fd393b315711	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	37444 75da3e9bb3c5655d0f00210711d701d5a54189d1	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	267445		

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

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www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

136197 7590 10/13/2021
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: 10/13/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/075,637	10/20/2020	David WYATT	WYAT-0002.USD1C1C1C1C	1990

TITLE OF INVENTION: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	01/13/2022

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.

IPR2025-01150
Apple EX1002 Page 173

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 10/13/2021
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.
17/075,637	10/20/2020	David WYATT	WYAT-0002.USD1C1C1C1C	1990

TITLE OF INVENTION: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	01/13/2022

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 D. A. Wyatt Date 10 / 13 / 2021

Typed or printed name David Wyatt Registration No. _____

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/075,637	10/20/2020	David WYATT	WYAT-0002.USD1C1C1C1C	1990

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111 North Market Street
Suite 700
San Jose, CA 95113

EXAMINER
LEE, SEUNG H

ART UNIT	PAPER NUMBER
2887	

DATE MAILED: 10/13/2021

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/075,637	11/16/2021	11176538	WYAT-0002.USD1C1C1C1C	1990

136197 7590 10/27/2021

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 Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site http://pair.uspto.gov for additional inventors):

David WYATT, San Jose, CA;

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

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/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.
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.

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.: 11,176,538 Filed/Issue Date: 11/16/2021

Titled: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

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 058892, Frame 0036, 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.

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.

Electronic Acknowledgement Receipt

EFS ID:	45435753
Application Number:	17075637
International Application Number:	
Confirmation Number:	1990
Title of Invention:	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Jose S. Garcia
Filer Authorized By:	
Attorney Docket Number:	WYAT-0002.USD1C1C1C1C
Receipt Date:	08-APR-2022
Filing Date:	20-OCT-2020
Time Stamp:	20:38:56
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-0002USD1C1C1C1C1_AIA_80_POA_to_MHB_Signed.pdf	170922 5e2119e9f430d371f87d7dc705baf305bcf98a34	no	2

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	WYAT-0002USD1C1C1C1C1_aia0096_Statement_under_3_73c.pdf	216529 d0e762597044eb47dd9f59f8308e4e697d75f504	no	3
Warnings:					
Information:					
			Total Files Size (in bytes):	387451	

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
17/075,637	10/20/2020	David WYATT	

CONFIRMATION NO. 1990

POA ACCEPTANCE LETTER

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

OC000000133158922

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
17/075,637	10/20/2020	David WYATT	WYAT-0002.USD1C1C1C1C

CONFIRMATION NO. 1990

POWER OF ATTORNEY NOTICE

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

OC000000133158868

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/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.: 11,176,538

Issue Date: 11/16/2021

Patentee: DAVID WYATT

Application Serial No.: 17/075,637

Filed: 10/20/2020

Title: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

Commissioner for Patents
Office of Data Management
ATTN: Certificates of Correction Branch
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR CERTIFICATE OF CORRECTION FOR PATENT DUE TO NO FAULT OF THE USPTO PURSUANT TO 35 U.S.C. 255, 37 C.F.R. 1.323, and M.P.E.P. 1481

1. Pursuant to 35 U.S.C. 255, 37 C.F.R. 1.323, and M.P.E.P. 1481, Assignee/Patent Owner CARDWARE, INC respectfully requests the United States Patent and Trademark Office (hereinafter "USPTO") to issue a Certificate of Correction for the above-identified U.S. Patent 11,176,538 to correct informalities in Claim 1 of the above-identified U.S. Patent 11,176,538.

2. Assignee/Patent Owner CARDWARE, INC respectfully requests that a Certificate of Correction for the above-identified U.S. Patent 11,176,538 be issued incorporating the following changes:

IN THE CLAIMS

In Claim 1, Column 19, Line 40, please delete “the” in between wherein and authorizing;
In Claim 1, Column 19, Lines 49-50, please delete “a transaction payment” and insert --the--;
In Claim 1, Column 19, Line 52, please insert --selected-- in between a and payment;
In Claim 1, Column 19, Line 53, please delete “payment” in between the and request;
In Claim 1, Column 19, Line 61, please delete “information” and insert --informations--;
In Claim 1, Column 19, Line 64, please delete “of” in between combining and said; and
In Claim 1, Column 20, Line 25, please delete “transmitted” in between the and complete.

3. At pages 2-3 of a Preliminary Amendment submitted on June 16, 2021, Claim 1 was added as originally numbered Claim 21. Inadvertently, Claim 1 was presented with several informalities which are to be corrected with the requested Certificate of Correction.

3a) Informality in the phrase “wherein the authorizing” in Claim 1, Column 19, Line 40.

Here, the correction is directed to an antecedent basis informality. Specifically, in the phrase “wherein the authorizing” in Claim 1, Column 19, Line 40, the terms “the authorizing” inadvertently make reference to a nonexistent earlier recitation of the term “authorizing” in Claim 1. In fact, the phrase “wherein the authorizing” is the first occurrence of the term “authorizing” in Claim 1, creating an antecedent basis informality. To remedy this antecedent basis informality, the term “the” is deleted from the phrase “wherein the authorizing.”

3b) Informality in the phrase “a transaction payment request” in Claim 1, Column 19, Lines 49-50.

The phrase “a transaction payment request” in Claim 1, Column 19, Lines 49-50, has an antecedent basis informality. Earlier in Claim 1, Column 19, Line 46, the recitation “a request for a transaction payment” is found. The term “request” of the phrase “a transaction payment request” inadvertently does not make reference to the earlier recitation “a request for a transaction payment,” raising an antecedent basis informality. To rectify this antecedent basis informality, the terms “a transaction payment” are deleted from the phrase “a transaction payment request” while the term “the” is inserted before the term “request” in the phrase “a transaction payment request.”

3c) Informality in the phrase “a payment method” in Claim 1, Column 19, Line 52.

There is an antecedent basis informality concerning the phrase “a payment method” in Claim 1, Column 19, Line 52. Later in Claim 1, Column 19, Lines 56-57, and in Claim 1, Column 19, Line 60, the phrase “said selected payment method” is found, respectively. The phrase “a payment method” inadvertently does not provide explicit antecedent basis for the later recitations “said selected payment method,” forming an antecedent basis informality. To cure this antecedent basis informality, the term “selected” is inserted before the term “payment” in the phrase “a payment method.”

3d) Informality in the phrase “the payment request” in Claim 1, Column 19, Line 53.

An antecedent basis informality is present in the phrase “the payment request” in Claim 1, Column 19, Line 53. Earlier in Claim 1, Column 19, Line 46, the recitation “a request for a transaction payment” is found. The term “request” of the phrase “the payment request” inadvertently does not make reference to the earlier recitation “a request for a transaction payment,” causing an antecedent basis informality. To correct

this antecedent basis informality, the term “payment” is deleted from the phrase “the payment request.”

3e) Informality in the phrase “said limited-use payment information” in Claim 1, Column 19, Line 61.

The phrase “said limited-use payment information” in Claim 1, Column 19, Line 61, has an antecedent basis informality. Earlier in Claim 1, Column 19, Lines 55-56, the recitation “a device-specific static limited-use payment information” is found. Also, earlier in Claim 1, Column 19, Lines 58-59, the recitation “dynamically generating, by a processor of the device, device-specific limited-use payment information” is presented. The terms “limited-use payment information” of the phrase “said limited-use payment information” inadvertently do not make reference to both earlier recitations “a device-specific static limited-use payment information” and “dynamically generating, by a processor of the device, device-specific limited-use payment information,” forming an antecedent basis informality. To cure this antecedent basis informality, the term “information” is deleted from the phrase “said limited-use payment information” while the term “informations” is inserted after the term “payment” in the phrase “said limited-use payment information.”

3f) Informality in the phrase “combining of said dynamically-generated limited-use payment information with said static limited-use payment information” in Claim 1, Column 19, Lines 64-66.

A grammatical informality is found in the phrase “combining of said dynamically-generated limited-use payment information with said static limited-use payment information” in Claim 1, Column 19, Lines 64-66. The term “of” was inadvertently added and created the grammatically incorrect wording combination “combining of” and “with” in the phrase “combining of said dynamically-generated limited-use payment information with said static limited-use payment information,” resulting in a grammatical informality. To remedy this grammatical informality, the term “of” is deleted from the phrase

"combining of said dynamically-generated limited-use payment information with said static limited-use payment information."

3g) Informality in the phrase "the transmitted complete device payment information" in Claim 1, Column 20, Lines 25-26.

The phrase "the transmitted complete device payment information" in Claim 1, Column 20, Lines 25-26, has an antecedent basis informality. Earlier in Claim 1, Column 19, Lines 66-67 , the recitation "a complete device payment information" is found. The terms "complete device payment information" of the phrase "the transmitted complete device payment information" inadvertently do not make reference to the earlier recitation "a complete device payment information," creating an antecedent basis informality. To rectify this antecedent basis informality, the term "transmitted" is deleted from the phrase "the transmitted complete device payment information."

4. As described above, the informalities being corrected in Claim 1 with the requested Certificate of Correction are antecedent basis and grammatical informalities that occurred in good faith. The nature of the antecedent basis and grammatical informalities is of a clerical nature, of a typographical nature, or a mistake of minor character as required by 35 U.S.C. 255 and M.P.E.P. 1481. This position is supported by M.P.E.P. 2173.05(e)I. "<u>Antecedent problems in the claims are typically drafting oversights that are easily corrected</u> once they are brought to the attention of applicant. The examiner's task of making sure the claim language complies with the requirements of the statute should be carried out in a positive and constructive way, <u>so that minor problems can be identified and easily corrected, and so that the major effort is expended on more substantive issues</u>," according to 2173.05(e)I. (Emphasis added). That is, problems (such as the antecedent basis and grammatical informalities in Claim 1) in the claims that are due to drafting oversights and that are easily corrected are considered to be minor problems and non-substantive issues.

Further, the nature of the proposed corrections to the antecedent basis and grammatical informalities in Claim 1 does not involve changes in the above-identified U.S. Patent 11,176,538 which would constitute new matter or require reexamination of the above-identified U.S. Patent 11,176,538 as required by 35 U.S.C. 255 and M.P.E.P. 1481. This position is supported by M.P.E.P. 1481 and 2173.05(e)I. "A mistake is not considered to be of the 'minor' character required for the issuance of a certificate of correction if the requested change would materially affect the scope or meaning of the patent," according to M.P.E.P. 1481. (Emphasis added). That is, proposed corrections (such as the proposed corrections to the antecedent basis and grammatical informalities in Claim 1) which have no substantive impact on the scope or meaning of the patent do not constitute new matter or require reexamination of the patent. As explained above, the antecedent basis and grammatical informalities in Claim 1 are minor problems and non-substantive issues according to M.P.E.P. 2173.05(e)I. Consequently, the proposed corrections to the antecedent basis and grammatical informalities in Claim 1 do not constitute new matter or require reexamination of the above-identified U.S. Patent 11,176,538 because the proposed corrections do not materially affect the scope or meaning of the above-identified U.S. Patent 11,176,538.

Therefore, the requested Certificate of Correction should be issued.

5. Attachments:

a) PTO/SB/44 in a form suitable for printing (2 pages)

6. Please send the Certificate to:

Jose S. Garcia
MURABITO HAO & BARNES, LLP
111 North Market Street, Suite 700
San Jose, California 95113

7. Fees Due and Payment

Fees Due: 37 C.F.R. 1.20(a)---> $160.00

Total $160.00

[ ] A check in the amount of $.

[X] The Commissioner is hereby authorized to charge fees associated with this communication or credit any overpayment to Deposit Account No.: 50-4160.

[ ] Charge any fees required or credit any overpayments associated with this filing to Deposit Account No.: 50-4160.

Please direct all correspondence concerning the above-identified application/patent to the following address:

MURABITO HAO & BARNES, LLP
111 North Market Street, Suite 700
San Jose, California 95113

Respectfully submitted,

Date: 4/14/2022 By: /Jose S. Garcia/

Jose S. Garcia
Reg. No. 43,628
Attorney for Assignee/Patent Owner

PTO/SB/44 (09-07)
Approved for use through 08/31/2013. OMB 0651-0033
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.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 11,176,538

APPLICATION NO.: 17/075,637

ISSUE DATE : 11/16/2021

INVENTOR(S) : DAVID WYATT

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

IN THE CLAIMS

In Claim 1, Column 19, Line 40, please delete “the” in between wherein and authorizing;

In Claim 1, Column 19, Lines 49-50, please delete “a transaction payment” and insert --the--;

In Claim 1, Column 19, Line 52, please insert --selected-- in between a and payment;

In Claim 1, Column 19, Line 53, please delete “payment” in between the and request;

In Claim 1, Column 19, Line 61, please delete “information” and insert --informations--;

In Claim 1, Column 19, Line 64, please delete “of” in between combining and said; and

In Claim 1, Column 20, Line 25, please delete “transmitted” in between the and complete.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

MURABITO HAO & BARNES, LLP
111 North Market Street, Suite 700
San Jose, California 95113

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.0 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: Attention Certificate of Corrections Branch, 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.
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:	17075637
Filing Date:	20-Oct-2020
Title of Invention:	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
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:				
CERTIFICATE OF CORRECTION	2811	1	160	160

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**160**

Electronic Acknowledgement Receipt

EFS ID:	45474168
Application Number:	17075637
International Application Number:	
Confirmation Number:	1990
Title of Invention:	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
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:	20-OCT-2020
Time Stamp:	12:35:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$160
RAM confirmation Number	E20224DC35504509
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	Request for Certificate of Correction	WYAT-0002USD1C1C1C1C1_Certificate_of_Correction_request.pdf	255268 3b7d94e4361ffc9190ad4f9a0945e4feed42256b	no	9
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	37741 8646f5d51e1d7cd58d16ada9e0ac17898ac102ed	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	293009		

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.

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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/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-0002USD1C1C1C1C1

Application/Control Number: 17/075,637
Filing Date: 10-20-2020
First Named Inventor: DAVID WYATT
Title MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
Patent No.: 11176538

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.

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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TERMINAL DISCLAIMER IN A PATENT OR PROCEEDING IN VIEW OF ANOTHER PATENT

Docket Number (Optional)
WYAT-0002USD1C1C1C1C1

Application/Control Number: 17/075,637
Filing Date: 10-20-2020
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
Patent No.: 11176538

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. 9224083 (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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/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-0002USD1C1C1C1C1

Application/Control Number: 17/075,637
Filing Date: 10-20-2020
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
Patent No.: 11176538

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. 9430765 (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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/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-0002USD1C1C1C1C1

Application/Control Number: 17/075,637
Filing Date: 10-20-2020
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
Patent No.: 11176538

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/Jose S. Garcia/	4-14-2022
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Filing Date: 10-20-2020
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
Patent No.: 11176538

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TERMINAL DISCLAIMER IN A PATENT OR PROCEEDING IN VIEW OF ANOTHER PATENT

Docket Number (Optional)
WYAT-0002USD1C1C1C1C1

Application/Control Number: 17/075,637
Filing Date: 10-20-2020
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
Patent No.: 11176538

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. 10339520 (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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/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-0002USD1C1C1C1C1

Application/Control Number: 17/075,637
Filing Date: 10-20-2020
First Named Inventor: DAVID WYATT
Title MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
Patent No.: 11176538

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. 10810579 (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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/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-0002USD1C1C1C1C1

Application/Control Number: 17/075,637
Filing Date: 10-20-2020
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
Patent No.: 11176538

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WYAT-0002USD1C1C1C1C1

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Filing Date: 10-20-2020
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
Patent No.: 11176538

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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.

This collection of information is required by 37 CFR 1.321. 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.**

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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.

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.: 11,176,538 Filed/Issue Date: 11/16/2021

Titled: MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE

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 058892, Frame 0036, 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.**

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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/	4-14-2022
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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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.
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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 Patent Application Fee Transmittal

Application Number:	17075637
Filing Date:	20-Oct-2020
Title of Invention:	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
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($)
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	2814	9	170	1530
		Total in USD ($)		**1530**

Electronic Acknowledgement Receipt

EFS ID:	45479984
Application Number:	17075637
International Application Number:	
Confirmation Number:	1990
Title of Invention:	MULTI-FUNCTION SMART TOKENIZING ELECTRONIC PAYMENT DEVICE
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:	20-OCT-2020
Time Stamp:	18:16:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1530
RAM confirmation Number	E20224DI16260716
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-0002USD1C1C1C1C1_sb0026a_TD_1_of_9.pdf	406840 5eeb73c78c11a88743610036cda861d9f3ec856f	no	2
Warnings:					
Information:					
2	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1C1_sb0026a_TD_2_of_9.pdf	280147 d83bbe87057010c20a74a7c8b25206b511b1050d	no	2
Warnings:					
Information:					
3	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1C1_sb0026a_TD_3_of_9.pdf	280153 cc4058f484c9b0dd99d28bb24ec00f86d305bdee	no	2
Warnings:					
Information:					
4	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1C1_sb0026a_TD_4_of_9.pdf	280164 a975ff915344e0dd02b9daf1cead7cadb7d0a591	no	2
Warnings:					
Information:					
5	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1C1_sb0026a_TD_5_of_9.pdf	280167 93d8beb261edda0daaddf7f0a04cd1a688d9d5f7	no	2
Warnings:					
Information:					
6	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1C1_sb0026a_TD_6_of_9.pdf	280160 b4386ed00626d563a9e0a01172b40ff987ddd520	no	2
Warnings:					
Information:					

7	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1C1_sb0026a_TD_7_of_9.pdf	280169 3c5fe233066e0592a86b7bd55fd798312287ce43	no	2
Warnings:					
Information:					
8	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1C1_sb0026a_TD_8_of_9.pdf	280178 a61544de46cadfc4c8d3b00a9ae79c4ed1d43f8b	no	2
Warnings:					
Information:					
9	Terminal Disclaimer Filed	WYAT-0002USD1C1C1C1C1_sb0026a_TD_9_of_9.pdf	181340 7282f19ccb26279f2437f513800e8819d0bb81d7	no	2
Warnings:					
Information:					
10	Assignee showing of ownership per 37 CFR 3.73	WYAT-0002USD1C1C1C1C1_aia0096_Statement_under_3_73c.pdf	226196 1cbfebc1d51d65ce2849ccde97e201b58e9feab1	no	3
Warnings:					
Information:					
11	Fee Worksheet (SB06)	fee-info.pdf	37816 4910b1efb7bf1e7cc872f1898419f306fff6c3d7	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	2813330	

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

CERTIFICATE OF CORRECTION

PATENT NO. : 11,176,538 B2
APPLICATION NO. : 17/075637
DATED : November 16, 2021
INVENTOR(S) : David Wyatt

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Claim 1, Column 19, Line 40, delete "the" in between wherein and authorizing;

Claim 1, Column 19, Lines 49-50, delete "a transaction payment" and insert --the--;

Claim 1, Column 19, Line 52, insert --selected-- in between a and payment;

Claim 1, Column 19, Line 53, delete "payment" in between the and request;

Claim 1, Column 19, Line 61, delete "information" and insert --informations--;

Claim 1, Column 19, Line 64, delete "of" in between combining and said; and

Claim 1, Column 20, Line 25, delete "transmitted" in between the and complete.

Signed and Sealed this
Tenth Day of May, 2022

Katherine Kelly Vidal

Katherine Kelly Vidal
Director of the United States Patent and Trademark Office

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.

IPR2023-00219
Patent 11,176,538 B2

Before BRIAN J. McNAMARA, ELIZABETH M. ROESEL, and SHARON FENICK, *Administrative Patent Judges.*

McNAMARA, *Administrative Patent Judge.*

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Samsung Electronics Co., Ltd. ("Petitioner") filed a petition, Paper 2 ("Petition" or "Pet."), to institute an *inter partes* review ("IPR") of claims 1–21 and 23–30 (the "challenged claims") of U.S. Patent No. 11,176,538 B2 ("the '538 patent"). 35 U.S.C. § 311. CardWare, Inc. ("Patent Owner") filed a Preliminary Response, Paper 6 ("Prelim. Resp."), contending that the Petition should be denied as to all challenged claims. We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition "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."

A decision to institute under § 314 may not institute on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018). In addition, per Board practice, if the Board institutes trial, it will institute "on all of the challenged claims and on all grounds of unpatentability asserted for each claim." *See* 37 C.F.R. § 42.108(a).

Having considered the arguments and the associated evidence presented in the Petition and the Preliminary Response, for the reasons described below, we decline to institute *inter partes* review.[1]

II. REAL PARTIES IN INTEREST

The Petition identifies Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. as real parties-in-interest. Pet. 89. Patent Owner identifies itself (CardWare, Inc.) as the sole real party-in-interest. Paper 3, 1.

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[1] As we decline to institute *inter parties* review based on the merits of the Petition, this Decision does not address the parties' arguments concerning the exercise of discretion to deny institution.

III. RELATED MATTERS

The parties state that the '538 patent is asserted in the following litigation:

CardWare Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc., Case No. 2:22-cv-00141, E. D. Tex. (filed May 11, 2022). Pet. 89, Paper 3, 1.

IV. THE '538 PATENT

The '538 patent concerns "secure, smart multi-function smart tokenizing electronic payment devices and transaction processing." Ex. 1001, 1:26–27. The '538 patent describes a multifunction electronic device that emulates the behavior of a standard credit card, debit card, or cash card when used in electronic card readers. *Id.* at 2:14–24. In one embodiment the apparatus includes a thin card-shaped and -sized body, a memory storing identification data, a processor, a user interface for selecting identification data, a magnetic card reader detection unit, an inductor assembly integrated into the body and controlled by the processor to generate an alternating polarity magnetic field with encoded identification data in a region encompassed by the card reader. *Id.* at 2:32–48. Another embodiment includes a keypad and touch sensor array with a display. *Id.* at 9:29–10:21, Figs. 4A–4B. The multi-function electronic device also includes a near field communication (NFC) unit, a touch sensor array, a display, a motion rate detection array, a memory storing user data and a currency amount, and a processor coupled to the NFC unit that initiates device to device transaction processing when a first device is proximate to a second device and the user inputs information via the touch screen array. *Id.* at 2:49–62.

The '538 patent describes a transaction process in which the multifunction electronic device receives an input signal from a user that enables a near-field communication (NFC) unit of the device. *Id.* at 2:64–67. The transaction steps include receiving a currency amount of the transaction, generating at the device a limited-duration payment number, and transmitting the limited-duration payment number from the device to a recipient of the transaction. *Id.* at 2:67–3:4, Fig. 7. The limited-duration payment number is a security feature in the form of "a unique number [that] may be generated by the multi-function electronic device and verified by the payment authority according to the time stamp and the transmitted user information." *Id.* at 10:29–33. "The limited-duration payment number is able to be produced at the time the multi-function electronic device is performing the 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." *Id.* at 10:34–39. In one embodiment the number displayed on the multi-function device is a static number. *Id.* at 10:53–57. The number displayed may also be dynamic, e.g., with the first and last four digits fixed and the remaining digits dynamically generated. *Id.* at 10:58–62. "As the device is read by the machine, part or a;; of the number may be dynamically produced at the time the device is read." *Id.* at 10:62–64.

V. ILLUSTRATIVE CLAIM

Claim 1 (Ex. 1001, 19:35–20:29), reproduced below using the paragraph designations in the Petition, is illustrative of the subject matter of the '538 patent.

> 1[pre]. A method of performing a payment transaction, the method comprising:

[1.a] receiving an input at an electronic device corresponding to a priming operation of the electronic device by an authorized user; and,

[1.b] wherein the authorizing of a user of the electronic device comprises recognizing a user input using a human input sensor, and wherein the human input sensor is any one of a touch sensor, a touch-screen display interface, a gesture sensor, a motion sensor, and a biometric sensor; and,

[1.c] receiving a request for a transaction payment at said electronic device via an NFC interface of the device; and,

[1.d] displaying, on a display of the device, a transaction payment request and at least a portion of an original static issuer-supplied payment account information associated with a payment method, for a user selection in paying the payment request; and,

[1.e] retrieving from a memory attached to a processor of the device, a device-specific static limited-use payment information, associated with said selected payment method; and,

[1.f] dynamically generating, by a processor of the device, device-specific limited-use payment information, for said selected payment method; and,

[1.g] using said limited-use payment information in place of at least a portion of said selected original issuer-supplied payment information for the transaction; and,

[1.h] combining of said dynamically-generated limited-use payment information with said static limited-use payment information, to generate a complete device payment information; and

[1.i] transmitting said complete device payment information from said electronic device to a recipient reader via said NFC interface to the recipient NFC reader for a processing of the payment transaction; and,

[1.j] receiving information at said electronic device corresponding to a transaction status of the payment transaction, wherein such transaction status is at least partly dependent on validation of the transmitted complete device payment information by a payment processor authority and a payment issuer authority; and,

[1.k] visually conveying the transaction payment authorization status via a user-interface displayed on said display.

VI. ASSERTED GROUNDS

Petitioner asserts that claims 1–21 and 23–30 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)
1–18	103	Royyuru[2], Phillips[3], Casey[4]
5–6, 8–11, 13–17	103	Royyuru, Phillips, Casey, Rans[5]
19-21, 23-25, 28-30	103	Phillips, Royyuru, Casey
23, 28-30	103	Phillips, Royyuru, Casey, Rans
27	103	Phillips, Royyuru, Casey, Rans, Carlson[6]
26	103	Phillips, Royyuru, Casey, Law[7]

VII. LEVEL OF ORDINARY SKILL IN THE ART

Noting that "[a]dditional education could substitute for professional experience, or vice versa," Petitioner identifies a person of ordinary skill as one who "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. Pet. 4–5 (citing Ex. 1003, Declaration of Dr. Michael I.

[2] U.S. Patent Publication No. 2010/0185545 to Royyuru et al. (Ex. 1004)
[3] U.S. Patent Publication No. 2012/0310760 to Phillips et al. (Ex. 1005)
[4] U.S. Patent No. 8,255,323 to Casey et al. (Ex. 1006)
[5] U.S. Patent Publication No. 2007/0278291 to Rans et al. (Ex. 1014)
[6] U.S. Patent Publication No. 2008/0319905 to Carlson (Ex. 1013)
[7] U.S. Patent Publication No. 2012/0150750 to Law et al. (Ex. 1015)

Shamos ("Shamos Decl.") ¶¶ 45–51. Patent Owner does not offer an alternative description of a person of ordinary skill.

The level of ordinary skill in the art usually is evidenced by the references themselves. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978). As Petitioner's proposed description of the level of ordinary skill appears consistent with the subject matter described and claimed in the '538 patent and the references, we apply Petitioner's proposed description in this Decision.

VIII. CLAIM CONSTRUCTION

We interpret claim terms using "the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.100(b) (2022). In this context, claim terms "are generally given their ordinary and customary meaning" as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (citations omitted) (en banc). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Extrinsic evidence is "less significant than the intrinsic record in determining 'the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (citations omitted).

Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

We construe only those claim terms that require analysis to determine whether to institute inter partes review. *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)). Neither party has proposed a special definition or explicit construction of any claim term. Although the parties' arguments discuss the meanings of certain claim terms, as discussed further herein, for purposes of this Decision, we do not construe any claim terms specifically.

IX. ANALYSIS

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 of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

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 ordinary skill in the art; and (4) when presented, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Additionally, the obviousness inquiry typically requires an analysis

of "whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness")).

An obviousness analysis "need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 550 U.S. at 418; *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). Petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Instead, Petitioner must articulate a reason why a person of ordinary skill in the art would have combined the prior art references. *In re NuVasive*, 842 F.3d 1376, 1382 (Fed. Cir. 2016).

A reason to combine or modify the prior art may be found explicitly or implicitly in market forces; design incentives; the "'interrelated teachings of multiple patents'"; "'any need or problem known in the field of endeavor at the time of invention and addressed by the patent'"; and the background knowledge, creativity, and common sense of the person of ordinary skill. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1328–29 (Fed. Cir. 2009) (quoting *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–21 (2007)).

In determining whether a claim is obvious in light of the prior art, when in evidence, we consider any relevant objective evidence of non-obviousness. *See Graham*, 383 U.S. at 17. Notwithstanding what the teachings of the prior art would have suggested to one of ordinary skill in the art at the time of the invention, the totality of the evidence submitted,

including objective evidence of non-obviousness, may lead to a conclusion that the challenged claims would not have been obvious to one of ordinary skill. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). At this stage of the proceeding Patent Owner does not present evidence of such objective considerations.

We analyze the asserted grounds of unpatentability in accordance with these principles to determine whether Petitioner has met its burden to establish a reasonable likelihood of success at trial.

B. Petitioner's challenge to Claims 1–18 as obvious over Royyuru, Phillips and Casey

1. *Royyuru (Ex. 1004)*

Figure 3 of Royyuru is shown below.

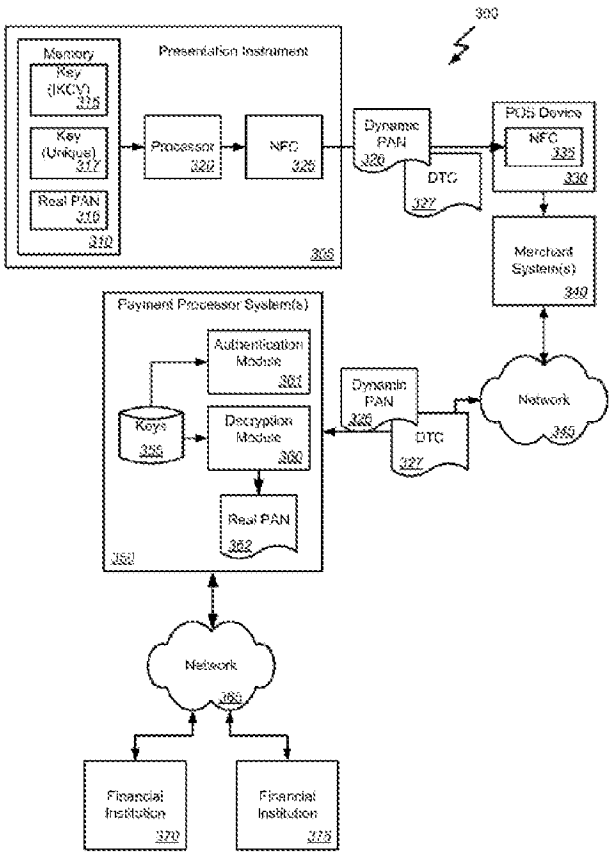

FIG. 3

Ex. 1004, Fig. 3. Figure 3 of Royyuru shows payment processing system 350 communicating via network 365 with financial institutions 370, 375 and via network 345 with merchant system 340. *Id.* ¶¶ 13, 44. Merchant system 340 receives information from point-of-sale (POS) device 330 that receives data from presentation instrument 305, e.g., a credit card via near field communications devices 325, 335. *Id.* ¶ 44.

Presentation instrument 305 includes processor 320 and memory 310. Memory 310 stores real primary account number (PAN) 316, card key 317, which is unique to the presentation instrument, and institution key card variant (IKCV) 315. *Id.* ¶ 46. IKCV 315 is a variant of an institution key derived from the institution key of the issuer of the account. *Id.* ¶¶ 33, 51, 91, Fig. 7. Real PAN 316, card key 317, and ICKV 315 are stored at the time the presentation instrument is issued by financial institution 370, 375 or by processing system 350. *Id.* ¶ 46.

During a transaction, the presentation instrument is passed over POS device 330. Ex. 1004 ¶ 47. Processor 320 in presentation instrument 305 generates dynamic PAN 326 by encrypting the real PAN with the IKCV. *Id.* Processor 320 also generates a dynamic transaction cryptogram (DTC) 327, using, e.g., a user's personal identification number (PIN). *Id.* The dynamic PAN and DTC are transmitted to merchant system 340 via POS device 330. Merchant system 340 transmits the dynamic PAN and DTC to payment processor system 350 via network 345. *Id.* Payment processor system 350 has stored therein keys 355 that correspond to card level keys 317 to facilitate authentication of the presentation instrument and of the user, based on the received DTC, using authentication module 361. *Id.* ¶¶ 47–48. Decryption module 360 then determines the real PAN and communicates the

transaction information via network 365 to financial institutions 370, 375. *Id.* ¶ 48.

The use of a dynamic PAN and DTC improves security by avoiding the transmission of primary account information that can be intercepted.

2. *Phillips (Ex. 1005)*

Phillips describes a user interface that enables a mobile telephone user to choose a payment card account and designate conditions and/or criteria to associate with the particular payment card account. Ex. 1005 ¶ 5. The conditions/criteria define when the payment card account is to be automatically selected when using the mobile phone in a purchase transaction. *Id.* Alternatively, when the user selects a displayed icon, e.g., a wallet icon, a sub-menu that presents the user several card account choices, including an automatic card selection option, appears on the display. *Id.* ¶ 6. Phillips describes a mobile phone/contactless payment device 100 including an integrated circuit or chipset 224 or "payment circuit" that stores card account numbers issued to the owner of the phone/contactless payment device. *Id.* ¶ 23, Fig. 2. Payment circuit 224 may be configured to interact with an RFID proximity reader of NFC proximity reader associated with a point-of-sale (POS) terminal to provide card account information for a transaction at the POS. *Id.*

3. *Casey (Ex. 1006)*

Casey describes confirming payment transactions using displays, e.g., by selecting on a touch screen a digital representation of a credit card in an electronic wallet or online payment system. Ex. 1006, 1:59–64. After moving of a graphical element, e.g., moving a selected credit card graphical element to a confirmation position, the electronic device may transmit a confirmation message to initiate payment with the selected payment

instrument. *Id.* at 1:64–66; 3:10–14, 3:20–26. After confirmation, the electronic device may transmit relevant transaction and account information. *See id.* at 3:26–37.

4. *Reason to Combine*

As discussed below, we find that Petitioner has not shown sufficiently that the combination of Royyuru, Phillips, and Casey would have taught or suggested claim limitations 1.h and 1.i. We discuss Petitioner's assertions regarding reason to combine and claim limitations 1[pre]–1.g to provide context for our discussion of limitations 1.h and 1.i.

Petitioner contends a person of ordinary skill would have had reason to apply Phillips and Casey to Royyuru to improve user interface and authentication features that complement Royyuru's secure cryptogram generation. Pet. 9–10. First, noting Royyuru's NFC user-merchant device communications can include payment requests from a POS terminal and that Casey discloses the additional benefit of displaying relevant information (merchant identity, product being purchased, price, tax, etc.) on the user device, Petitioner contends a person of ordinary skill would have known combining these features would allow the user to approve payment to the correct merchant and reduce the possibility of fraud. Pet. 10–12. Second, Petitioner contends that a person of ordinary skill would have recognized that modifying Royyuru based on well-known confirmation and authentication techniques taught by Phillips and Casey add an additional layer of security. *Id.* at 12–13. Third, Petitioner contends a person of ordinary skill would have recognized that modifying Royyuru to include a graphic interface to facilitate user selection of a payment method would allow a user to more readily select the desired card correctly. *Id.* at 13–15. Fourth, Petitioner contends that a person of ordinary skill would have

understood that modifying Royyuru to receive and display transaction information such as receipt, would have allowed the user to more easily maintain transaction records. *Id.* at 15. Fifth, Petitioner contends that modifying Royyuru based on Phillips and Casey would have involved the application of known techniques to a known system ready for improvement to achieve predictable results. *Id.* at 15–16. Petitioner supports its arguments with testimony from Dr. Shamos. *See* Ex. 1003, Shamos Decl. ¶¶ 111–114.

5. *Claim 1*

a) *Limitations 1.pre, 1.a, 1.b*

The preamble and claim limitations 1.a, and 1.b recite a method of performing a payment transaction in which a user provides an input to a priming operation and is recognized based on the user's input from a human input sensor, such as a touch screen. Ex. 1001, 19:35–45. Petitioner cites Royyuru as disclosing processing a transaction initiated from a mobile device by tapping a user device near a POS terminal. *See* Pet. 16–17 (citing, e.g., Ex. 1004 ¶¶ 2, 4, 5, 21, 35, 38–40, 44, 50, 53, 66; Ex. 1003, Shamos Decl. ¶¶ 116–118). Noting that Royyuru incorporates by reference a patent publication that describes a mobile device with a touch screen, Petitioner cites Phillips as disclosing the user entering a PIN that identifies the user as an authorized user. *Id.* (citing Ex. 1005 ¶¶ 18, 20, 35; Ex. 1006, 3:10–19, 9:37–52; Ex. 1003, Shamos Decl. ¶¶ 62–65, 119–120).

b) *Limitation 1.c*

Claim limitation 1.c recites receiving a request for a transaction payment at the electronic device via an NFC interface. Ex. 1001, 19:46–48. Petitioner cites Royyuru's disclosure of an NFC module for close proximity short range communications between a mobile device and a POS device and

Phillips as disclosing that the resulting device receives a payment request through NFC interrogation signals. Pet. 17 (citing Ex. 1004 ¶¶ 2, 22, 44, 46, 47, 51; Ex. 1005, ¶¶ 9, 23, 27, 57, 72; Ex. 1006, 8:52–9:8, Figs. 5, 8; Ex. 1003, Shamos Decl. ¶¶ 57–61, 121).

c) *Claim limitation 1.d*

Claim limitation 1.d recites displaying a transaction request and portion of an "an original static issuer-supplied payment account information associated with the payment method" for selection when paying the request. Ex. 1001, 19:49–53.

Petitioner cites Casey as disclosing the device resulting from the combined teachings of Royyuru and Phillips displays request information, e.g., sales order details (such as the price), and a prompt for the user to confirm the transaction, and that such information is received through the NFC device as a request for payment. *Id.* at 17 (citing Ex. 1006, 13:24–51, 8:52–9:8; Ex. 1003, Shamos Dec. ¶¶ 122–124). Petitioner cites Phillips as teaching the display of a Payment Cards sub-menu that allows the user to select the card to use for the current transaction. *Id.* at 18–19 (citing Ex. 1005 ¶¶ 37–41, Fig. 8; Ex. 1003, Shamos Decl. ¶¶ 123–124). Petitioner argues the displayed payment card information includes at least a portion of an "original static issuer-supplied payment account information" (e.g., credit card number). S*ee* Pet. 17–19 (citing Ex. 1006 13:24-51; 8:52-9:8, Figs. 5–8; Ex. 1005 ¶¶ 39-41, 57, Fig. 8, Shamos Decl. ¶¶ 122-124) *See also* Pet. 20 (citing Ex. 1004 ¶ 32, Shamos Decl. ¶¶ 123-124)).

d) *Claim limitation 1.e*

Claim limitation 1.e recites "retrieving from a memory attached to a processor of the device, device-specific static limited-use payment

information" associated with the selected payment method. Ex. 1001, 19:54–57.

Petitioner maps the claimed device-specific static limited-use payment information to Royyuru's IKCV stored on the device. Pet. 20 (citing Ex. 1004 ¶¶ 5–7, 46, 51; Ex. 1003, Shamos Decl. ¶¶ 66–71, 125). The "device" in this context is Royyuru's "presentation instrument," e.g., a smart card, mobile device, or any other device that can perform such functions. Ex. 1004 ¶¶ 46–47 (disclosing that memory 310 on presentation instrument 305 stores IKCV 315, unique card level key 317, and PAN 316 that can be read by passing or tapping the presentation instrument near the POS device). Petitioner cites Royyuru as teaching the IKCV is generated when each card (device) is being customized and is based on the PAN and the institution key (IK) of the issuer of the account. Pet. 20 (citing Ex. 1004 ¶¶ 5–10, 55–57, 46, 33; Ex. 1003 Shamos Decl. ¶ 125.).

Royyuru describes a "card level key" as "using a common institution level key and some card level attributes such as the Primary Account Number (PAN)" and notes that "[i]f the institution's key is compromised, all transactions for all cards or devices with this institution's key are potentially exposed," requiring creation of a new key and re-issuance of a large number of cards. Ex. 1004 ¶ 4. Royyuru discloses a DTC generated at the device using a unique card level key and also discloses a dynamic PAN that varies with each use of the device and is based on the real PAN and the IKCV. *Id.* ¶ 5. The IKCV is one of the card level keys of the device. *Id.* ¶ 6.

Arguing that the IKCV would be reused for multiple users on the same account and could be copied onto other devices, Patent Owner contends that the IKCV is inconsistent with the claimed "device-specific static limited-use payment information." *See* Prelim. Resp. 2–3; Prelim.

Resp. 10 (citing Ex. 1004 ¶¶ 5, 46). We need not decide this issue for purposes of this Decision, as we find that Petitioner has not demonstrated that claim limitations 1.h and 1.i are disclosed or suggested by the prior art. *See* Section IX.B.5.g *infra*.

e) *Claim limitation 1.f*

Claim limitation 1.f recites "dynamically generating, by a processor of the device, device-specific limited-use payment information for said selected payment method." Ex. 1001, 19:58–60.

Petitioner cites two examples of dynamically generated device-specific limited-use information in Royyuru: first, the "Dynamic Transaction Cryptogram (DTC)" and second, the "dynamic PAN." Pet. 21 (citing Ex. 1004 ¶¶ 5–10, 32–33, 47; Ex. 1003, Shamos Decl. ¶¶ 126–127, 55–56. Petitioner notes that Royyuru generates the DTC using a unique card level key stored on the device. *Id.* (citing Ex. 1004 ¶ 5). Petitioner cites the IKCV as a card level key, noting that paragraph 6 of Royyuru discloses decrypting the PAN at the transaction device using one of the card level keys, e.g. the IKCV. *Id.* (citing Ex. 1004 ¶ 6). Petitioner also notes that Royyuru discloses generating the DTC using unique Card Key (CK) 317. *See* Pet. 21 (citing Ex. 1004 ¶ 57 (disclosing card key CK is "unique per card")); Ex. 1003, Shamos Decl. ¶ 126).

Petitioner also cites the dynamic PAN as including an "unpredictable number" encrypted using the IKCV. *See* Pet. 21–22 (citing Ex. 1004 ¶¶ 5, 57). Both the DTC and PAN are "valid for a single transaction" according to the Petitioner. Pet. 22 (citing Ex. 1004 ¶¶ 5, 57, 33).

f) *Claim limitation 1.g*

Claim limitation 1.g recites using the "limited-use payment information" in place of at least a portion of the "selected original issuer-supplied payment information[.]" Ex. 1001, 19:61–63.

Petitioner cites Royyuru as teaching use of the DTC and dynamic PAN in place of the real PAN (Primary Account Number) *see* Pet. 22 (citing Ex. 1004 ¶¶ 57, 7) where both the DTC and dynamic PAN are generated using the IKCV and/or CK. *See* Pet. 21. "'A Dynamic Transaction Cryptogram (DTC) can be generated at the device, using a unique card level key stored on the device.'" Pet. 59–60 (citing Ex. 1004 ¶ 5).

The Petition cites Royyuru as disclosing that the dynamic PAN or Pseudo-PAN can be sent and used in place of the real PAN in the transaction. Pet. 22 (citing Ex. 1004 ¶¶ 7, 32, 57; Ex. 1003, Shamos Decl. ¶¶ 128–129). Petitioner further notes that in other examples, Royyuru discloses providing the DTC and the dynamic PAN to the point-of-sale device. *Id.* (citing Ex. 1004 ¶¶ 6–10, 34). Referencing its discussion of claim limitation 1.f, arguing the DTC and the dynamic PAN constitute examples of the claimed "device-specific limited-use payment information," Petitioner notes that the DTC and dynamic PAN are generated using the IKCV and/or the CK that is unique to the card. *Id.*

g) *Claim limitations 1.h and 1.i.*

Claim limitation 1.h recites "combining of said dynamically-generated limited-use payment information with said static limited-use payment information, to generate a complete device payment information;" Ex. 1001, 19:64–67. Claim limitation 1.i recites "transmitting said complete device payment information from said electronic device to a recipient reader via

said NFC interface to the recipient NFC reader for a processing of the payment transaction." *Id.* at 20:17–20.

Petitioner relies on Royyuru alone as teaching claim limitations 1.h and 1.i. Pet. 22–24. Petitioner asserts that "[a]s described in connection with step [1.f], the IKCV (static limited-use payment information) makes up part of the DTC." Pet. 22 (citing Ex. 1004 ¶¶ 5–9, 57). Petitioner contends that "the DTC and dynamic PAN (dynamic payment information) are provided together, along with additional information . . ., which a POSITA would have recognized as combining the DTC and dynamic PAN (and additional information) to generate a complete device payment information." Pet. 22–23 (citing Ex. 1004 ¶¶ 6–10, 34, 50, 57; Ex. 1003, Shamos Decl. ¶¶ 130, 131).

The Petition's discussion of limitation 1.f asserts that "[t]he DTC 'can be ***generated at the device***, using a unique card level key stored on the device'" and identifies the IKCV as "an example of a 'card-level key [] of the device.'" Pet. 21 (citing Ex. 1004 ¶ 5, 6). Petitioner cites Royyuru as disclosing the "DTC can be computed by the device by combining several fields including the PAN, service code, expiration date, unpredictable number, and ATC and encrypting them using the CK." *Id.* (citing Royyuru ¶ 57).

Addressing claim limitation 1.h., Petitioner presents two alternative contentions. Petitioner's first alternative relies on Royyuru's dynamic PAN as corresponding to the dynamic payment information recited in claim limitation 1.h. For this first alternative, Petitioner argues, "because the IKCV makes up part of the DTC, a POSITA would have recognized that the IKCV is combined with the dynamic PAN as part of forming Royyuru's

complete device payment information." Pet. 23 (citing Ex. 1004 ¶¶ 57, 5–9; Ex. 1003, Shamos Decl. ¶ 130).

Petitioner's second alternative relies on Royyuru's DTC as corresponding to the dynamic payment information recited in claim limitation 1.h. For this second alternative, Petitioner argues that "because the IKCV makes up part of the dynamic PAN, a POSITA would have recognized that the IKCV is combined with the DTC as part of forming Royyuru's complete device payment information." Pet. 23 (citing Ex. 1003, Shamos Decl. ¶ 131; *see also* Ex. 1003, Shamos Decl. ¶ 131 ("the dynamic PAN is also generated using the IKCV to encrypt other information, therefore teaching that the IKCV is part of the dynamic PAN")).

Addressing claim limitation 1.i, Petitioner contends that Royyuru describes providing the DTC and the dynamic PAN to a POS device via a NFC module of the presentation instrument and a corresponding module of the POS device. Pet. 23 (citing Ex. 1003, Shamos Decl. ¶ 132; Ex. 1004 ¶¶ 2, 22, 44, 47, 51).

Patent Owner agrees with Petitioner that Royyuru transmits two dynamic numbers, the dynamic PAN and the DTC. Prelim. Resp. 25. Patent Owner first asserts that Petitioner's argument fails because the IKCV is not device-specific. Prelim. Resp. 25–26 (citing Ex. 1004, Fig. 3). As noted above, we need not resolve that issue for purpose of this Decision. *See* Section 1.d, *supra*.

Responding to Petitioner's second alternative in which Royyuru's DTC corresponds to the claimed "dynamically-generated limited-use payment information," Patent Owner argues that, even if the IKCV is both device-specific and associated with a particular account, it is not used in the claimed "complete device payment information" and is not transmitted to a

recipient reader. Prelim. Resp. 26. Patent Owner asserts that Royyuru's DTC does not include the IKCV, rather the "DTC includes a separate 'unique' card key, that Petitioner has not argued (and cannot argue) is the device-specific limited-use payment information required by the claim." Prelim. Resp. 31.

Responding to Petitioner's first alternative in which Royyuru's dynamic PAN corresponds to the claimed "dynamically-generated limited-use payment information," Patent Owner acknowledges that Royyuru's dynamic PAN can be generated based on the real PAN and the IKCV, but argues that "based on" is not the same as using the IKCV itself and combining it with a dynamic number. Prelim. Resp. 28. According to Patent Owner, "[t]he IKCV ***itself*** is not actually combined with any dynamically-generated limited-use payment information. Rather, the *dynamic* PAN is combined with the DTC (also a dynamic number) to form the complete payment information." *Id.* Patent Owner acknowledges that "[t]he IKCV may be an input to generation of the dynamic PAN" but contends "that is all it is . . . the dynamic PAN may be 'based on' the IKCV, but the IKCV itself is not part of the complete payment information and is not transmitted to the recipient NFC reader." *Id.*

We agree with Patent Owner that Petitioner has not demonstrated that Royyuru teaches or suggests the claimed steps of "combining of said dynamically-generated limited-use payment information with said static limited-use payment information, to generate a complete payment information" and "transmitting said complete device payment information from said electronic device to a recipient reader . . ." as recited in claim limitations 1.h and 1.i. Petitioner maps the static limited use payment information to Royyuru's IKCV and the dynamically-generated limited-use

payment information to either Royyuru's DTC or dynamic PAN. Pet. 22–23. Petitioner has not shown sufficiently that either of its alternative contentions satisfies claim limitations 1.h and 1.i.

Regarding Petitioner's second alternative in which Royyuru's DTC corresponds to the dynamically-generated payment information, Petitioner's contention is not sufficiently supported by the evidence. Royyuru states that the DTC is generated by encrypting information with a card key (CK), which is unique per card. Ex. 1004 ¶ 57. But contrary to Petitioner's contentions, Royyuru does not disclose using the IKCV to generate the DTC.

Regarding Petitioner's first alternative in which Royyuru's dynamic PAN corresponds to the dynamically-generated payment information, Petitioner does not show that Royyuru discloses or suggests combining the dynamic PAN with the static limited use payment information (IKCV) to generate the claimed complete device payment information. Instead, Royyuru discloses the dynamic PAN is created through encryption using the IKCV. Ex. 1004 ¶¶ 5, 57. Petitioner fails to show that using a secret key, such as Royyuru's IKCV, to encrypt payment information would have suggested to a POSITA combining dynamically-generated payment information with static payment information to generate complete payment information, as recited in claim limitation 1.h. Nor does Petitioner show sufficiently that Royyuru's IKCV is part of a complete payment information that is transmitted to an NFC reader, as required to satisfy claim limitation 1.i.

As Petitioner has not demonstrated sufficiently that Royyuru discloses combining the dynamically generated limited-use payment information (either the DTC or the dynamic PAN) with the static limited-use payment

information (the IKCV) to form the claimed complete device payment information and transmitting the combined payment information to an NFC reader, we find that Petitioner has not demonstrated sufficiently that Royyuru teaches or suggests claim limitations 1.h and 1.i. In view of this finding, we need not analyze the remaining limitations of claim 1 for purposes of this Decision.

h) *Conclusion as to Claim 1*

Having considered the arguments and evidence of record, we find that Petitioner has not demonstrated the combined teachings of Royyuru, Phillips, and Casey and would have disclosed or suggested the limitations of claim 1 to an ordinarily skilled artisan.

6. *Claims 2–18*

Claims 2–18 depend from claim 1. As we find that Petitioner has not demonstrated the combined teachings of the references disclose all the limitations of claim 1, Petitioner has not demonstrated the combined teachings of Royyuru, Phillips, and Casey would have disclosed or suggested the limitations of claims 2–18 to an ordinarily skilled artisan.

C. Claims 5, 6, 8–11, 13–17 as obvious over Royyuru, Phillips, Casey, and Rans

1. *Rans (Ex. 1014)*

Rans describes a method of authenticating a contactless card payment transaction. Ex. 1014 ¶¶ 20–21. The card sends a first authentication that that is eventually received by the card issuer, where another version of the authentication data is generated. When the first and second authentication data match, or is sufficiently similar to the authentication data submitted by the user or mobile device, the user is authenticated as having authority to authorize the transaction. *Id.* ¶ 22. The device uses one or more of a variety

of variables to generate the dynamic value including numbers generated inside or outside the device while the authentication entity maintains its own set of data (e.g. a PIN, challenge, unpredictable number, synchronized transaction counter, or "any other data") to generate its own authentication data used in the verification. *Id.* ¶ 23.

2. *Claims 5, 6, 8–11, and 13–17*

Claims 5, 6, 8–11, and 13–17 depend from claim 1. In asserting this ground, Petitioner cites Royyuru as teaching the limitations of claim 1 discussed above. Pet. 42–48. Petitioner does identify any disclosure in Rans that cures the infirmities of Royyuru discussed above. *See* Section IX.B.5.g. *supra.* We find that Petitioner has not demonstrated that the combined teaching of Phillips, Royyuru, Casey, and Rans would have disclosed or suggest the limitations of claim 5, 6, 8–11, and 13–17 to a person of ordinary skill.

D. Claims 19–21, 23–25, and 28–30 as obvious over Philips, Royyuru, and Casey

1. *Claim 19*

Claim 19 recites a method of performing an online payment transaction. In a manner similar to claim limitation 1.h, claim limitation 19.f recites "combining said at least one limited-use numbers, with said selected account information, to form a complete payment information." Ex. 1001, 23:11–18. In a manner similar to claim limitation 1.i, claim limitation 19.i recites "transmitting by the wireless interface of the approved complete payment information for the online transaction." *Id.* at 23:32–34.

Referencing its arguments concerning claim limitations 1.f–1.h, Petitioner submits that the Phillips-Royyuru-Casey combination provides Elements 19.e–19.f. Pet. 57 (citing Pet. 21–23; Ex. 1003, Shamos Decl.¶

242). The Petition provides no further explanation or reasoning about how its discussion of claim limitation 1.f–1.h applies to claim limitations 19.e–19.f. For the "transmitting . . . complete payment information" step of claim limitation 19.i, Petitioner contends that, in the Phillips-Royyuru-Casey combination, payment information is transmitted to the merchant, where the "payment information comprises the DTC and dynamic PAN described by Royyuru." Pet. 59.

As discussed in Section IX.B.5.g *supra* we are not persuaded that Petitioner has demonstrated the combined teachings of Phillips, Royyuru, and Casey would have disclosed or suggested claim limitations 1.h and 1.i, which are similar to limitations 19.f and 19.i. In the absence of further explanation as to claim limitations 19.f and 19.i, we find that Petitioner has not demonstrated that the combination of Phillips, Royyuru, and Casey teaches or suggests claim limitations 19.f. and 19.i and we need not analyze the remaining limitations of claim 19.

2. *Claims 20, 21, 23, and 24*

Claims 20, 21, 23, and 24 depend from claim 19. As we find that Petitioner has not demonstrated the combined teachings of the references disclose all the limitations of claim 19, Petitioner has not demonstrated the combined teachings of Royyuru, Phillips, and Casey and would have disclosed or suggested the limitations of claims 20, 21, 23, and 24 to a skilled artisan.

3. *Claim 25*

Independent claim 25 recites a non-transitory, computer-readable medium storing computer-executable instructions to cause the processor to carry out enumerated instructions. Ex. 1001, 24:49–25:16. In a manner similar to claim limitations 1.h and 1.i, claim limitation 25.g recites

"form[ing] a complete combined device payment information from a dynamically generated portion and a statically generated portions stored in a memory of the device" and 25.h recites "transmit[ing] said complete device payment information from said electronic device to the recipient of the online purchase transaction." Ex. 1001, 25:4–10. Petitioner's analysis of claim limitations 25.g and 25.h cites its discussions of claim limitations 1.e–1.i. Pet. 68–69. Petitioner's discussion of these limitations also cites Casey as disclosing the claimed display of graphical elements for confirming the payment transaction. *Id.* As we find that Petitioner has not demonstrated the combined teachings of the references disclose all the limitations of claim 1, in particular claim limitations 1.h and 1.i, (*see* Section IX.B.5.g *supra*) Petitioner has not demonstrated the combined teachings of Royyuru, Phillips, and Casey and would have disclosed or suggested the limitations of claim 25 to a skilled artisan.

4. *Claims 28–30*

Claims 28–30 depend from claim 25. Petitioner does identify any disclosure that cures infirmities of Royyuru discussed above with respect to claim 25. *See* Section IX.B.5.g. *supra.* We find that Petitioner has not demonstrated that the combined teaching of Phillips, Royyuru, and Casey, would have disclosed or suggest the limitations of claim 28–30 to a person of ordinary skill.

E. Claims 23 and 28–30 as obvious over Philips, Royyuru, Casey, Rans

Claim 23 depends from claim 19. Claims 28–30 depend from claim 25. Petitioner does identify any disclosure in Rans that cures the infirmities of Royyuru discussed above with respect to claim 19 and 25. *See* Section IX.B.5.g. *supra.* We find that Petitioner has not demonstrated that

the combined teaching of Phillips, Royyuru, Casey, and Rans would have disclosed or suggest the limitations of claims 23 and 28–30.

F. Claim 27 as obvious over Philips, Royyuru, Casey, Rans, Carlson

1. *Carlson (Ex. 1013)*

Carlson describes a mobile device for conducting transactions using pseudo primary account identifiers from portable wireless devices. Ex. 1013 ¶ 12. The pseudo primary account identifier resembles the format of a real primary account identifier (e.g. a credit card number) without revealing the real account identifier. *Id.* ¶ 30. The pseudo account identifier is generated by the payment processor, specific to the device, and provided to the mobile device for use in place of the primary account identifier. *Id.* ¶ 35.

2. *Claim 27*

Claim 27 depends from claim 25. Petitioner does not identify any disclosure in Carlson that cures the infirmities of Royyuru discussed above with respect to claim 25. *See* Sections IX.B.5.g, IX.D.3 *supra.* We find that Petitioner has not demonstrated that the combined teaching of Phillips, Royyuru, Casey, and Carlson would have disclosed or suggest the limitations of claim 27 to a person of ordinary skill.

G. Claim 26 as obvious over Philips, Royyuru, Casey, and Law

1. *Law (Ex. 1015)*

Law describes methods of authentication for a financial transaction using biometric data (e.g. voice data, finger prints, eye scan) or personalized security questions (e.g. favorite color). Ex. 1015 ¶¶ 53, 67. When incorrect information is provided by the user, the device can limit retries to reduce the probability of success of a brute force attack. *Id.* ¶ 139.

2. *Claim 26*

As claim 26 depends from claim 25. Petitioner does not identify any disclosure in Carlson that cures the infirmities of Royyuru discussed above with respect to claim 25. *See* Section IX.B.5.g, IX.D.3 *supra.* We find that Petitioner has not demonstrated that the combined teaching of Phillips, Royyuru, Casey, and Law would have disclosed or suggest the limitations of claim 26 to a person of ordinary skill.

X. CONCLUSION

For the reasons discussed above, we not persuaded that Petitioner has demonstrated a reasonable likelihood that it will succeed on any of the challenges to patentability advanced in the in the Petition.

XI. ORDER

In consideration of the foregoing, we decline to institute *inter partes* review.

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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.

IPR2023-00219
Patent 11,176,538 B2

Before BRIAN J. McNAMARA, ELIZABETH M. ROESEL, and SHARON FENICK, *Administrative Patent Judges.*

McNAMARA, *Administrative Patent Judge.*

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Samsung Electronics Co., Ltd. ("Petitioner") filed a petition, Paper 2 ("Petition" or "Pet."), to institute an *inter partes* review ("IPR") of claims 1–21 and 23–30 (the "challenged claims") of U.S. Patent No. 11,176,538 B2 ("the '538 patent"). 35 U.S.C. § 311. CardWare, Inc. ("Patent Owner") filed a Preliminary Response, Paper 6 ("Prelim. Resp."), contending that the Petition should be denied as to all challenged claims. We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition "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."

A decision to institute under § 314 may not institute on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018). In addition, per Board practice, if the Board institutes trial, it will institute "on all of the challenged claims and on all grounds of unpatentability asserted for each claim." *See* 37 C.F.R. § 42.108(a).

Having considered the arguments and the associated evidence presented in the Petition and the Preliminary Response, for the reasons described below, we decline to institute *inter partes* review.[1]

II. REAL PARTIES IN INTEREST

The Petition identifies Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. as real parties-in-interest. Pet. 89. Patent Owner identifies itself (CardWare, Inc.) as the sole real party-in-interest. Paper 3, 1.

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[1] As we decline to institute *inter parties* review based on the merits of the Petition, this Decision does not address the parties' arguments concerning the exercise of discretion to deny institution.

III. RELATED MATTERS

The parties state that the '538 patent is asserted in the following litigation:

CardWare Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc., Case No. 2:22-cv-00141, E. D. Tex. (filed May 11, 2022). Pet. 89, Paper 3, 1.

IV. THE '538 PATENT

The '538 patent concerns "secure, smart multi-function smart tokenizing electronic payment devices and transaction processing." Ex. 1001, 1:26–27. The '538 patent describes a multifunction electronic device that emulates the behavior of a standard credit card, debit card, or cash card when used in electronic card readers. *Id.* at 2:14–24. In one embodiment the apparatus includes a thin card-shaped and -sized body, a memory storing identification data, a processor, a user interface for selecting identification data, a magnetic card reader detection unit, an inductor assembly integrated into the body and controlled by the processor to generate an alternating polarity magnetic field with encoded identification data in a region encompassed by the card reader. *Id.* at 2:32–48. Another embodiment includes a keypad and touch sensor array with a display. *Id.* at 9:29–10:21, Figs. 4A–4B. The multi-function electronic device also includes a near field communication (NFC) unit, a touch sensor array, a display, a motion rate detection array, a memory storing user data and a currency amount, and a processor coupled to the NFC unit that initiates device to device transaction processing when a first device is proximate to a second device and the user inputs information via the touch screen array. *Id.* at 2:49–62.

The '538 patent describes a transaction process in which the multifunction electronic device receives an input signal from a user that enables a near-field communication (NFC) unit of the device. *Id.* at 2:64–67. The transaction steps include receiving a currency amount of the transaction, generating at the device a limited-duration payment number, and transmitting the limited-duration payment number from the device to a recipient of the transaction. *Id.* at 2:67–3:4, Fig. 7. The limited-duration payment number is a security feature in the form of "a unique number [that] may be generated by the multi-function electronic device and verified by the payment authority according to the time stamp and the transmitted user information." *Id.* at 10:29–33. "The limited-duration payment number is able to be produced at the time the multi-function electronic device is performing the 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." *Id.* at 10:34–39. In one embodiment the number displayed on the multi-function device is a static number. *Id.* at 10:53–57. The number displayed may also be dynamic, e.g., with the first and last four digits fixed and the remaining digits dynamically generated. *Id.* at 10:58–62. "As the device is read by the machine, part or a;; of the number may be dynamically produced at the time the device is read." *Id.* at 10:62–64.

V. ILLUSTRATIVE CLAIM

Claim 1 (Ex. 1001, 19:35–20:29), reproduced below using the paragraph designations in the Petition, is illustrative of the subject matter of the '538 patent.

> 1[pre]. A method of performing a payment transaction, the method comprising:

[1.a] receiving an input at an electronic device corresponding to a priming operation of the electronic device by an authorized user; and,

[1.b] wherein the authorizing of a user of the electronic device comprises recognizing a user input using a human input sensor, and wherein the human input sensor is any one of a touch sensor, a touch-screen display interface, a gesture sensor, a motion sensor, and a biometric sensor; and,

[1.c] receiving a request for a transaction payment at said electronic device via an NFC interface of the device; and,

[1.d] displaying, on a display of the device, a transaction payment request and at least a portion of an original static issuer-supplied payment account information associated with a payment method, for a user selection in paying the payment request; and,

[1.e] retrieving from a memory attached to a processor of the device, a device-specific static limited-use payment information, associated with said selected payment method; and,

[1.f] dynamically generating, by a processor of the device, device-specific limited-use payment information, for said selected payment method; and,

[1.g] using said limited-use payment information in place of at least a portion of said selected original issuer-supplied payment information for the transaction; and,

[1.h] combining of said dynamically-generated limited-use payment information with said static limited-use payment information, to generate a complete device payment information; and

[1.i] transmitting said complete device payment information from said electronic device to a recipient reader via said NFC interface to the recipient NFC reader for a processing of the payment transaction; and,

[1.j] receiving information at said electronic device corresponding to a transaction status of the payment transaction, wherein such transaction status is at least partly dependent on validation of the transmitted complete device payment information by a payment processor authority and a payment issuer authority; and,

[1.k] visually conveying the transaction payment authorization status via a user-interface displayed on said display.

VI. ASSERTED GROUNDS

Petitioner asserts that claims 1–21 and 23–30 would have been unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)
1–18	103	Royyuru[2], Phillips[3], Casey[4]
5–6, 8–11, 13–17	103	Royyuru, Phillips, Casey, Rans[5]
19-21, 23-25, 28-30	103	Phillips, Royyuru, Casey
23, 28-30	103	Phillips, Royyuru, Casey, Rans
27	103	Phillips, Royyuru, Casey, Rans, Carlson[6]
26	103	Phillips, Royyuru, Casey, Law[7]

VII. LEVEL OF ORDINARY SKILL IN THE ART

Noting that "[a]dditional education could substitute for professional experience, or vice versa," Petitioner identifies a person of ordinary skill as one who "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. Pet. 4–5 (citing Ex. 1003, Declaration of Dr. Michael I.

[2] U.S. Patent Publication No. 2010/0185545 to Royyuru et al. (Ex. 1004)
[3] U.S. Patent Publication No. 2012/0310760 to Phillips et al. (Ex. 1005)
[4] U.S. Patent No. 8,255,323 to Casey et al. (Ex. 1006)
[5] U.S. Patent Publication No. 2007/0278291 to Rans et al. (Ex. 1014)
[6] U.S. Patent Publication No. 2008/0319905 to Carlson (Ex. 1013)
[7] U.S. Patent Publication No. 2012/0150750 to Law et al. (Ex. 1015)

Shamos ("Shamos Decl.") ¶¶ 45–51. Patent Owner does not offer an alternative description of a person of ordinary skill.

The level of ordinary skill in the art usually is evidenced by the references themselves. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978). As Petitioner's proposed description of the level of ordinary skill appears consistent with the subject matter described and claimed in the '538 patent and the references, we apply Petitioner's proposed description in this Decision.

VIII. CLAIM CONSTRUCTION

We interpret claim terms using "the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.100(b) (2022). In this context, claim terms "are generally given their ordinary and customary meaning" as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (citations omitted) (en banc). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Extrinsic evidence is "less significant than the intrinsic record in determining 'the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (citations omitted).

Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

We construe only those claim terms that require analysis to determine whether to institute inter partes review. *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)). Neither party has proposed a special definition or explicit construction of any claim term. Although the parties' arguments discuss the meanings of certain claim terms, as discussed further herein, for purposes of this Decision, we do not construe any claim terms specifically.

IX. ANALYSIS

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 of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

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 ordinary skill in the art; and (4) when presented, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Additionally, the obviousness inquiry typically requires an analysis

of "whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness")).

An obviousness analysis "need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 550 U.S. at 418; *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). Petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Instead, Petitioner must articulate a reason why a person of ordinary skill in the art would have combined the prior art references. *In re NuVasive*, 842 F.3d 1376, 1382 (Fed. Cir. 2016).

A reason to combine or modify the prior art may be found explicitly or implicitly in market forces; design incentives; the "'interrelated teachings of multiple patents'"; "'any need or problem known in the field of endeavor at the time of invention and addressed by the patent'"; and the background knowledge, creativity, and common sense of the person of ordinary skill. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1328–29 (Fed. Cir. 2009) (quoting *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–21 (2007)).

In determining whether a claim is obvious in light of the prior art, when in evidence, we consider any relevant objective evidence of non-obviousness. *See Graham*, 383 U.S. at 17. Notwithstanding what the teachings of the prior art would have suggested to one of ordinary skill in the art at the time of the invention, the totality of the evidence submitted,

including objective evidence of non-obviousness, may lead to a conclusion that the challenged claims would not have been obvious to one of ordinary skill. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). At this stage of the proceeding Patent Owner does not present evidence of such objective considerations.

We analyze the asserted grounds of unpatentability in accordance with these principles to determine whether Petitioner has met its burden to establish a reasonable likelihood of success at trial.

B. Petitioner's challenge to Claims 1–18 as obvious over Royyuru, Phillips and Casey

1. *Royyuru (Ex. 1004)*

Figure 3 of Royyuru is shown below.

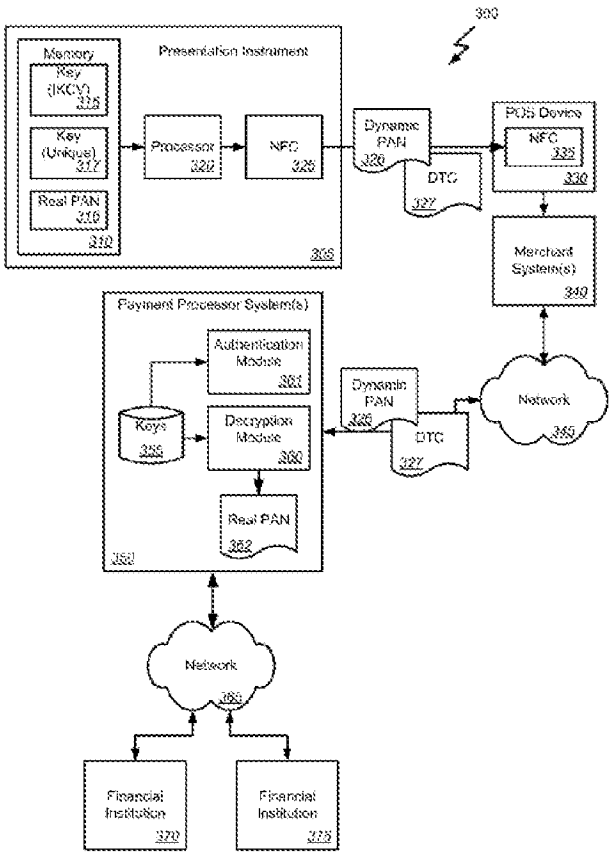

FIG. 3

Ex. 1004, Fig. 3. Figure 3 of Royyuru shows payment processing system 350 communicating via network 365 with financial institutions 370, 375 and via network 345 with merchant system 340. *Id.* ¶¶ 13, 44. Merchant system 340 receives information from point-of-sale (POS) device 330 that receives data from presentation instrument 305, e.g., a credit card via near field communications devices 325, 335. *Id.* ¶ 44.

Presentation instrument 305 includes processor 320 and memory 310. Memory 310 stores real primary account number (PAN) 316, card key 317, which is unique to the presentation instrument, and institution key card variant (IKCV) 315. *Id.* ¶ 46. IKCV 315 is a variant of an institution key derived from the institution key of the issuer of the account. *Id.* ¶¶ 33, 51, 91, Fig. 7. Real PAN 316, card key 317, and ICKV 315 are stored at the time the presentation instrument is issued by financial institution 370, 375 or by processing system 350. *Id.* ¶ 46.

During a transaction, the presentation instrument is passed over POS device 330. Ex. 1004 ¶ 47. Processor 320 in presentation instrument 305 generates dynamic PAN 326 by encrypting the real PAN with the IKCV. *Id.* Processor 320 also generates a dynamic transaction cryptogram (DTC) 327, using, e.g., a user's personal identification number (PIN). *Id.* The dynamic PAN and DTC are transmitted to merchant system 340 via POS device 330. Merchant system 340 transmits the dynamic PAN and DTC to payment processor system 350 via network 345. *Id.* Payment processor system 350 has stored therein keys 355 that correspond to card level keys 317 to facilitate authentication of the presentation instrument and of the user, based on the received DTC, using authentication module 361. *Id.* ¶¶ 47–48. Decryption module 360 then determines the real PAN and communicates the

transaction information via network 365 to financial institutions 370, 375. *Id.* ¶ 48.

The use of a dynamic PAN and DTC improves security by avoiding the transmission of primary account information that can be intercepted.

2. *Phillips (Ex. 1005)*

Phillips describes a user interface that enables a mobile telephone user to choose a payment card account and designate conditions and/or criteria to associate with the particular payment card account. Ex. 1005 ¶ 5. The conditions/criteria define when the payment card account is to be automatically selected when using the mobile phone in a purchase transaction. *Id.* Alternatively, when the user selects a displayed icon, e.g., a wallet icon, a sub-menu that presents the user several card account choices, including an automatic card selection option, appears on the display. *Id.* ¶ 6. Phillips describes a mobile phone/contactless payment device 100 including an integrated circuit or chipset 224 or "payment circuit" that stores card account numbers issued to the owner of the phone/contactless payment device. *Id.* ¶ 23, Fig. 2. Payment circuit 224 may be configured to interact with an RFID proximity reader of NFC proximity reader associated with a point-of-sale (POS) terminal to provide card account information for a transaction at the POS. *Id.*

3. *Casey (Ex. 1006)*

Casey describes confirming payment transactions using displays, e.g., by selecting on a touch screen a digital representation of a credit card in an electronic wallet or online payment system. Ex. 1006, 1:59–64. After moving of a graphical element, e.g., moving a selected credit card graphical element to a confirmation position, the electronic device may transmit a confirmation message to initiate payment with the selected payment

instrument. *Id.* at 1:64–66; 3:10–14, 3:20–26. After confirmation, the electronic device may transmit relevant transaction and account information. *See id.* at 3:26–37.

4. *Reason to Combine*

As discussed below, we find that Petitioner has not shown sufficiently that the combination of Royyuru, Phillips, and Casey would have taught or suggested claim limitations 1.h and 1.i. We discuss Petitioner's assertions regarding reason to combine and claim limitations 1[pre]–1.g to provide context for our discussion of limitations 1.h and 1.i.

Petitioner contends a person of ordinary skill would have had reason to apply Phillips and Casey to Royyuru to improve user interface and authentication features that complement Royyuru's secure cryptogram generation. Pet. 9–10. First, noting Royyuru's NFC user-merchant device communications can include payment requests from a POS terminal and that Casey discloses the additional benefit of displaying relevant information (merchant identity, product being purchased, price, tax, etc.) on the user device, Petitioner contends a person of ordinary skill would have known combining these features would allow the user to approve payment to the correct merchant and reduce the possibility of fraud. Pet. 10–12. Second, Petitioner contends that a person of ordinary skill would have recognized that modifying Royyuru based on well-known confirmation and authentication techniques taught by Phillips and Casey add an additional layer of security. *Id.* at 12–13. Third, Petitioner contends a person of ordinary skill would have recognized that modifying Royyuru to include a graphic interface to facilitate user selection of a payment method would allow a user to more readily select the desired card correctly. *Id.* at 13–15. Fourth, Petitioner contends that a person of ordinary skill would have

understood that modifying Royyuru to receive and display transaction information such as receipt, would have allowed the user to more easily maintain transaction records. *Id.* at 15. Fifth, Petitioner contends that modifying Royyuru based on Phillips and Casey would have involved the application of known techniques to a known system ready for improvement to achieve predictable results. *Id.* at 15–16. Petitioner supports its arguments with testimony from Dr. Shamos. *See* Ex. 1003, Shamos Decl. ¶¶ 111–114.

5. *Claim 1*

a) *Limitations 1.pre, 1.a, 1.b*

The preamble and claim limitations 1.a, and 1.b recite a method of performing a payment transaction in which a user provides an input to a priming operation and is recognized based on the user's input from a human input sensor, such as a touch screen. Ex. 1001, 19:35–45. Petitioner cites Royyuru as disclosing processing a transaction initiated from a mobile device by tapping a user device near a POS terminal. *See* Pet. 16–17 (citing, e.g., Ex. 1004 ¶¶ 2, 4, 5, 21, 35, 38–40, 44, 50, 53, 66; Ex. 1003, Shamos Decl. ¶¶ 116–118). Noting that Royyuru incorporates by reference a patent publication that describes a mobile device with a touch screen, Petitioner cites Phillips as disclosing the user entering a PIN that identifies the user as an authorized user. *Id.* (citing Ex. 1005 ¶¶ 18, 20, 35; Ex. 1006, 3:10–19, 9:37–52; Ex. 1003, Shamos Decl. ¶¶ 62–65, 119–120).

b) *Limitation 1.c*

Claim limitation 1.c recites receiving a request for a transaction payment at the electronic device via an NFC interface. Ex. 1001, 19:46–48. Petitioner cites Royyuru's disclosure of an NFC module for close proximity short range communications between a mobile device and a POS device and

Phillips as disclosing that the resulting device receives a payment request through NFC interrogation signals. Pet. 17 (citing Ex. 1004 ¶¶ 2, 22, 44, 46, 47, 51; Ex. 1005, ¶¶ 9, 23, 27, 57, 72; Ex. 1006, 8:52–9:8, Figs. 5, 8; Ex. 1003, Shamos Decl. ¶¶ 57–61, 121).

c) *Claim limitation 1.d*

Claim limitation 1.d recites displaying a transaction request and portion of an "an original static issuer-supplied payment account information associated with the payment method" for selection when paying the request. Ex. 1001, 19:49–53.

Petitioner cites Casey as disclosing the device resulting from the combined teachings of Royyuru and Phillips displays request information, e.g., sales order details (such as the price), and a prompt for the user to confirm the transaction, and that such information is received through the NFC device as a request for payment. *Id.* at 17 (citing Ex. 1006, 13:24–51, 8:52–9:8; Ex. 1003, Shamos Dec. ¶¶ 122–124). Petitioner cites Phillips as teaching the display of a Payment Cards sub-menu that allows the user to select the card to use for the current transaction. *Id.* at 18–19 (citing Ex. 1005 ¶¶ 37–41, Fig. 8; Ex. 1003, Shamos Decl. ¶¶ 123–124). Petitioner argues the displayed payment card information includes at least a portion of an "original static issuer-supplied payment account information" (e.g., credit card number). S*ee* Pet. 17–19 (citing Ex. 1006 13:24-51; 8:52-9:8, Figs. 5–8; Ex. 1005 ¶¶ 39-41, 57, Fig. 8, Shamos Decl. ¶¶ 122-124) *See also* Pet. 20 (citing Ex. 1004 ¶ 32, Shamos Decl. ¶¶ 123-124)).

d) *Claim limitation 1.e*

Claim limitation 1.e recites "retrieving from a memory attached to a processor of the device, device-specific static limited-use payment

information" associated with the selected payment method. Ex. 1001, 19:54–57.

Petitioner maps the claimed device-specific static limited-use payment information to Royyuru's IKCV stored on the device. Pet. 20 (citing Ex. 1004 ¶¶ 5–7, 46, 51; Ex. 1003, Shamos Decl. ¶¶ 66–71, 125). The "device" in this context is Royyuru's "presentation instrument," e.g., a smart card, mobile device, or any other device that can perform such functions. Ex. 1004 ¶¶ 46–47 (disclosing that memory 310 on presentation instrument 305 stores IKCV 315, unique card level key 317, and PAN 316 that can be read by passing or tapping the presentation instrument near the POS device). Petitioner cites Royyuru as teaching the IKCV is generated when each card (device) is being customized and is based on the PAN and the institution key (IK) of the issuer of the account. Pet. 20 (citing Ex. 1004 ¶¶ 5–10, 55–57, 46, 33; Ex. 1003 Shamos Decl. ¶ 125.).

Royyuru describes a "card level key" as "using a common institution level key and some card level attributes such as the Primary Account Number (PAN)" and notes that "[i]f the institution's key is compromised, all transactions for all cards or devices with this institution's key are potentially exposed," requiring creation of a new key and re-issuance of a large number of cards. Ex. 1004 ¶ 4. Royyuru discloses a DTC generated at the device using a unique card level key and also discloses a dynamic PAN that varies with each use of the device and is based on the real PAN and the IKCV. *Id.* ¶ 5. The IKCV is one of the card level keys of the device. *Id.* ¶ 6.

Arguing that the IKCV would be reused for multiple users on the same account and could be copied onto other devices, Patent Owner contends that the IKCV is inconsistent with the claimed "device-specific static limited-use payment information." *See* Prelim. Resp. 2–3; Prelim.

Resp. 10 (citing Ex. 1004 ¶¶ 5, 46). We need not decide this issue for purposes of this Decision, as we find that Petitioner has not demonstrated that claim limitations 1.h and 1.i are disclosed or suggested by the prior art. *See* Section IX.B.5.g *infra*.

e) *Claim limitation 1.f*

Claim limitation 1.f recites "dynamically generating, by a processor of the device, device-specific limited-use payment information for said selected payment method." Ex. 1001, 19:58–60.

Petitioner cites two examples of dynamically generated device-specific limited-use information in Royyuru: first, the "Dynamic Transaction Cryptogram (DTC)" and second, the "dynamic PAN." Pet. 21 (citing Ex. 1004 ¶¶ 5–10, 32–33, 47; Ex. 1003, Shamos Decl. ¶¶ 126–127, 55–56. Petitioner notes that Royyuru generates the DTC using a unique card level key stored on the device. *Id.* (citing Ex. 1004 ¶ 5). Petitioner cites the IKCV as a card level key, noting that paragraph 6 of Royyuru discloses decrypting the PAN at the transaction device using one of the card level keys, e.g. the IKCV. *Id.* (citing Ex. 1004 ¶ 6). Petitioner also notes that Royyuru discloses generating the DTC using unique Card Key (CK) 317. *See* Pet. 21 (citing Ex. 1004 ¶ 57 (disclosing card key CK is "unique per card")); Ex. 1003, Shamos Decl. ¶ 126).

Petitioner also cites the dynamic PAN as including an "unpredictable number" encrypted using the IKCV. *See* Pet. 21–22 (citing Ex. 1004 ¶¶ 5, 57). Both the DTC and PAN are "valid for a single transaction" according to the Petitioner. Pet. 22 (citing Ex. 1004 ¶¶ 5, 57, 33).

f) *Claim limitation 1.g*

Claim limitation 1.g recites using the "limited-use payment information" in place of at least a portion of the "selected original issuer-supplied payment information[.]" Ex. 1001, 19:61–63.

Petitioner cites Royyuru as teaching use of the DTC and dynamic PAN in place of the real PAN (Primary Account Number) *see* Pet. 22 (citing Ex. 1004 ¶¶ 57, 7) where both the DTC and dynamic PAN are generated using the IKCV and/or CK. *See* Pet. 21. "'A Dynamic Transaction Cryptogram (DTC) can be generated at the device, using a unique card level key stored on the device.'" Pet. 59–60 (citing Ex. 1004 ¶ 5).

The Petition cites Royyuru as disclosing that the dynamic PAN or Pseudo-PAN can be sent and used in place of the real PAN in the transaction. Pet. 22 (citing Ex. 1004 ¶¶ 7, 32, 57; Ex. 1003, Shamos Decl. ¶¶ 128–129). Petitioner further notes that in other examples, Royyuru discloses providing the DTC and the dynamic PAN to the point-of-sale device. *Id.* (citing Ex. 1004 ¶¶ 6–10, 34). Referencing its discussion of claim limitation 1.f, arguing the DTC and the dynamic PAN constitute examples of the claimed "device-specific limited-use payment information," Petitioner notes that the DTC and dynamic PAN are generated using the IKCV and/or the CK that is unique to the card. *Id.*

g) *Claim limitations 1.h and 1.i.*

Claim limitation 1.h recites "combining of said dynamically-generated limited-use payment information with said static limited-use payment information, to generate a complete device payment information;" Ex. 1001, 19:64–67. Claim limitation 1.i recites "transmitting said complete device payment information from said electronic device to a recipient reader via

said NFC interface to the recipient NFC reader for a processing of the payment transaction." *Id.* at 20:17–20.

Petitioner relies on Royyuru alone as teaching claim limitations 1.h and 1.i. Pet. 22–24. Petitioner asserts that "[a]s described in connection with step [1.f], the IKCV (static limited-use payment information) makes up part of the DTC." Pet. 22 (citing Ex. 1004 ¶¶ 5–9, 57). Petitioner contends that "the DTC and dynamic PAN (dynamic payment information) are provided together, along with additional information . . ., which a POSITA would have recognized as combining the DTC and dynamic PAN (and additional information) to generate a complete device payment information." Pet. 22–23 (citing Ex. 1004 ¶¶ 6–10, 34, 50, 57; Ex. 1003, Shamos Decl. ¶¶ 130, 131).

The Petition's discussion of limitation 1.f asserts that "[t]he DTC 'can be ***generated at the device***, using a unique card level key stored on the device'" and identifies the IKCV as "an example of a 'card-level key [] of the device.'" Pet. 21 (citing Ex. 1004 ¶ 5, 6). Petitioner cites Royyuru as disclosing the "DTC can be computed by the device by combining several fields including the PAN, service code, expiration date, unpredictable number, and ATC and encrypting them using the CK." *Id.* (citing Royyuru ¶ 57).

Addressing claim limitation 1.h., Petitioner presents two alternative contentions. Petitioner's first alternative relies on Royyuru's dynamic PAN as corresponding to the dynamic payment information recited in claim limitation 1.h. For this first alternative, Petitioner argues, "because the IKCV makes up part of the DTC, a POSITA would have recognized that the IKCV is combined with the dynamic PAN as part of forming Royyuru's

complete device payment information." Pet. 23 (citing Ex. 1004 ¶¶ 57, 5–9; Ex. 1003, Shamos Decl. ¶ 130).

Petitioner's second alternative relies on Royyuru's DTC as corresponding to the dynamic payment information recited in claim limitation 1.h. For this second alternative, Petitioner argues that "because the IKCV makes up part of the dynamic PAN, a POSITA would have recognized that the IKCV is combined with the DTC as part of forming Royyuru's complete device payment information." Pet. 23 (citing Ex. 1003, Shamos Decl. ¶ 131; *see also* Ex. 1003, Shamos Decl. ¶ 131 ("the dynamic PAN is also generated using the IKCV to encrypt other information, therefore teaching that the IKCV is part of the dynamic PAN")).

Addressing claim limitation 1.i, Petitioner contends that Royyuru describes providing the DTC and the dynamic PAN to a POS device via a NFC module of the presentation instrument and a corresponding module of the POS device. Pet. 23 (citing Ex. 1003, Shamos Decl. ¶ 132; Ex. 1004 ¶¶ 2, 22, 44, 47, 51).

Patent Owner agrees with Petitioner that Royyuru transmits two dynamic numbers, the dynamic PAN and the DTC. Prelim. Resp. 25. Patent Owner first asserts that Petitioner's argument fails because the IKCV is not device-specific. Prelim. Resp. 25–26 (citing Ex. 1004, Fig. 3). As noted above, we need not resolve that issue for purpose of this Decision. *See* Section 1.d, *supra*.

Responding to Petitioner's second alternative in which Royyuru's DTC corresponds to the claimed "dynamically-generated limited-use payment information," Patent Owner argues that, even if the IKCV is both device-specific and associated with a particular account, it is not used in the claimed "complete device payment information" and is not transmitted to a

recipient reader. Prelim. Resp. 26. Patent Owner asserts that Royyuru's DTC does not include the IKCV, rather the "DTC includes a separate 'unique' card key, that Petitioner has not argued (and cannot argue) is the device-specific limited-use payment information required by the claim." Prelim. Resp. 31.

Responding to Petitioner's first alternative in which Royyuru's dynamic PAN corresponds to the claimed "dynamically-generated limited-use payment information," Patent Owner acknowledges that Royyuru's dynamic PAN can be generated based on the real PAN and the IKCV, but argues that "based on" is not the same as using the IKCV itself and combining it with a dynamic number. Prelim. Resp. 28. According to Patent Owner, "[t]he IKCV ***itself*** is not actually combined with any dynamically-generated limited-use payment information. Rather, the *dynamic* PAN is combined with the DTC (also a dynamic number) to form the complete payment information." *Id.* Patent Owner acknowledges that "[t]he IKCV may be an input to generation of the dynamic PAN" but contends "that is all it is . . . the dynamic PAN may be 'based on' the IKCV, but the IKCV itself is not part of the complete payment information and is not transmitted to the recipient NFC reader." *Id.*

We agree with Patent Owner that Petitioner has not demonstrated that Royyuru teaches or suggests the claimed steps of "combining of said dynamically-generated limited-use payment information with said static limited-use payment information, to generate a complete payment information" and "transmitting said complete device payment information from said electronic device to a recipient reader . . ." as recited in claim limitations 1.h and 1.i. Petitioner maps the static limited use payment information to Royyuru's IKCV and the dynamically-generated limited-use

payment information to either Royyuru's DTC or dynamic PAN. Pet. 22–23. Petitioner has not shown sufficiently that either of its alternative contentions satisfies claim limitations 1.h and 1.i.

Regarding Petitioner's second alternative in which Royyuru's DTC corresponds to the dynamically-generated payment information, Petitioner's contention is not sufficiently supported by the evidence. Royyuru states that the DTC is generated by encrypting information with a card key (CK), which is unique per card. Ex. 1004 ¶ 57. But contrary to Petitioner's contentions, Royyuru does not disclose using the IKCV to generate the DTC.

Regarding Petitioner's first alternative in which Royyuru's dynamic PAN corresponds to the dynamically-generated payment information, Petitioner does not show that Royyuru discloses or suggests combining the dynamic PAN with the static limited use payment information (IKCV) to generate the claimed complete device payment information. Instead, Royyuru discloses the dynamic PAN is created through encryption using the IKCV. Ex. 1004 ¶¶ 5, 57. Petitioner fails to show that using a secret key, such as Royyuru's IKCV, to encrypt payment information would have suggested to a POSITA combining dynamically-generated payment information with static payment information to generate complete payment information, as recited in claim limitation 1.h. Nor does Petitioner show sufficiently that Royyuru's IKCV is part of a complete payment information that is transmitted to an NFC reader, as required to satisfy claim limitation 1.i.

As Petitioner has not demonstrated sufficiently that Royyuru discloses combining the dynamically generated limited-use payment information (either the DTC or the dynamic PAN) with the static limited-use payment

information (the IKCV) to form the claimed complete device payment information and transmitting the combined payment information to an NFC reader, we find that Petitioner has not demonstrated sufficiently that Royyuru teaches or suggests claim limitations 1.h and 1.i. In view of this finding, we need not analyze the remaining limitations of claim 1 for purposes of this Decision.

h) *Conclusion as to Claim 1*

Having considered the arguments and evidence of record, we find that Petitioner has not demonstrated the combined teachings of Royyuru, Phillips, and Casey and would have disclosed or suggested the limitations of claim 1 to an ordinarily skilled artisan.

6. *Claims 2–18*

Claims 2–18 depend from claim 1. As we find that Petitioner has not demonstrated the combined teachings of the references disclose all the limitations of claim 1, Petitioner has not demonstrated the combined teachings of Royyuru, Phillips, and Casey would have disclosed or suggested the limitations of claims 2–18 to an ordinarily skilled artisan.

C. Claims 5, 6, 8–11, 13–17 as obvious over Royyuru, Phillips, Casey, and Rans

1. *Rans (Ex. 1014)*

Rans describes a method of authenticating a contactless card payment transaction. Ex. 1014 ¶¶ 20–21. The card sends a first authentication that that is eventually received by the card issuer, where another version of the authentication data is generated. When the first and second authentication data match, or is sufficiently similar to the authentication data submitted by the user or mobile device, the user is authenticated as having authority to authorize the transaction. *Id.* ¶ 22. The device uses one or more of a variety

of variables to generate the dynamic value including numbers generated inside or outside the device while the authentication entity maintains its own set of data (e.g. a PIN, challenge, unpredictable number, synchronized transaction counter, or "any other data") to generate its own authentication data used in the verification. *Id.* ¶ 23.

2. *Claims 5, 6, 8–11, and 13–17*

Claims 5, 6, 8–11, and 13–17 depend from claim 1. In asserting this ground, Petitioner cites Royyuru as teaching the limitations of claim 1 discussed above. Pet. 42–48. Petitioner does identify any disclosure in Rans that cures the infirmities of Royyuru discussed above. *See* Section IX.B.5.g. *supra.* We find that Petitioner has not demonstrated that the combined teaching of Phillips, Royyuru, Casey, and Rans would have disclosed or suggest the limitations of claim 5, 6, 8–11, and 13–17 to a person of ordinary skill.

D. Claims 19–21, 23–25, and 28–30 as obvious over Philips, Royyuru, and Casey

1. *Claim 19*

Claim 19 recites a method of performing an online payment transaction. In a manner similar to claim limitation 1.h, claim limitation 19.f recites "combining said at least one limited-use numbers, with said selected account information, to form a complete payment information." Ex. 1001, 23:11–18. In a manner similar to claim limitation 1.i, claim limitation 19.i recites "transmitting by the wireless interface of the approved complete payment information for the online transaction." *Id.* at 23:32–34.

Referencing its arguments concerning claim limitations 1.f–1.h, Petitioner submits that the Phillips-Royyuru-Casey combination provides Elements 19.e–19.f. Pet. 57 (citing Pet. 21–23; Ex. 1003, Shamos Decl.¶

242). The Petition provides no further explanation or reasoning about how its discussion of claim limitation 1.f–1.h applies to claim limitations 19.e–19.f. For the "transmitting . . . complete payment information" step of claim limitation 19.i, Petitioner contends that, in the Phillips-Royyuru-Casey combination, payment information is transmitted to the merchant, where the "payment information comprises the DTC and dynamic PAN described by Royyuru." Pet. 59.

As discussed in Section IX.B.5.g *supra* we are not persuaded that Petitioner has demonstrated the combined teachings of Phillips, Royyuru, and Casey would have disclosed or suggested claim limitations 1.h and 1.i, which are similar to limitations 19.f and 19.i. In the absence of further explanation as to claim limitations 19.f and 19.i, we find that Petitioner has not demonstrated that the combination of Phillips, Royyuru, and Casey teaches or suggests claim limitations 19.f. and 19.i and we need not analyze the remaining limitations of claim 19.

2. *Claims 20, 21, 23, and 24*

Claims 20, 21, 23, and 24 depend from claim 19. As we find that Petitioner has not demonstrated the combined teachings of the references disclose all the limitations of claim 19, Petitioner has not demonstrated the combined teachings of Royyuru, Phillips, and Casey and would have disclosed or suggested the limitations of claims 20, 21, 23, and 24 to a skilled artisan.

3. *Claim 25*

Independent claim 25 recites a non-transitory, computer-readable medium storing computer-executable instructions to cause the processor to carry out enumerated instructions. Ex. 1001, 24:49–25:16. In a manner similar to claim limitations 1.h and 1.i, claim limitation 25.g recites

"form[ing] a complete combined device payment information from a dynamically generated portion and a statically generated portions stored in a memory of the device" and 25.h recites "transmit[ing] said complete device payment information from said electronic device to the recipient of the online purchase transaction." Ex. 1001, 25:4–10. Petitioner's analysis of claim limitations 25.g and 25.h cites its discussions of claim limitations 1.e–1.i. Pet. 68–69. Petitioner's discussion of these limitations also cites Casey as disclosing the claimed display of graphical elements for confirming the payment transaction. *Id.* As we find that Petitioner has not demonstrated the combined teachings of the references disclose all the limitations of claim 1, in particular claim limitations 1.h and 1.i, (*see* Section IX.B.5.g *supra*) Petitioner has not demonstrated the combined teachings of Royyuru, Phillips, and Casey and would have disclosed or suggested the limitations of claim 25 to a skilled artisan.

4. *Claims 28–30*

Claims 28–30 depend from claim 25. Petitioner does identify any disclosure that cures infirmities of Royyuru discussed above with respect to claim 25. *See* Section IX.B.5.g. *supra.* We find that Petitioner has not demonstrated that the combined teaching of Phillips, Royyuru, and Casey, would have disclosed or suggest the limitations of claim 28–30 to a person of ordinary skill.

E. Claims 23 and 28–30 as obvious over Philips, Royyuru, Casey, Rans

Claim 23 depends from claim 19. Claims 28–30 depend from claim 25. Petitioner does identify any disclosure in Rans that cures the infirmities of Royyuru discussed above with respect to claim 19 and 25. *See* Section IX.B.5.g. *supra.* We find that Petitioner has not demonstrated that

the combined teaching of Phillips, Royyuru, Casey, and Rans would have disclosed or suggest the limitations of claims 23 and 28–30.

F. Claim 27 as obvious over Philips, Royyuru, Casey, Rans, Carlson

1. *Carlson (Ex. 1013)*

Carlson describes a mobile device for conducting transactions using pseudo primary account identifiers from portable wireless devices. Ex. 1013 ¶ 12. The pseudo primary account identifier resembles the format of a real primary account identifier (e.g. a credit card number) without revealing the real account identifier. *Id.* ¶ 30. The pseudo account identifier is generated by the payment processor, specific to the device, and provided to the mobile device for use in place of the primary account identifier. *Id.* ¶ 35.

2. *Claim 27*

Claim 27 depends from claim 25. Petitioner does not identify any disclosure in Carlson that cures the infirmities of Royyuru discussed above with respect to claim 25. *See* Sections IX.B.5.g, IX.D.3 *supra.* We find that Petitioner has not demonstrated that the combined teaching of Phillips, Royyuru, Casey, and Carlson would have disclosed or suggest the limitations of claim 27 to a person of ordinary skill.

G. Claim 26 as obvious over Philips, Royyuru, Casey, and Law

1. *Law (Ex. 1015)*

Law describes methods of authentication for a financial transaction using biometric data (e.g. voice data, finger prints, eye scan) or personalized security questions (e.g. favorite color). Ex. 1015 ¶¶ 53, 67. When incorrect information is provided by the user, the device can limit retries to reduce the probability of success of a brute force attack. *Id.* ¶ 139.

2. *Claim 26*

As claim 26 depends from claim 25. Petitioner does not identify any disclosure in Carlson that cures the infirmities of Royyuru discussed above with respect to claim 25. *See* Section IX.B.5.g, IX.D.3 *supra.* We find that Petitioner has not demonstrated that the combined teaching of Phillips, Royyuru, Casey, and Law would have disclosed or suggest the limitations of claim 26 to a person of ordinary skill.

X. CONCLUSION

For the reasons discussed above, we not persuaded that Petitioner has demonstrated a reasonable likelihood that it will succeed on any of the challenges to patentability advanced in the in the Petition.

XI. ORDER

In consideration of the foregoing, we decline to institute *inter partes* review.

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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.

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