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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USC1C1C
	Application Number	
Title of Invention	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC 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	State/Province	Country of Residence
San Jose	CA	US

Mailing Address of Inventor:

Address 1	1314 Vanna Ct
Address 2	

City	State/Province	Postal Code	Country
San Jose	CA	95131	US

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

Correspondence Information:

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

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

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

Application Information:

Title of the Invention	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE		
Attorney Docket Number	WYAT-0002.USC1C1C	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	7	**Suggested Figure for Publication (if any)**	

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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:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
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Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	136197		

Domestic Benefit/National Stage Information:

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

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	15250698	2016-08-29

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WYAT-0002.USC1C1C
	Application Number	
Title of Invention	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC 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)
15250698	Continuation of	14680946	2015-04-07	9430765	2016-08-30

Prior Application Status: Patented — Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14680946	Continuation of	14217261	2014-03-17	9022286	2015-05-05

Prior Application Status: Expired — Remove

Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
14217261	Claims benefit of provisional	61794891	2013-03-15

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

Foreign Priority Information:

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

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

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

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

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

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.

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	Application Number	
Title of Invention	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC 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:			
Address 1	1314 Vanna Ct		
Address 2			
City	San Jose	**State/Province**	CA
Country	US	Postal Code	95131
Phone Number		Fax Number	
Email Address			

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

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.

Remove

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

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

Mailing Address Information For Assignee including Non-Applicant Assignee:

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

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Signature:

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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)	2018-07-02
First Name	Anthony	Last Name	Murabito	Registration Number	35295

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

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

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

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

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

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

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

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

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

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

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

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

MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE

RELATED APPLICATIONS

[0001] This is a Continuation application of co-pending, commonly-owned U.S. Patent Application Serial No. 15/250,698, now U.S. Patent 10,013,693, filed 08-29-2016, which in turn was a continuation of U.S. patent application Ser. No. 14/680,946, now U.S. Patent 9,430,765 (Attorney Docket No. WYAT-0002.USC1) entitled "MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE," filed Apr. 7, 2015 to inventor David Wyatt, which is itself a continuation of U.S. patent application Ser. No. 14/217,261, now U.S. Patent 9,022,286 (Attorney Docket No. WYAT-0002.US), similarly entitled "MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE," filed Mar. 17, 2014 by the same inventor David Wyatt, and claims the benefit of U.S. Provisional Patent No. 61/794,891 (Attorney Docket No. WYAT-0002.A) entitled "Multi-Functional Credit Card Device," filed Mar. 15, 2013 to inventor David Wyatt. The benefit of the earlier filing dates is hereby claimed and the contents of the earlier filed related applications are further incorporated by reference in their entirety.

FIELD OF THE INVENTION

[0002] Embodiments according to the present disclosure generally relate to electronic or smart credit card devices and, more specifically, to more secure, smart credit card devices.

BACKGROUND OF THE INVENTION

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

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

[0005] A different type of credit card device in circulation employs radio frequency identification ("RFID"). These cards essentially have a low-power RF antenna built into the card, and when the cardholder passes the antenna in front of a reader comprising an RF field, enough power is generated to enable the processor to interact wirelessly with the receiving device.

[0006] A concern with each of these types of credit cards presently available in the marketplace is that they can all be, in various ways, susceptible to theft and/or compromise. Therefore, these types of

credit cards have security limitations. Further, cards employing smart integrated circuit chips and RF technology are not in wide use at present because they are incompatible with existing credit card infrastructure, which still predominantly supports conventional plastic credit cards.

SUMMARY OF THE INVENTION

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

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

[0009] More specifically, an aspect of the present disclosure provides an apparatus comprising: a thin card shaped sized body; a memory operative to store a plurality of identification data; a processor coupled to the memory; a user interface for selecting a select identification data of said plurality of identification data; a magnetic card reader detection unit for determining if the body is adjacent to a standard magnetic card reader; and an inductor assembly coupled to the processor and integrated into the body, the inductor assembly under processor control for generating a magnetic field of alternating polarity responsive to the body being detected as adjacent to a standard magnetic card reader, the magnetic field generated in a region substantially encompassing the standard magnetic card reader, wherein the magnetic field encodes said select identification data, and wherein the magnetic field is operable to be read by a magnetic read head of the standard magnetic card reader.

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

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

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

BRIEF DESCRIPTION OF THE DRAWINGS

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

[0013] Figure 1 is an illustration depicting an exemplary interaction between a credit card 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 credit card device and the microprocessor on the credit card according to an embodiment of the present disclosure.

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

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

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

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

[0019] Figure 6 is an illustration of two credit card devices performing a transaction according to an embodiment of the present disclosure.

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

DETAILED DESCRIPTION OF THE INVENTION

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

[0022] Some portions of the detailed descriptions which follow are presented in terms of procedures, steps, logic blocks, processing, and other symbolic representations of operations on data bits that can be performed on computer memory. These descriptions and representations are the means used by those skilled in the data processing arts to most effectively convey the substance of their work to others skilled in the art. A procedure, computer generated step, logic block, process,

etc., is here, and generally, conceived to be a self-consistent sequence of steps or instructions leading to a desired result. The steps are those requiring physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated in a computer system. It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers, or the like.

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

ENCODING VIA AN ALTERNATING POLARITY OF A MAGNETIC FIELD

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

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

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

[0026] A characteristic of encoding information in a conventional magnetic card strip is that binary information is encoded by the pattern of alternating magnetic polarity formed by ferromagnetic

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

[0027] Figures 2A and 2B depict exemplary embodiments of the smart credit card device, in a block diagram view. The components of the block diagram are illustrated according to functional connections, and their locations should not be construed as being limited to the respective locations as depicted in Figures 2A-2B. In Figure 2A, credit card device 201a is shown in a block diagram view. Credit card device 201a comprises a processor 205 and a memory unit 207, the processor 205 operatively coupled to the components of credit card device 201a. The memory 207 comprises a plurality of accounts 209, which may be credit card accounts, banking accounts, merchant accounts, online accounts, cryptocurrency accounts, and combinations thereof. A motion detection module 210 is coupled to the processor unit 205 and to a set of motion detection units, which comprise a rate detection assembly 225, an optical sensor array 230, and a set of accelerometers 235. The magnetic field is generated via a planar coil 220, which is controlled by the processor unit 205 via a coil

interface 215. The rate at which the magnetic field changes polarity to encode the user data depends on the rate of relative movement detected by the rate detector. The credit card device 201a further comprises a real-time clock 240, a touch-sensor array 245, and a display 250, each operatively coupled to the processor unit 205. A user input may be made via the touch sensor array 245, which may comprise a touch screen panel, a keypad, or a combination thereof. The display 250 is able to display an alphanumeric sequence, as well as graphical icons (such as a logo for a bank, or other images). Further, an optional backup power source 255 is depicted.

[0028] In one embodiment, the processor unit 205 is connected to the planar coil 220 and the motion detection units, via the motion detection module 210. The processor unit 205 is responsible for determining the appropriate rate with which to output data from the planar coil 220, wherein output data is encoded using alternating polarity of a generated magnetic field. The rate of the alternating polarity of the magnetic field is generated in accordance with the detected movement speed with which the card is swiped through the reader, in order for the reader to receive the encoded data at the appropriate rate. Magnetic card readers, which are designed to read conventional credit cards, are constructed to read data at specified input rates that correspond with the data density present in conventional magnetic card strips. The magnetic data symbols generated by the planar coil 220 are produced to align with the rate at which data is being read by the magnetic card reader. Accordingly, it is irrelevant if the credit card device 201a of the present disclosure is being swiped quickly or slowly, the planar coil 220 is controlled by the processor unit 205 to produce data at a substantially optimized rate, where the rate of data production is dependent on the rate at which the credit card device 201a is detected to be passing across the magnetic reader head.

[0029] Figure 2B depicts a credit card device 201b according to an embodiment of the present disclosure. Credit card device 201b comprises a processor 205 and a memory unit 207, the processor 205 operatively coupled to the components of credit card device 201b. The memory 207 comprises a plurality of accounts 209, which may be credit card accounts, banking accounts, merchant accounts, online accounts, cryptocurrency accounts, and combinations thereof. A motion detection module 210 is coupled to the processor unit 205 and to a set of motion detection units, which comprise a rate detection assembly 225, an optical sensor array 230, and a set of accelerometers 235. Additionally, a galvanic sensor 275 is coupled to processor unit 205. The magnetic field is generated via a planar coil 220, which is controlled by the processor unit 205 via a coil interface 215. The rate at which the magnetic field changes polarity to encode the user data depends on the rate of relative movement detected by the rate detector. The credit card device 201b further comprises a real-time clock 240, a touch-sensor array 245, and a display 250, each operatively coupled to the processor unit 205. A user input may be made via the touch sensor array 245, which may comprise a touch screen panel, a keypad, or a combination thereof. The display 250 is able to display an alphanumeric sequence, as well as graphical icons (such as a logo for a bank, or other images). Further, an optional backup power source 255 is depicted. Credit card device 201b further comprises a near-field communication (NFC) unit 260, as well as a radio frequency identification (RFID) unit 265, both of which are operatively coupled to the processor unit 205. In one embodiment the NFC and RFID may share the planar coil for use as a RF antennae, through the coil interface 215. In one embodiment one or both the NFC andthe RFID may have antennae dedicated to that individual sub-system. A universal serial bus (USB) connector 270 is coupled to the processor unit 205. The functionality of the components with regard to exemplary uses of credit card devices 201a and 201b is described in greater detail in the following description.

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

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

credit card authority key or secrets, user input from the card interface, and other information associated with the transaction.

MOVEMENT RATE FEEDBACK

[0032] The relative movement rate of credit card device 201a is detected by one or more of the set of motion detection units, comprising the rate detection assembly 225, the optical sensor array 230, and the set of accelerometers 235. Each of the motion detection units detects the motion of the credit card 201a in a distinct manner. The rate detection assembly 225, which is positioned alongside (but independent of) the planar coil 220, is able to detect the location of a magnetic head reader as the rate detection assembly 220 is being passed through the credit card reader. The reader module of a conventional credit card reader comprises a metal head having a small gap at the tip of the head. A pickup armature resides in this gap, such that as the metal head passes over a credit card strip, an electric field is induced in the head reader pickup circuit. In one embodiment the rate detection assembly 225 is constructed of an array of auxiliary inductor coils and magnetic pickup coils. As the metal head of the card reader assembly passes over the arrangement of auxiliary inductor coils and magnetic pickup coils of the rate detection assembly 225, a disturbance in the magnetic field flowing between the two is induced, generating a change in current and producing a detected movement signal. The change in current is detected by the motion detection module 210, and is used to determine the rate of motion of the card reader head passing across the surface of the credit card device 201a (and therefore along the planar coil 220).

[0033] The optical sensor array 230 is also operable to detect a movement rate of the credit card device 201a with respect to a conventional magnetic card reader. The optical sensor array 230 is disposed nearby the planar coil 220, in order to accurately detect a movement rate in the region of the

planar coil 220. In an embodiment, the optical sensor array 230 is a thin strip parallel to, and extending along, the length of the planar coil 220. The optical sensor array 230 determines a location of a minimum of received light, which corresponds to the region of a surface in nearest proximity to the optical sensor array 230. The magnetic reader head of a conventional magnetic card reader extends furthest from the surface of the card reader, and therefore the detected minimum in received light at the optical sensor array 230 corresponds with the location of the reader head. By tracking over time the position of this minimum received light along the optical sensor array, a detected movement rate may be found.

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

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

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

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

[0037] Figure 3 illustrates an exemplary process 300 for determining the rate to alternate the polarity of the generated magnetic field of the credit card device, according to an embodiment of the present disclosure. At step 301 the process determines if a standard magnetic card reader is detected

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

SECURITY

[0038] Security is an area of concern for credit card holders, as the small form factor makes theft quite easy, and additionally there are many ways for a malicious third-party to record the account number of a credit card in order to later make fraudulent transactions on the account. Embodiments of the present disclosure address security concerns of a credit card owner on several fronts.

[0039] In one aspect, security of the credit card device is enhanced by providing a means of locking the credit card device in order to prevent use, until such time that a valid user input is entered. Embodiments of the present disclosure provide a credit card device having a region for receiving human input, e.g., touch sensors which are able to be formed by contacts that a user can press (e.g., the touch sensor array 245 of Figures 2A-2B). Figures 4A-4B illustrate a user interacting with a credit

card device 401 via a keypad or touch sensor array 445. In Figure 4A, the credit card device 401 is in a locked state. A display 450 is able to display a message to the user, for instance, the message "device locked" or "enter password," or question prompts which guide the user to respond with answers through said key-pad or said touch sensor, to certain preset questions, that confirm personal knowledge known only to the associated user. The touch sensor array 445 enables user interaction with the credit card device 401. An exemplary use of the touch sensor array 445 is an input of a currency amount to be used in a transaction. The touch sensor array 445 is able to include buttons, or a touch-sensitive pad, or a combination of the two. Other embodiments of the touch sensor array 445 allowing a user to input data to the credit card device 401 are consistent with the spirit and scope of the present disclosure.

[0040] In order to unlock the credit card device 401 and enable a transaction or other usage, the user inputs data via the touch sensor array 445. Figure 4B illustrates the user inputting a password via a gesture 470, which operates to unlock the credit card device 401. The display 450b is able to display a message indicating the credit card device 401 is unlocked and ready for use, for instance, display 450b may display the message "unlocked," or it may display an account number associated with the credit card device 401.

[0041] Embodiments of the present disclosure provide additional functionality for the touch sensor array 445. For example, there may be touch contact terminals that a user can press to wake up the credit card device 401, to cause the battery to supply power, or to place the credit card device 401 in a power reduction mode when it is not being used. In an embodiment, if any number other than the correct password is entered multiple times, or if there is an attempted usage of the credit card device

401 without entering in a password, an automatic phone call may be triggered to the appropriate fraud protection authorities.

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

LIMITED-DURATION CREDIT CARD NUMBER

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

denied and an automatic notification is able to be made to a credit authority in order to notify the user and to prevent transactions on the account. The transaction count is able to be determined through the action of passing the card through magnetic reader, and the process of transmitting said card number to said card reader.

[0044] In one embodiment, the number on the front of the card is able to be a full or partial number. In an embodiment, the number displayed on the credit card device is a static number, but the number transmitted during a transaction is a limited-duration credit card number as described above. The number displayed on the credit card device may not necessarily be a static number. For example, the first four and last four digits of the credit card number are able to be fixed, while the remaining eight digits can be dynamically generated. As the credit card is read by the machine, part or all of the number may be dynamically produced at the time the card is read. As described above, the dynamic part of the limited-duration credit card number generated may be based on the user's private information, the user's bank information, the time of day or the facility that is reading the card. Further, the expiration date of the credit card device can also be dynamically generated.

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

[0046] In one embodiment, the process steps enabling a card transaction are as follows. A credit card device (e.g., credit card device 201b) is connected to a computer system (e.g. computer system 590), via any of the connection means available to the credit card device (USB 270, NFC 260, and RFID 265). User data and other essential information, such as account information, are downloaded to the credit card device. For example, for an account designed for online transactions, user account information will likely include an account email and an account password. The account may be for example a bank account, a credit account, a merchant account, an online transaction account, or a cryptocurrency. In one embodiment a currency amount is also downloaded, which is made accessible to the credit card device 201b for transactions. In an alternative embodiment, rather than a currency amount being downloaded to the credit card device 201b, the user account information (e.g., username and password) is stored such that a subsequent authorized credit card device 201b transaction is automatically pre-authorized to deduct (or credit) the entered transaction amount at a stored account. In an embodiment, a user uses the touch sensor array 245 of the credit card device 201b in order to input the user information, including the amount of currency to be stored. The information entered by the user is able to include an account source of a transaction (e.g., bank account, credit account, merchant account, ATM, online payment service, or a cryptocurrency), as well as a type of transaction to be made (e.g., as a debit card, as a credit card, or as a user account). In another embodiment, the information is entered using the computing system to which the credit card device 201b is connected.

[0047] Transactions may be authenticated on the specified account by entry of the username and password for the account during the transaction, using the touch sensor array 245. In an embodiment, a password for an account is represented by a user input (such as a gesture, a swipe, and/or an unlock keycode) which is entered on credit card device 201b during a transaction for account authentication.

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

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

ONLINE TRANSACTIONS

[0049] Figure 5 displays the credit card device 501 in connection with a computing device 590. In one embodiment, the credit card device 501 is able to be used to make online purchases. In one embodiment, the credit card device 501 is equipped with a means 570 for communicating with the USB port on a computer or other device in order to make online purchases. In one embodiment the credit card device 501 may have an area cut-out, such that contact terminals corresponding to a USB cable connector are contained within, enabling connection of a USB cable (e.g., a micro-USB connection). When performing online transactions, the credit card device 501 can uniquely generate a limited-duration credit card number (as described above) for online purchases. The credit card device 501 receives a user input indicating that a transaction is imminent, and an authorization. The user input is able to comprise a gesture, a swipe, a key input sequence, and combinations thereof. The limited-duration credit card number is able to be displayed on the front display of the credit card device 501. In one embodiment, the credit card device 501 is able to use RFID 265 or near field communication NFC 260 technology in order to connect to a personal computer 590. This enables a per-transaction, limited-use credit card number, enhancing the security of the credit account by substantially negating the possibility of a theft of the credit card number used to perform the transaction leading to account compromise.

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

[0051] In one embodiment, a means of limiting an available credit amount are provided. According to the download process described above, the credit card device is able to have a total credit available. The credit card device is able to reference the total credit available in subsequent transactions, and will provide limited-duration credit card numbers corresponding to amounts up to, but not exceeding, the remaining credit available to the credit card device. An attempt to perform a transaction having an amount exceeding the remaining credit available will not result in a valid limited-duration credit card number, and therefore an authenticated transaction cannot proceed. In general, the credit card device will only successfully generate a limited-duration credit card number if the proper conditions for a transaction are determined to be present. The proper conditions for a transaction comprise a correct identification having been made by the user (via a gesture, swipe, and/or key input) and an amount for the transaction indicated to be less than the total credit available to the account indicated for the transaction.

CARD-TO-DEVICE TRANSACTIONS

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

[0053] Figure 6 illustrates a card-to-card transaction according to one embodiment. A first credit card device 601a comprises a display 650a, and is in contact with a second credit card device 601b. A contact interaction between the cards is indicated by interaction 680. In one embodiment, the contact

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

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

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

can be a tap of the credit card device 601a, or tapping the credit card device 601a against the credit card device 601b. In one embodiment, a touch sensor array is able to be used for the priming action.

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

[0057] In one embodiment, the credit card device 201b stores cryptocurrency information in processor unit 205. The cryptocurrency information stored is able to include a plurality of cryptocurrency addresses, a plurality of private keys, and a plurality of public keys. The credit card device 201b is able to perform a transaction, as described above, using a cryptocurrency as the specified account. In one embodiment, the credit card device 201b is able to hash a portion of the transaction, using the processor unit 205 and the real-time clock 240 along with user information pertinent to the cryptocurrency account and the transaction. A subsequent connection of the credit card 201b to a computing device provides a means of connecting to the cryptocurrency servers and finalizing the transaction. Further, the credit card device 201b is able to sign a cryptocurrency transaction by, for instance, receiving a prompt at the display 250 to input a dynamic PIN specific to the transaction, which is able to be entered by touch sensor array 245.

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

ACCOUNT THEFT AND UNINTENDED USE PREVENTION

[0059] A security concern for conventional credit cards utilizing wireless communication means is the ability of a thief to access and/or copy user information through un-detected interaction with the wireless communication means. Sensitive and confidential information can be gleaned via, for example, "listening-in" on an RFID interaction between a credit card and a contactless reader, recording the characteristics of the interaction, and replicating certain characteristics to fake an authorized transaction. While to a great extent security concerns are addressed by the usage of limited-duration credit card numbers and other security features provided for by the credit card of the present disclosure and previously described, a further security feature regarding the wireless communication means of the credit card device is described herein.

[0060] In one embodiment, wireless communication means of the credit card device 201b are in a powered-down, or disabled, state prior to receiving an authenticated activation signal from a user. Upon receiving the activation signal, the communication means (e.g., NFC 260, RFID 265, and planar coil 220) are activated, enabling the credit card device 201b to conduct a transaction. The activation

signal can originate from one (or a combination) of the set of motion detection units (rate detection 225, optical sensor array 230, and accelerometers 235), the touch sensor array 245, and the galvanic sensor 275. The galvanic sensor 275 is operable to detect a contact of human skin, via a current produced at the sensor 275 upon such contact. In an embodiment the galvanic sensor 275 is comprised of metallic contacts disposed on opposite sides of, and isolated by, the body of credit card device 201b. In one embodiment, the current produced by user contact with the galvanic sensor 275 contacts is sufficient to provide small amounts of energy in order to power components of the card. For example, energy produced is able to power the processor unit 205 and the RFID 265. In one embodiment the galvanic sensor 275 further comprises two conducting surfaces separated by a junction, and the galvanic sensor 275 is configured as a thermoelectric generator (e.g., via the Peltier effect, the Seebeck effect, or a combination). For example, heat applied at one surface of the credit card device 201b may lead to differential heating between the opposing, separated conducting surfaces of the galvanic sensor 275, generating an electric current and powering a subset of, or all of, the components of credit card device 201b (e.g., the processor unit 205, the NFC 260, and the RFID 265).

[0061] In an embodiment, the communication means are activated only so long as the activation signal continues to be detected. In another embodiment, the communication means are activated for a specified amount of time following detection of the activation signal. For example, if using the credit card device 201b in an ATM (or other device) preventing continuous human contact, the activation signal is able to be a swipe, gesture, or key input sequence entered via the touch sensor array 245, which activates the card for a specified duration (for instance, one minute). In an embodiment the detection of motion through accelerometer input indicates activation by a valid user. In one embodiment the specific motion detected through accelerometer input corresponding with a specific

user action, such as a “flick”, “swipe”, “spin”, “wave”, “tap,” may be used to initiate activation, wherein said motion is not normally generated at idle and during periods of inactivity. For example said motion not being generated accidentally while said card is stored in a user’s wallet, carried while the user is actively moving, or is being handed from user to a clerk at a point of transaction. In one embodiment the specific motion, or sequence of motions, may be associated with a user, and stored on said card memory, such that performing the correct sequence when prompted can confirm the possession of the card by the known owner, thus initiating activation and enabling usage.

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

[0063] The credit card device, following enablement of the NFC unit, receives an indication of an amount of currency for a transaction at step 703. At step 705, the credit card device generates a limited-duration credit card number, which at step 707 is transmitted to a recipient of the transaction.

In one embodiment, the limited-duration credit card number has a limited recurrence, and is limited in scope of use to a predetermined number of authorized transactions.

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

[0065] 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.

[0066] 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. An apparatus comprising:

a thin card shaped sized body; a memory configured to store a plurality of identification data; a processor coupled to the memory, wherein the processor is configured to generate a card information based on the plurality of identification data, wherein the generated card information is configured to be used in place of card issuer information;

a wireless interface configured to wirelessly communicate the card information, wherein the processor is configured to transmit the card information via the wireless interface; and

a real-time clock configured to produce a timestamp.

2. The apparatus of claim 1, wherein the processor is further configured to generate a unique number to be used in generating the card information.

3. The apparatus of claim 1, wherein the card number is based on data selected from the group consisting of a user's private information, card issuer information, bank information, information regarding the facility performing the transaction, an indicated merchant, a sequence code, a passcode, the transaction information, an amount, and a time of day.

4. The apparatus of claim 1, wherein the card information is selected from the group consisting of a card information limited to a single transaction, a card information limited to a prescribed information of transactions, a card information limited to an indicated merchant, a card information limited to an

amount to be paid, a card information limited to time duration for which the information is valid for use, and a card information limited to a specific period of time.

5. The apparatus of claim 1, wherein the processor is configured to determine a transaction count based on usage of the thin card shaped sized body and transmission of the card information.

6. The apparatus of claim 1 wherein the real-time clock is configured to produce at least one of: a cryptographically protected timestamp; a hash based on the timestamp; and a cryptographically protected hash based on the timestamp.

7. The apparatus of claim 1 further comprising: an accelerometer configured to detect at least one of a tap, a flick, a swipe, a spin, and a wave sequence, and in response configured to authorize and activate a processor, when the processor is in a disabled state, to generate the card information and enable the apparatus when in a disabled state for the transmission via wireless interface.

8. The apparatus of claim 1 further comprising at least one of: an accelerometer, an optical sensor, a motion detector, a galvanic sensor, and a thermoelectric sensor to detect the apparatus is in an idle state and to disable the idle state to enable transmission of the card information via the wireless interface.

9. The apparatus of claim 1 further comprising an touch sensor configured to detect at least one of a swipe gesture and a touch sequence configured to authorize and activate the processor, wherein in

response to activation of the processor the card information is generated and the apparatus is enabled for transmission of the card information via the wireless interface.

10. The apparatus of claim 1 further comprising at least one of: an accelerometer, an optical sensor, a motion detector, a galvanic sensor, a thermoelectric sensor to detect the apparatus is an active state and to maintain the apparatus in the active state and enabled for transmission of the card information via the wireless interface while the apparatus is detected in the active state.

11. The apparatus of claim 1, wherein the processor is further configured to dynamically generate a card security code associated with the card information.

12. The apparatus of claim 1, wherein the processor is configured to receive at least one of a user name, an account identifier, bank information, card issuer information, a stored value amount, a crypto-currency amount, a card limit amount, a personal identification number (PIN), an email address, and password data for storage to the memory via at least one of a wired interface and the wireless interface.

13. The apparatus of claim 1, wherein the processor is configured to communicate the card information and associated payment details to an electronic device through the wireless interface.

14. The apparatus of claim 1, wherein the processor is configured to communicate the card information and exchange user and card account details through a cryptographic exchange with an

electronic device through an interface selected from the group consisting of the wireless interface, a wired interface, and a universal serial bus (USB) interface.

15. The apparatus of claim 1, wherein the processor is configured to communicate at least one of: a bank account, a credit account, a merchant account, a transaction amount, a stored currency amount, and cryptocurrency details through a cryptographic exchange with an electronic device through an interface selected from the group consisting of the wireless interface, a wired interface, and a universal serial bus (USB) interface.

16. The apparatus of claim 1, wherein the processor is configured to convey the card information and exchange account details through a cryptographic exchange with an electronic device through an interface selected from the group consisting of the wireless interface, a wired interface, and a universal serial bus (USB) interface.

17. The apparatus of claim 1, wherein said processor generated card information is based on a plurality of identification data, and wherein said generated card information is limited in duration and scope of usage, based on at least one of a set consisting of: a transaction count, a timestamp, a time of day, a user's private information, a bank information, a card authority information, an amount of currency in a transaction, a sequence code, a passcode, an information regarding the facility where the transaction is performed, a merchant, and transaction information of the user.

18. A method for facilitating use of a plurality of accounts, the method comprising: displaying account information stored on a card device; receiving an indication of a selection of an account from the

account information; generating a timestamp with a real-time clock disposed on the card device; and communicating the user data associated with the selected account through an interface using a secure protocol based on the timestamp.

19. The method of claim 18 further comprising: displaying at least one of an account number associated with the selected account, a bank, an expiration date, user identification, a personal identification number (PIN), a password, a graphical icon, and a logo associated with the selected account number.

20. The method of claim 18 further comprising: displaying a lock message and a remove lock message; and enabling the card device for transmission when a security challenge is successfully completed.

MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE

ABSTRACT

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

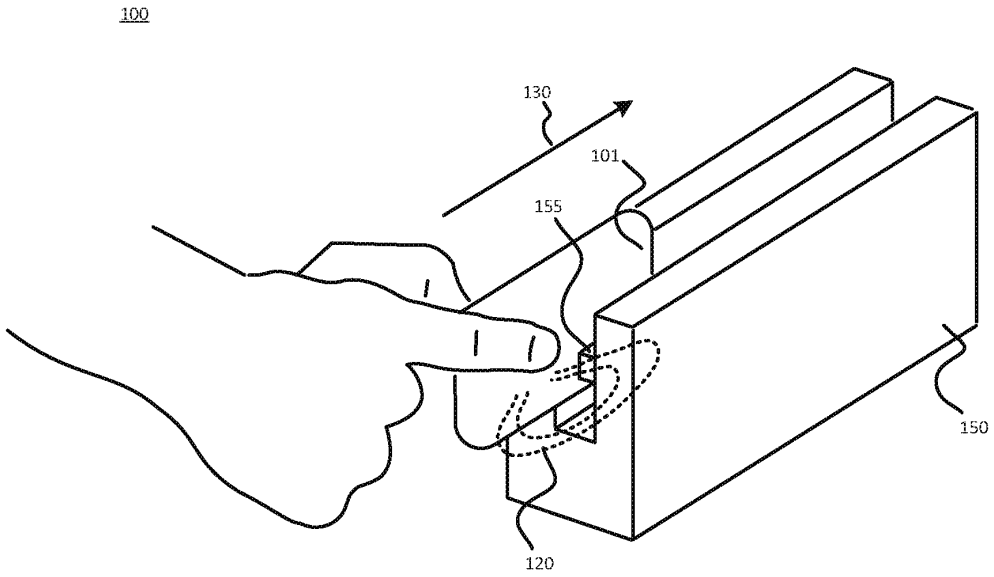


FIG. 1

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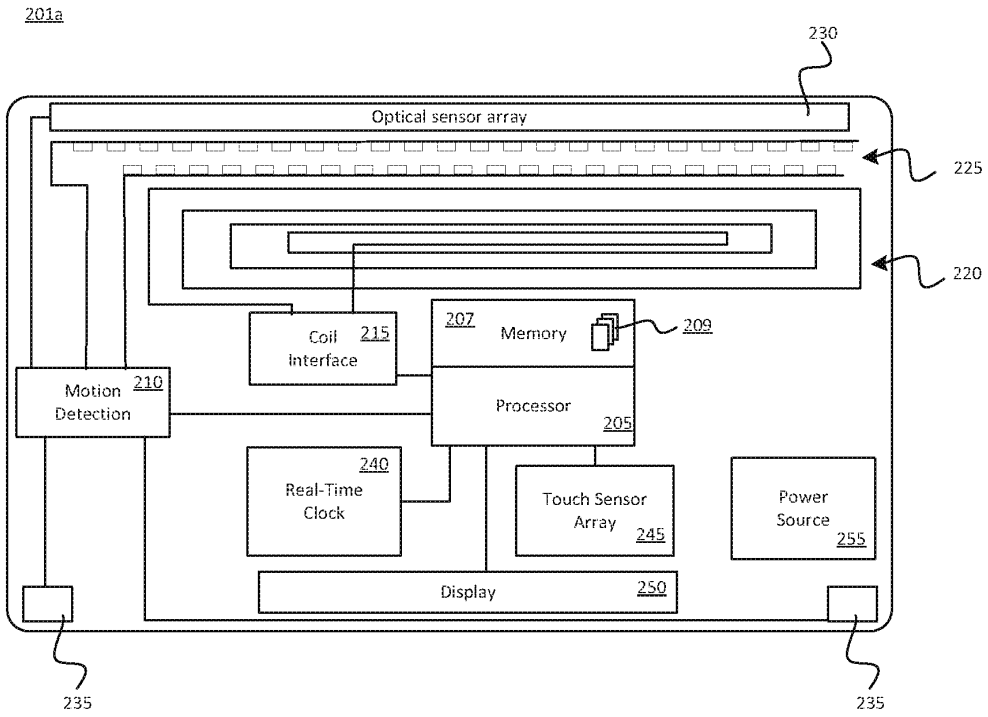


FIG. 2A

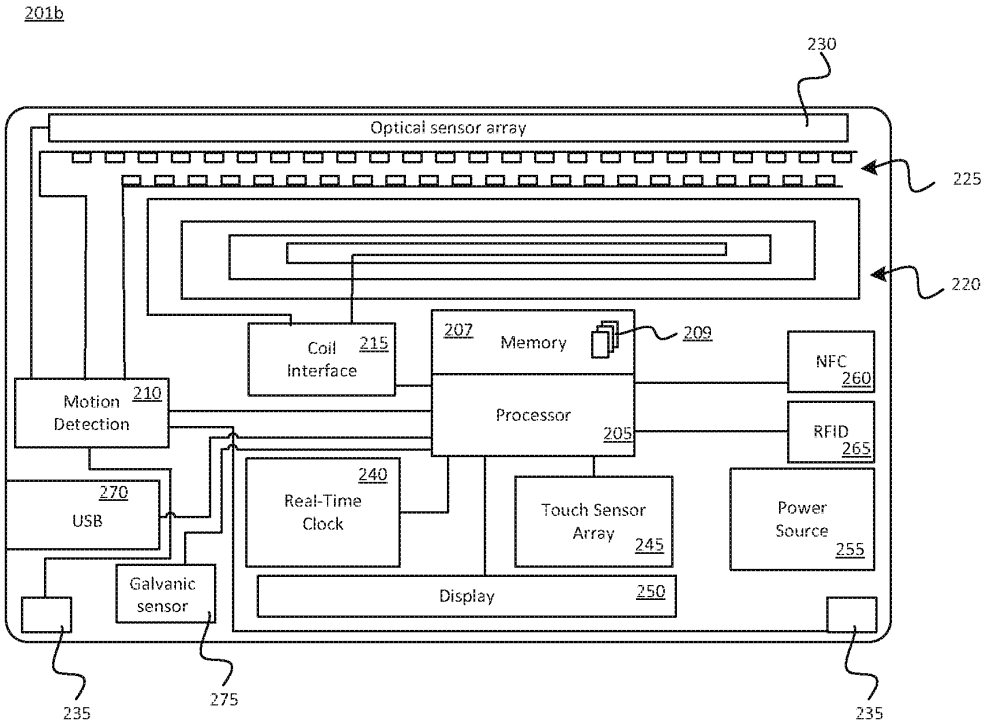


FIG. 2B

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280

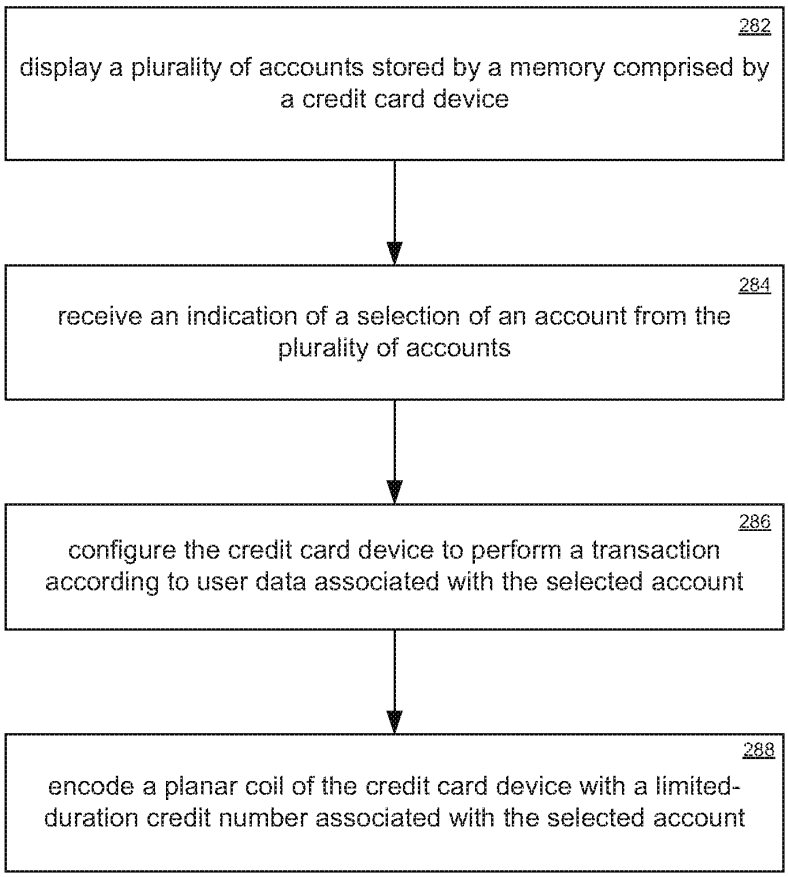

282
display a plurality of accounts stored by a memory comprised by a credit card device
284
receive an indication of a selection of an account from the plurality of accounts
286
configure the credit card device to perform a transaction according to user data associated with the selected account
288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

FIG. 2C

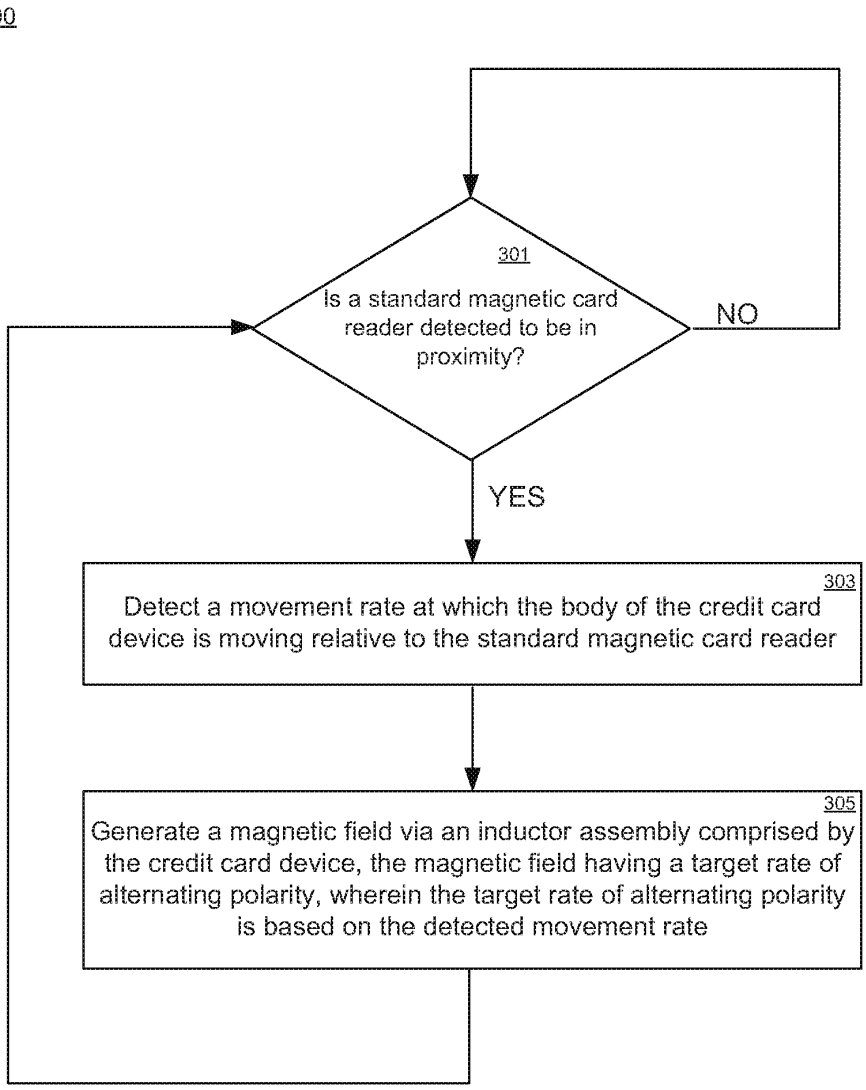

300
301
Is a standard magnetic card reader detected to be in proximity?
NO
YES
303
Detect a movement rate at which the body of the credit card device is moving relative to the standard magnetic card reader
305
Generate a magnetic field via an inductor assembly comprised by the credit card device, the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

FIG. 3

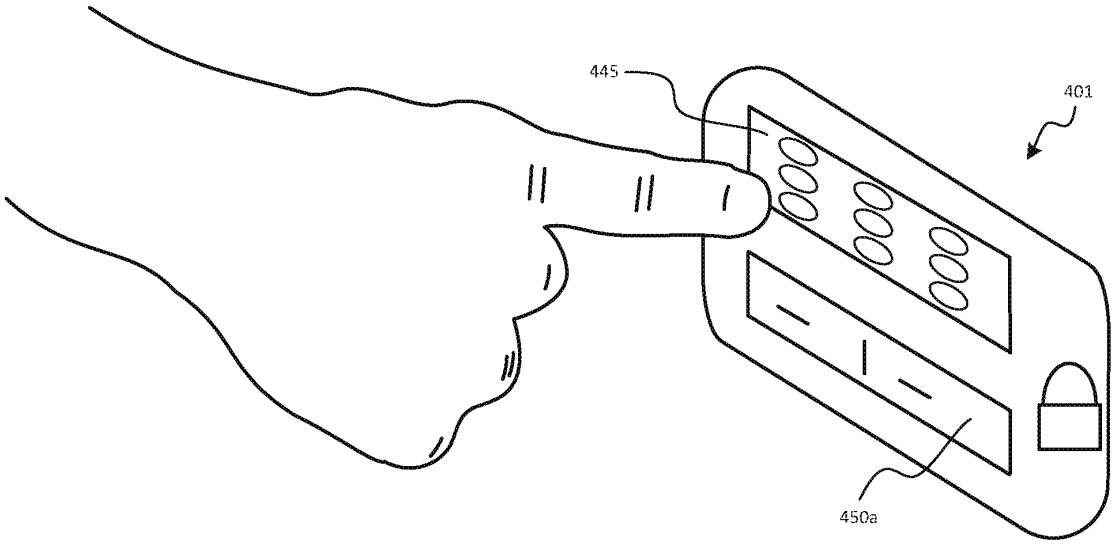


FIG. 4A

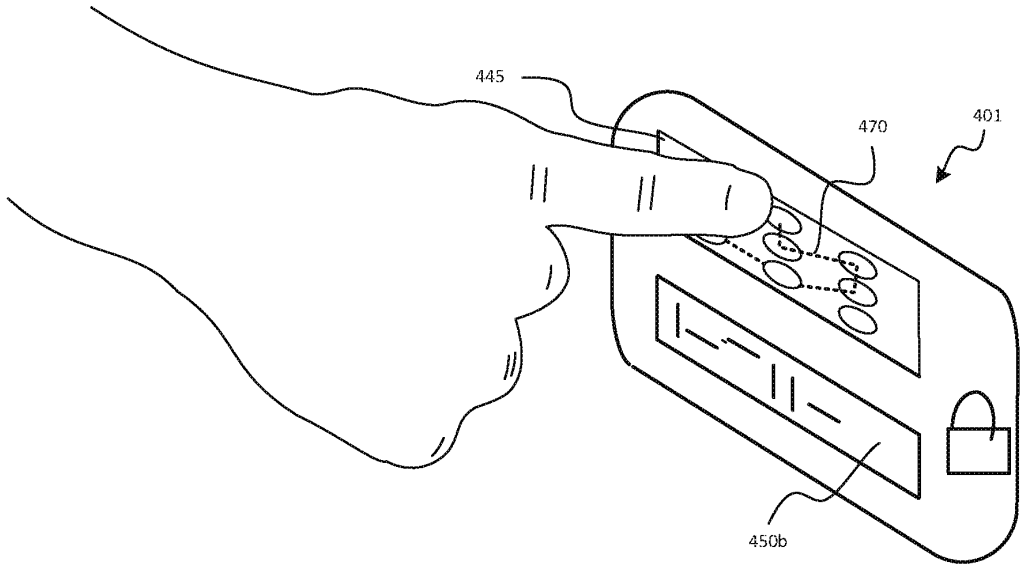


FIG. 4B

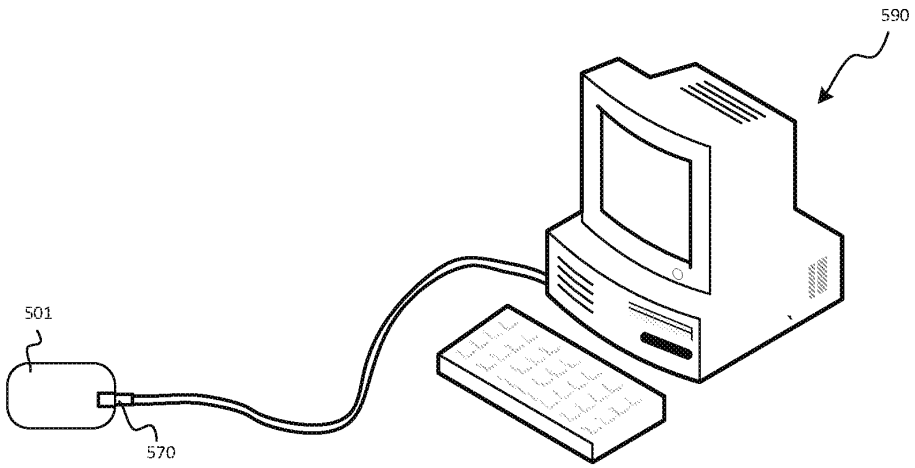


FIG. 5

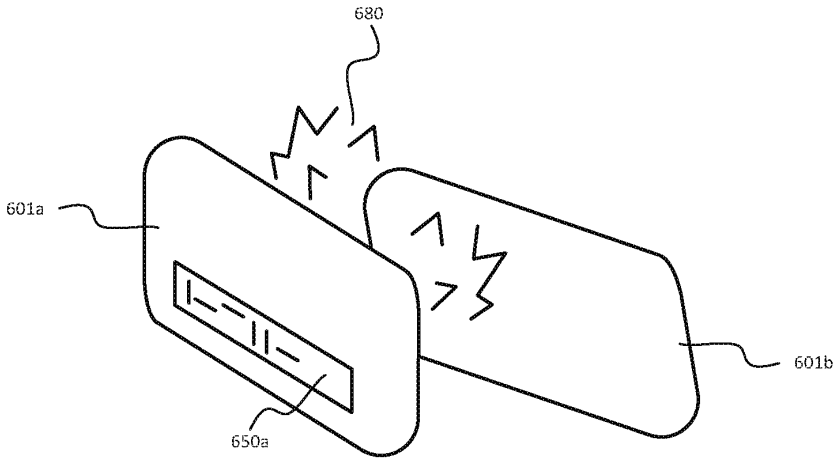


FIG. 6

700

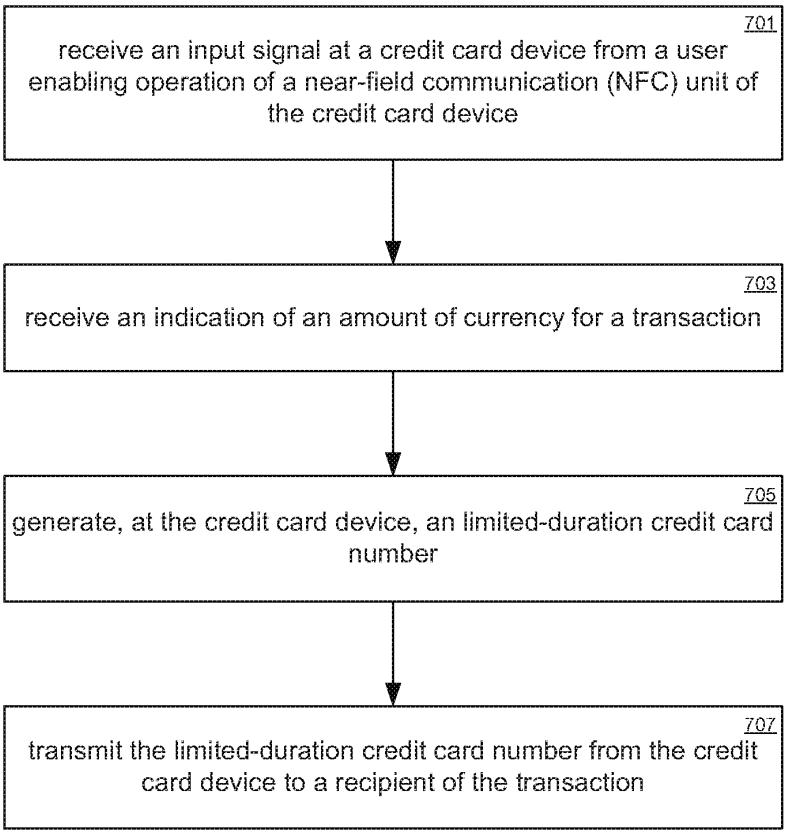

701
receive an input signal at a credit card device from a user enabling operation of a near-field communication (NFC) unit of the credit card device
703
receive an indication of an amount of currency for a transaction
705
generate, at the credit card device, an limited-duration credit card number
707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

FIG. 7

Electronic Acknowledgement Receipt	
EFS ID:	33072512
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC 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.USC1C1C
Receipt Date:	02-JUL-2018
Filing Date:	
Time Stamp:	18:42:03
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-0002USC1C1C_ADS_7-02-1018.pdf	1793494 c391769f29b949d8544559da7cdecadfe366a886	no	8

Warnings:

Information:					
2		WYAT-0002USC1C1C_Application_7-02-2018.pdf	160014 b10c4dd2c8870f3855d37c73a57376670178cb01	yes	36

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Specification	1	30
	Claims	31	35
	Abstract	36	36

Warnings:					
Information:					
3	Drawings-only black and white line drawings	WYAT-0002USC1C1C_FinalFigures_7-02-2018.pdf	47772 7fefa8f15adbdd8f91ada83407a7d4e1a37df379	no	7
Warnings:					
Information:					
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/025,829

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 230 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		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 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	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 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	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
16/025,829	07/02/2018	2876	0.00	WYAT-0002.USC1C1C	20	2

CONFIRMATION NO. 3866

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

FILING RECEIPT



Date Mailed: 07/20/2018

Receipt is acknowledged of this non-provisional 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 APPLICANT, 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 Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections 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**

Inventor(s)

David WYATT, San Jose, CA;

Applicant(s)

Virtual Electric Inc., San Jose, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 15/250,698 08/29/2016 PAT 10013693
which is a CON of 14/680,946 04/07/2015 PAT 9430765
which is a CON 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: 07/18/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/025,829**

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

Non-Publication Request: No

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

MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE

Preliminary Class

235

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

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

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

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

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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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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 U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C

CONFIRMATION NO. 3866

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

FORMALITIES LETTER

OC000000101091001

Date Mailed: 07/20/2018

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.)

- $ **75** basic filing fee.
- $ **80** surcharge.
- $ **330** search fee.
- $ **380** examination fee.
- $(**0**) previous unapplied payment amount.
- $ **865** TOTAL FEE BALANCE DUE.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's

oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  David WYATT

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**.

/nhassani/

IPR2025-01150
Apple EX1066 Page 60

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16025829
Filing Date	2018-07-02
First Named Inventor	David WYATT
Art Unit	2876
Examiner Name	
Attorney Docket Number	WYAT-0002.USC1C1C

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	6631849		2003-10-14	Blossom	
	2	6641050		2003-11-04	Kelley , et al.	
	3	7128274		2006-10-31	Kelley , et al.	
	4	7202825		2007-04-10	Leizerovich , et al.	
	5	7360688		2008-04-22	Harris	
	6	7784692		2010-08-31	Arrington, III	
	7	7793851		2010-09-14	Mullen	
	8	7841539		2010-11-30	Hewton	

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	Application Number	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

	9	8702007		2014-04-22	Yisraelian , et al.	
	10	9022286		2015-05-05	Wyatt	
	11	9430765		2016-08-30	Wyatt	
	12	9760884		2017-09-12	Wyatt	
	13	10013693		2018-07-03	Wyatt	
	14	9224083		2015-12-29	Wyatt	

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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	20060032908		2006-02-16	Sines; Randy D.	
	2	20080223937		2008-09-18	Preta; Joseph Frank ; et al.	
	3	20110140841		2011-06-16	Bona; John Kenneth ; et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

	4	20130048712		2013-02-28	Guillaud; Philippe ; et al.		
	5	20130124292		2013-05-16	Juthani; Nirmal		
	6	20140052632		2014-02-20	Galloway; Ivason J.		

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

[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	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

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)	2018-08-01
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:	33349940
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Anthony C. Murabito/Julie Giaramita
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	WYAT-0002.USC1C1C
Receipt Date:	01-AUG-2018
Filing Date:	02-JUL-2018
Time Stamp:	19:11:10
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-0002USC1C1C_IDS.pdf	613043 83ab7e982297474cf708bbc8676625eb6c884fcb	no	6

Warnings:

Information:	
Total Files Size (in bytes):	613043

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.

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

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

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	8577813		2013-11-05	Weiss	
	2	8856539		2014-10-07	Weiss	
	3	9100826		2015-08-04	Weiss	
	4	9530137		2016-12-27	Weiss	

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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
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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]

EFS Web 2.1.17

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	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

	1							

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
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	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

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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)	2018-08-02
Name/Print	Anthony C. Murabito	Registration Number	35295

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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 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.

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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:	33353627
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Anthony C. Murabito/Julie Giaramita
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	WYAT-0002.USC1C1C
Receipt Date:	02-AUG-2018
Filing Date:	02-JUL-2018
Time Stamp:	11:33:49
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-0002USC1C1C_IDS_pt2_8-2-18.pdf	612290 6e82c7575b77a1a2a5dc4e884514badc29d247c8	no	4
Warnings:					

Information:	
Total Files Size (in bytes):	612290

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.

Electronic Patent Application Fee Transmittal

Application Number:	16025829
Filing Date:	02-Jul-2018
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE
First Named Inventor/Applicant Name:	David WYATT
Filer:	Anthony C. Murabito/Mina Oliveri
Attorney Docket Number:	WYAT-0002.USC1C1C

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	80	80
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	700	700
Miscellaneous:				
		Total in USD ($)		**1565**

Electronic Acknowledgement Receipt	
EFS ID:	34653800
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC 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.USC1C1C
Receipt Date:	20-DEC-2018
Filing Date:	02-JUL-2018
Time Stamp:	13:34:42
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	$1565
RAM confirmation Number	122018INTEFSW13354800
Deposit Account	504160
Authorized User	Mina Oliveri
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.17 (Patent application and reexamination processing fees) 37 CFR 1.19 (Document supply fees)	

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (SB06)	fee-info.pdf	39260 fe6c3832091693fbde80e97ba130c495ca76b388	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	39260		

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

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

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16025829
Filing Date	2018-07-02
First Named Inventor	David WYATT
Art Unit	2876
Examiner Name	TBD
Attorney Docket Number	WYAT-0002.USC1C1C

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	8639629		2014-01-28	Hoffman	
	2	8768838		2014-07-01	Hoffman	
	3	9536238		2017-01-03	Garrett , et al.	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20180240106		2018-08-23	Garrett; Peter ; et al.	
	2	20140279555		2014-09-18	Guillaud; Philippe	
	3	20100260388		2010-10-14	Garrett; Peter ; et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	TBD
	Attorney Docket Number	WYAT-0002.USC1C1C

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[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	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	TBD
	Attorney Docket Number	WYAT-0002.USC1C1C

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)	2018-12-28
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:	34715565
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Anthony C. Murabito/Julie Giaramita
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	WYAT-0002.USC1C1C
Receipt Date:	28-DEC-2018
Filing Date:	02-JUL-2018
Time Stamp:	14:13:52
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-0002-USC1C1C_IDS_12-28-18.pdf	612453 a50ec0030b068ff48453cdb51657bcd74587bb73	no	4

Warnings:

Information:	
Total Files Size (in bytes):	612453

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C

CONFIRMATION NO. 3866

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

INFORMAL NOTICE

OC000000106744983

Date Mailed: 03/20/2019

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  David WYATT

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**.

/rmohamed/

IPR2025-01150
Apple EX1066 Page 85

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	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/025,829	07/02/2018	2876	865	WYAT-0002.USC1C1C	20	2

CONFIRMATION NO. 3866

UPDATED FILING RECEIPT

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



Date Mailed: 03/20/2019

Receipt is acknowledged of this non-provisional 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 APPLICANT, 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 Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections 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**

Inventor(s)

David WYATT, San Jose, CA;

Applicant(s)

Virtual Electric Inc., San Jose, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 15/250,698 08/29/2016 PAT 10013693
which is a CON of 14/680,946 04/07/2015 PAT 9430765
which is a CON 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: 07/18/2018

IPR2025-01150
Apple EX1066 Page 86

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/025,829**

Projected Publication Date: 06/27/2019

Non-Publication Request: No

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

MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC 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).

IPR2025-01150
Apple EX1066 Page 87

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).

SelectUSA

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 U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/025,829

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE($)	FEE($)		RATE($)	FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 230 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		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 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	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	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	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.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C	3866

136197 7590 04/01/2019

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

EXAMINER	
LEE, SEUNG H	

ART UNIT	PAPER NUMBER
2887	

MAIL DATE	DELIVERY MODE
04/01/2019	PAPER

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

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

Office Action Summary	**Application No.** 16/025,829	**Applicant(s)** WYATT, David	
	Examiner SEUNG H LEE	**Art Unit** 2887	**AIA (FITF) Status** No

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

Period for Reply

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

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

Status

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

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

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

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

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

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

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

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

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

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

Application Papers

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

11)☑ The drawing(s) filed on 7/02/2018 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date 8/01/2018, 8/02/2018, 12/28/2018.

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

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See

MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

3. Claims 1-20 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 10013693. Although the claims at issue are not identical, they are not patentably distinct from each other because the instant application claims an apparatus comprising a thin card shaped sized body, a memory configured to store a plurality of identification data, a processor coupled to the memory, wherein the processor is configured to generate a card information based on the plurality of identification data, wherein the generated card information is configured to be used in place of card issuer information, a wireless interface configured to wirelessly communicate the card information, wherein the processor is configured to

transmit the card information via the wireless interface, and a real-time clock configured to produce a timestamp..

Claims 1-20 of U.S. Patent No. 10013693 an apparatus comprising a thin card shaped sized body, a memory configured to store a plurality of identification data, a processor coupled to the memory, wherein the processor is configured to generate a card information based on the plurality of identification data, wherein the generated card information is configured to be used in place of card issuer information, a wireless interface configured to wirelessly communicate the card information, wherein the processor is configured to transmit the card information via the wireless interface, a display configured to display the card information, and a real-time clock configured to produce a timestamp.

Claim 1 of the instant application is corresponded to claim 1 of U.S. Patent No. 10013693.

Claim 2 of the instant application is corresponded to claim 2 of U.S. Patent No. 10013693.

Claim 3 of the instant application is corresponded to claim 3 of U.S. Patent No. 10013693.

Claim 4 of the instant application is corresponded to claim 4 of U.S. Patent No. 10013693.

Claim 5 of the instant application is corresponded to claim 5 of U.S. Patent No. 10013693.

Claim 6 of the instant application is corresponded to claim 6 of U.S. Patent No. 10013693.

Claim 7 of the instant application is corresponded to claim 7 of U.S. Patent No. 10013693.

Claim 8 of the instant application is corresponded to claim 8 of U.S. Patent No. 10013693.

Claim 9 of the instant application is corresponded to claim 9 of U.S. Patent No. 10013693.

Claim 10 of the instant application is corresponded to claim 10 of U.S. Patent No. 10013693.

Claim 11 of the instant application is corresponded to claim 11 of U.S. Patent No. 10013693.

Claim 12 of the instant application is corresponded to claim 12 of U.S. Patent No. 10013693.

Claim 13 of the instant application is corresponded to claim 13 of U.S. Patent No. 10013693.

Claim 14 of the instant application is corresponded to claim 14 of U.S. Patent No. 10013693.

Claim 15 of the instant application is corresponded to claim 15 of U.S. Patent No. 10013693.

Claim 16 of the instant application is corresponded to claim 16 of U.S. Patent No. 10013693.

Claim 17 of the instant application is corresponded to claim 17 of U.S. Patent No. 10013693.

Claim 18 of the instant application is corresponded to claim 18 of U.S. Patent No. 10013693.

Claim 19 of the instant application is corresponded to claim 19 of U.S. Patent No. 10013693.

Claim 20 of the instant application is corresponded to claim 20 of U.S. Patent No. 10013693.

Conclusion

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

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

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

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SEUNG H LEE/
Primary Examiner, Art Unit 2887

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/025,829	WYATT, David
	Examiner	Art Unit
	SEUNG H LEE	2887

CPC - Searched*		
Symbol	Date	Examiner
G06K17/0022 OR G06K19/0719 OR G06K19/07703 OR G06K19/12 OR G06K19/14 OR G06K7/0008	03/29/2019	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	03/29/2019	sl
14/217261, 14/680946, 15/250698 (parent cases)	03/29/2019	sl

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

IPR2025-01150
Apple EX1066 Page 98

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/025,829	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	03/29/2019								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
	13	✓								
	14	✓								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								

IPR2025-01150
Apple EX1066 Page 99

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

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16025829
Filing Date	2018-07-02
First Named Inventor	David WYATT
Art Unit	2876
Examiner Name	
Attorney Docket Number	WYAT-0002.USC1C1C

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	8577813		2013-11-05	Weiss	
	2	8856539		2014-10-07	Weiss	
	3	9100826		2015-08-04	Weiss	
	4	9530137		2016-12-27	Weiss	

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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					

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	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]

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.L./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

	1							

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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EXAMINER SIGNATURE

Examiner Signature	/SEUNG H LEE/	Date Considered	03/29/2019

*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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.L./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Application Number	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

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)	2018-08-02
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.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.L./

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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.L./

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

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16025829
Filing Date	2018-07-02
First Named Inventor	David WYATT
Art Unit	2876
Examiner Name	
Attorney Docket Number	WYAT-0002.USC1C1C

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	6631849		2003-10-14	Blossom	
	2	6641050		2003-11-04	Kelley , et al.	
	3	7128274		2006-10-31	Kelley , et al.	
	4	7202825		2007-04-10	Leizerovich , et al.	
	5	7360688		2008-04-22	Harris	
	6	7784692		2010-08-31	Arrington, III	
	7	7793851		2010-09-14	Mullen	
	8	7841539		2010-11-30	Hewton	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.L./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

	9	8702007		2014-04-22	Yisraelian , et al.	
	10	9022286		2015-05-05	Wyatt	
	11	9430765		2016-08-30	Wyatt	
	12	9760884		2017-09-12	Wyatt	
	13	10013693		2018-07-03	Wyatt	
	14	9224083		2015-12-29	Wyatt	

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	20060032908		2006-02-16	Sines; Randy D.	
	2	20080223937		2008-09-18	Preta; Joseph Frank ; et al.	
	3	20110140841		2011-06-16	Bona; John Kenneth ; et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.L./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

	4	20130048712		2013-02-28	Guillaud; Philippe ; et al.	
	5	20130124292		2013-05-16	Juthani; Nirmal	
	6	20140052632		2014-02-20	Galloway; Ivason J.	

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Examiner Signature	/SEUNG H LEE/	Date Considered	03/29/2019

*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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.L./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

[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.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Application Number	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	
	Attorney Docket Number	WYAT-0002.USC1C1C

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)	2018-08-01
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.**

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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.

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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.

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	42	"250698"	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:17
L9	11166	((G06K17/0022 OR G06K19/0719 OR G06K19/07703 OR G06K19/12 OR G06K19/14 OR G06K7/0008).CPC.)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2019/03/29 08:44
L10	9323	235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:44
L11	2210	235/449.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:44
L12	1267	235/439.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:44
L13	1771	235/493.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:44
L14	23398	L10 L11 L12 L13 L9	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:44
L15	48	L14 and (account same timestamp)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:44
L16	4	14 and (card same (wireless$4 contactless) same generat$4 same issue$4 same (stamp timestamp time-stamp))	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:46
L17	69	(card same (wireless$4 contactless) same generat$4 same issue$4 same (stamp timestamp time-stamp))	US-PGPUB; USPAT; EPO;	OR	ON	2019/03/29 08:47

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			JPO			
S1	40	"217261"	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:31
S2	9031	235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:53
S3	2123	235/449.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:53
S4	1108	235/439.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:54
S5	1725	235/493.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:54
S6	12807	S2 S3 S4 S5	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:54
S8	900	S6 and (generat$4 same (magnetic near20 field))	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:55
S9	267	S6 and (generat$4 same (magnetic near20 field) same card same reader)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:56
S10	25	S6 and (generat$4 same (magnetic near20 field) same card same reader same inductor)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:57
S11	7973	235/492.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 15:39
S12	124	S11 and (card same display same tempora$6)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 15:39
S13	0	S11 and (card same display same tempora$6 same inductor)	US-PGPUB; USPAT; EPO;	OR	OFF	2014/12/13 15:40

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			JPO			
S14	6	("7841539").URPN.	USPAT	OR	OFF	2014/12/13 16:03
S15	226906	((credit ic smart) adj5 card)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 16:14
S16	3536	S15 same nfc	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 16:15
S17	50	S16 same (generat$4 with number)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 16:15
S18	52	("7128274").URPN.	USPAT	OR	OFF	2014/12/13 16:20
S19	28	("20030011868" | "20030052168" | "20030085286" | "20050231490" | "20060242698" | "20060282330" | "20060287964" | "20070235539" | "20070241183" | "20080011833" | "20080149734" | "20080223937" | "20090255996" | "4667087" | "5478994" | "5485520" | "5585787" | "5590038" | "5838059" | "5945652" | "6202927" | "6247129" | "6595342" | "6641050" | "6769607" | "6863219" | "7128274" | "7530495").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2014/12/13 16:28
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S22	21	S21 and (random near60 number)	US-PGPUB; USPAT; USOCR	OR	OFF	2014/12/13 16:33
S23	226906	((credit ic smart) adj5 card)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 20:13
S24	848	S23 same display same charg$4 same amount	US-PGPUB; USPAT; USOCR	OR	OFF	2014/12/13 20:13
S25	99	S24 same (antenna wireless$4 contactless$4)	US-PGPUB; USPAT; USOCR	OR	OFF	2014/12/13 20:14
S26	45	S25 same (button keypad key input$4 activat$4)	US-PGPUB; USPAT; USOCR	OR	OFF	2014/12/13 20:14

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S28	241	S23 same (motion adj10 sensor)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 20:39
S29	9	S28 same (antenna inductor)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 21:27
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S31	2129	235/449.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/12/13 21:37
S32	1118	235/439.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/12/13 21:37
S33	1725	235/493.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/12/13 21:37
S34	12831	S30 S31 S32 S33	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/12/13 21:37
S35	58	S34 and S24	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/12/13 22:13
S36	7973	235/492.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/12/13 23:10
S37	15	S36 and S24	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/12/13 23:11
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			USPAT; USOCR; EPO; JPO			
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S41	5	"9022286"	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 09:48
S42	9296	235/380.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:13
S44	8416	235/492.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:13
S45	1842	235/493.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:13
S46	17411	S42 S44 S45	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:13
S48	448	S46 and ((transfer$4 trasnaction) same (first adj20 card) same (second adj20 card))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:14
S49	26	S48 and (nfc (near$1field near20 communciaiton))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:15
S50	9514	card same (nfc (near$1field near20 communciaiton))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:21
S51	4039	((transfer$4 trasnaction) same (first adj20 card) same (second adj20 card))	US-PGPUB; USPAT;	OR	ON	2015/09/24 10:21

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			USOCR; EPO; JPO			
S52	21	S51 same (nfc (near$1field near20 communciaiton))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:21
S53	0	S51 same proximity same touch	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:24
S54	55	S51 same touch	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:25
S55	4	S54 same exchang$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:25
S56	1109	((transfer$4 trasnaction) same (first adj20 card) same (second adj20 card)).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:47
S57	37	S56 and (touch same sensor)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:48
S58	44	"217261"	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/16 17:04
S59	49	"217261"	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2016/02/17 10:07
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S62	25	("7793851").URPN.	USPAT	OR	ON	2016/02/17 11:42

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S63	15	("3641499" | "4004089" | "4016404" | "4507550" | "5430279" | "5450491" | "5478994" | "5544111" | "5884292" | "5910989" | "5917229" | "6045050" | "6049055" | "6064428" | "6299069").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/02/25 15:43
S64	8916	seung near lee	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/25 15:49
S65	210	S64 and 235/492.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/25 15:49
S66	8916	seung near lee	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/29 07:53
S67	210	S66 and 235/492.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/29 07:53
S68	9	S67 and ((multiple plurality) near20 account)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/29 07:53
S69	22	("2590091" | "2908278" | "3453598" | "3771128" | "3874586" | "3953712" | "4158433" | "4239151" | "4529870" | "4614861" | "4791283" | "4960983" | "5359183" | "5410138" | "5424398" | "5434400" | "5834747" | "6308890" | "RE31211").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/02/29 07:53
S70	3	("4766293" | "5140517" | "5530232").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/02/29 07:54
S71	507	("5530232").URPN.	USPAT	OR	ON	2016/02/29 07:54
S72	828	((smart ic) adj5 card) same((multiple plurality) near20 account)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/29 08:05
S73	109	S72 same display$4	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/29 08:05
S74	69	S73 same (select$4 menu)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/29 08:05
S75	221	("4736094").URPN.	USPAT	OR	ON	2016/02/29 08:09

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S76	565	("5578808").URPN.	USPAT	OR	ON	2016/02/29 08:51
S77	1	"9022286".pn.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/29 08:54
S78	8	("20060032908" | "20080223937" | "20130048712" | "6631849" | "6641050" | "7793851" | "7841539" | "8702007").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/02/29 08:54
S79	2	("8702007").URPN.	USPAT	OR	ON	2016/02/29 08:59
S80	20	("20030046554" | "20040050930" | "20050039027" | "20070220272" | "20090153297" | "20100294835" | "20140026213" | "20140084059" | "20140145513" | "20140175178" | "20140189813" | "20140258109" | "20140327922" | "6356868" | "8276816" | "8702007" | "8730009" | "8756680" | "8775814" | "8775819").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/02/29 08:59
S81	10	("7841539").URPN.	USPAT	OR	ON	2016/03/01 21:44
S82	3	("20060261174" | "20070119952" | "20110140841").PN.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/03/01 21:51
S83	60	("2006/0261174").URPN.	USPAT	OR	ON	2016/03/01 21:53
S84	251867	((credit ic smart) adj5 card)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/01 21:56
S85	41	S84 same ((multiple plurlaity) near5 account) same display$4 same select$4	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/01 21:56
S86	251867	((credit ic smart) adj5 card)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:06
S87	41	S86 same ((multiple plurlaity) near5 account) same display$4 same select$4	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:06
S88	4	S87 same wireless$4	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:07
S89	29573	S86 same wireless$4	US-PGPUB; USPAT;	OR	OFF	2016/03/02 10:08

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			EPO; JPO			
S90	99	S89 same ((multiple plurlaity) near5 account)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:08
S91	632	S86 same (dual near20 interface)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:10
S92	0	S91 and 235/390.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:10
S93	48	S91 and 235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:10
S94	0	S91 and 235/392.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:10
S95	181	S91 and 235/492.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:10
S96	0	S95 and((multiple plurlaity) near5 account)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:11
S97	16	S95 and (display$4 same select$4)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:11
S98	143	S86 same generat$4 same duration same number	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:20
S99	5	S98 and 235/492.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:21
S100	6841	S86 same limit$4 same transaction same (time number)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:26
S101	175	S100 and 235/492.ccls.	US-PGPUB; USPAT;	OR	OFF	2016/03/02 10:26

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			EPO; JPO			
S102	101	S101 and 235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:27
S103	31542	S87 sme (static same dynamic$6 same portion)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:40
S104	0	S87 same (static same dynamic$6 same portion)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:40
S105	153	S86 same (static same dynamic$6 same portion)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 11:05
S106	0	S105 and crytographically	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 12:02
S107	301	S86 same accelerometer	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 12:02
S108	0	S105 and crytographic$4 same timestamp	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 12:06
S109	8275	S86 same sensor	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 12:06
S110	12	S109 same detect$4 same idle	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 12:07
S111	9266	((G06K17/0022 OR G06K19/0719 OR G06K19/07703 OR G06K19/12 OR G06K19/14 OR G06K7/0008).CPC.)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2016/06/14 13:14
S112	9317	235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/06/14 13:14
S113	2204	235/449.ccls.	US-PGPUB;	OR	ON	2016/06/14 13:14

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			USPAT; EPO; JPO			
S114	1264	235/439.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/06/14 13:14
S115	1769	235/493.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/06/14 13:14
S116	21502	S112 S113 S114 S115 S111	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/06/14 13:14
S117	0	S116 and crytographic$4 same timestamp	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/06/14 13:14
S118	231	S116 and accelerometer	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/06/14 13:15
S119	184	S116 and (static same dynamic$6 same portion)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/06/14 13:15
S120	3	S116 and crytographically	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/06/14 13:16
S121	360	S116 and (dynamic$6 same wireless)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/06/14 13:16
S122	94	S116 and (dynamic$6 same wireless same security)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/06/14 13:16
S123	7	"9022286"	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2016/06/14 13:31
S124	1	"9430946"	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2017/05/01 13:49
S125	2	"9430746"	US-	OR	OFF	2017/05/01

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			PGPUB; USPAT; EPO; JPO			13:49
S126	1	"9430765"	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2017/05/01 13:49
S127	7	"51523147".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 15:22
S128	36	"250698"	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 13:56
S129	1	"1000002425033".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2017/07/09 13:56
S130	3	"9430765".pn. "9022286".pn. "9224083".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2017/07/09 13:58
S131	10658	((G06K17/0022 OR G06K19/0719 OR G06K19/07703 OR G06K19/12 OR G06K19/14 OR G06K7/0008).CPC.)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2017/07/09 14:15
S132	9321	235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 14:15
S133	2210	235/449.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 14:15
S134	1268	235/439.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 14:15
S135	1771	235/493.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 14:15
S136	22889	S132 S133 S134 S135 S131	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 14:15
S137	42	S136 and (account same timestamp)	US-	OR	ON	2017/07/09

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			PGPUB; USPAT; EPO; JPO			14:16

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

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(Not for submission under 37 CFR 1.99)

Application Number	16025829
Filing Date	2018-07-02
First Named Inventor	David WYATT
Art Unit	2876
Examiner Name	TBD
Attorney Docket Number	WYAT-0002.USC1C1C

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	2	8768838		2014-07-01	Hoffman	
	3	9536238		2017-01-03	Garrett , et al.	

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	2	20140279555		2014-09-18	Guillaud; Philippe	
	3	20100260388		2010-10-14	Garrett; Peter ; et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Application Number	16025829
	Filing Date	2018-07-02
	First Named Inventor	David WYATT
	Art Unit	2876
	Examiner Name	TBD
	Attorney Docket Number	WYAT-0002.USC1C1C

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Examiner Signature	/SEUNG H LEE/	Date Considered	03/29/2019

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16025829
Filing Date	2018-07-02
First Named Inventor	David WYATT
Art Unit	2876
Examiner Name	TBD
Attorney Docket Number	WYAT-0002.USC1C1C

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.

☒ 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)	2018-12-28
Name/Print	Anthony C. Murabito	Registration Number	35295

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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.

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Document Description: Power of Attorney

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Application Number	16/025,829
Filing Date	7/02/2018
First Named Inventor	David WYATT
Title	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE
Art Unit	2887
Examiner Name	LEE, SEUNG H
Attorney Docket Number	WYAT-0002.USC1C1C

SIGNATURE of Applicant or Patent Practitioner

Signature	/Anthony C. Murabito/	Date (Optional)	4/19/2019
Name	Anthony C. Murabito	Registration Number	35295
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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☐ *Total of _____ forms are submitted.

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Application Number	Filing Date

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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)

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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.W.	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:	35780951
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Anthony C. Murabito/Steve Johnson
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	WYAT-0002.USC1C1C
Receipt Date:	19-APR-2019
Filing Date:	02-JUL-2018
Time Stamp:	16:50:26
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-0002USC1C1C_POA_4-19-2019.pdf	2374834 c0ab58e241f36c077badfedeb7b015497c94fdd5	no	2

Warnings:

Information:	
Total Files Size (in bytes):	2374834

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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.

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United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C

CONFIRMATION NO. 3866

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

POA ACCEPTANCE LETTER

OC000000107615017

Date Mailed: 04/24/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/19/2019.

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

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

/lqchau/

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
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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:

- ☐ The attached application, or
- ☒ United States application or PCT international application number 15/250,698 filed on 08-29-2016.

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): 3/12/17

Signature: D. 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.**

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Electronic Acknowledgement Receipt	
EFS ID:	35833257
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC 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.USC1C1C
Receipt Date:	25-APR-2019
Filing Date:	02-JUL-2018
Time Stamp:	15:33:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	WYAT-P0002-USC1C1_DECLARATION_03-14-2017.pdf	2108956 fd3b5f6f8fd5e2b19001c3dc8a89b1135b9cd3f7	no	1
Warnings:					

Information:	
Total Files Size (in bytes):	2108956

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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.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C

CONFIRMATION NO. 3866

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

PUBLICATION NOTICE

OC000000109232884

Title:MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE

Publication No.US-2019-0197520-A1
Publication Date:06/27/2019

NOTICE OF PUBLICATION OF APPLICATION

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

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

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

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

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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/025,829	Filing Date 07/02/2018	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

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

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	07/01/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

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

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

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

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: WYATT

Serial:	16/025,829	Group Art Unit:	2887
Filed:	02-JUL-2018	Examiner:	Lee, Seung H.
For:	Multi-Function Electronic Device (as amended)		

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

AMENDMENT and RESPONSE

Dear Examiner Lee:

In response to the Office Action mailed 4/1/2019 in the above captioned Patent Application, Applicants respectfully request the Examiner to enter the indicated amendments and to consider the following remarks.

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In the Claims:

Claims 1-20 (canceled)

21. (new) A payment device comprising:

a thin shaped body having no fixed payment numbers disposed thereon;

a memory;

a cryptographic processor coupled to the memory; and

a reader interface, including at least one interface selected from a set comprising: a magnetic-stripe, a smart card reader interface, a mag-stripe inductor interface, an RF interface, an NFC interface, and a wireless interface, and

wherein payment information for a transaction is operable to be conveyed via the reader interface and comprises limited-use payment information, and wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities.

22. (new) The device of Claim 21, wherein the body comprises fixed payment information disposed thereon and wherein the fixed payment information includes only: a card-holder name; a payment issuing logo; and a card payment network logo, and wherein further, the body is free of any account numbers, expiration dates, card security codes, or other fixed payment numbers, disposed thereon.

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23. (new) The device of Claim 21, wherein the limited-use payment information is conveyed via the magnetic-stripe and is unique to the payment device and to the magnetic stripe, and

wherein the limited-use payment information is limited to use by the payment device and is operable for conveying payment information to a magnetic-stripe payment card reader, and

wherein said limited-use payment information has a limited period of valid use, and

wherein said limited-use payment information is not valid when used other than through a magnetic stripe payment card reader.

24. (new) The device of Claim 21, wherein said limited-use payment information is provided by a card issuing authority for use by the payment device and wherein the card processing authority rejects as invalid, any use of said limited-use payment information obtained via any means other than: a payment card reader reading said limited-use payment information from the reader interface.

25. (new) The device of Claim 21, wherein a request for payment includes at least one of a set comprising: payment information, transaction information, merchant information, and payment card reader information, and

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wherein a card-present transaction is one including the limited-use payment information, and valid payment card reader information, and wherein a card-not-present transaction is one including at least a portion of said limited-use card payment information, and not including valid payment card reader information; and,

wherein a processing authority is operable to approve as valid, a card-present payment transaction; and,

wherein said card processing authority is operable to reject, as not valid, a use of the limited-use card payment information in a card-not-present payment transaction; and

wherein a card issuing authority receiving said request for payment is operable to decline a transaction not involving a valid card-present use of a limited-use card payment information portion used in place of card issuer supplied payment information.

26. (new) The device of Claim 21, wherein a card processing authority is operable to reject as invalid, a use of the limited-use payment information provided via the reader interface, in online payment transactions.

27. (new) The device of Claim 21, wherein a card issuer providing the limited-use payment information, for use by the payment device, limits valid approval of said limited-use payment information to performing a card-present payment transaction by the card device, and wherein said card issuer declines as

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invalid a use of said limited-use payment information in transactions other than wherein the payment device is present, and

wherein a card issuer limits said card payment information to use for a finite amount of time, and declines as invalid use when said amount of time has expired, and

wherein a card issuer limits use to payment for transactions with the user approving, and declines as invalid use when the card user is denying an approval, and

wherein a card issuer limits to use in place of card issuer information for payments by the payment device.

28. (new) The device of Claim 21, wherein the reader interface is operable to wirelessly receive cardholder transaction information and to identify a valid user through at least one user-validation action, selected from a set of comprising:

a device touch ID sensor identifying a touch of the valid user;

a device touch sensor-array receiving a user entered valid passcode;

a device key-pad receiving a use entered a valid passcode;

a device user interface receiving a user entered a valid PIN or Key-Code;

a device user interface receiving a user entered a valid password;

a device user interface reading a user swipe or gesture;

a user tapping a predetermined sequence on the device;

a user motioning the device in accordance with a sequence;

a skin-contact sensing identifying a valid user;

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a device sensor array reading a touch of an identified user;

a device biometric recognition of a valid user; and

a biometric sensing of the device remaining continuously in the possession of a valid user,

wherein a display of the device is operable to display transaction information through a user interface, and wherein transaction information includes at least one of a set comprising: a transaction time; a transaction amount; transaction merchant information; a transaction location; a transaction facility; card information; a partial card number; graphical card images; and

wherein upon validating the user, the user-interface is operable to receive a valid user input, of at least one user action selected from a set comprising: a payment approval authorization; a payment denial; and an adjustment of a transaction payment.

29. (new) The device of Claim 21, wherein a dynamically-generated one-time limited-use payment information portion is generated by said processor when coupled to a reader interface accessible to said processor, and

wherein the payment information conveyed to a payment card reader, at the time of transaction, includes at least one of a portion of: a static limited-use portion; and a dynamically-generated limited-use portion, and

wherein said static limited-use payment information is provided by a card issuing authority for use in place of a card issuer payment information.

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30. (new) The device of Claim 21, wherein the processor cryptographically dynamically generates a one-time limited-use number based on combination of a card device transaction sequence count, and at least one of a set of information including:

a user information;

a user card account number;

a device account number;

device secret keys;

card issuer keys;

a time;

a merchant;

a location;

an online address;

a payment information;

a card reader information;

an account information;

an amount;

a transaction information; and

a cryptographic combination of at least two of the above set of information, and wherein the processor increments the card device transaction sequence count on each transaction.

31. (new) An online payment system, the system comprising:

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a thin payment device comprising no fixed payment numbers visible thereon; and

a personal computing device, wherein the personal computing device comprises:

a processor;

a memory;

a wireless interface;

a display operable to provide a visual user-interface operable for performing online transactions; and

a user-interface coupled to the processor, and

wherein the wireless interface is operable to wirelessly connect to the thin payment device to obtain card device payment account information, and

wherein the processor is operable to generate limited-use payment information based on the card device payment account information, and

wherein the personal computing device is operable to generate complete payment information, including the limited-use payment information, and to convey said complete payment information via at least one interface of a set comprising: said display; and the wireless interface, and

wherein the limited-use payment information is configured to be used in place of a card issuer payment information.

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32. (new) The system of Claim 31, wherein the thin payment device bears no fixed payment numbers, and bears only: the cardholders name; a brand logo; and the card payment network logo.

33. (new) The system of Claim 31 wherein the personal computing device is configured for presenting on the display a limited-use card security code number for use in payments in place of card issuer payment information, and

wherein the personal computing device is further configured to generate said limited-use card security code responsive to an input request from a valid user, via said user-interface, and

wherein said limited-use number is generated on the personal computing device from at least one information from a set comprising:

a payment device user information;

a payment device account number;

a payment device sequence counter;

a payment device identifier;

payment device secrets;

a payment device key;

computing device secrets;

computing device keys;

payment device issuer secrets;

payment device issuer keys;

a time;

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an expiration date;

an amount;

a merchant locality;

an online location;

a transaction information; and

a cryptographic combination of at least two of the above.

34. (new) The system as described in Claim 31 wherein the personal computing device is configured for presenting on the display, a limited-use card account number, and a limited-duration expiration date, for use in payments in place of a card issuer payment information, and

wherein said personal computing device is further configured to generate said limited-use card payment information responsive to an input request from a valid user, and

wherein the personal computing device is configured to identify a valid device-user through at least one user-validation input available to the personal computing device, of a set comprising:

a touch ID sensor operable to identify the touch a valid user;

a user entering of a valid passcode on a touch sensor-array;

a user entering of a valid passcode on a key-pad;

a user entering of a valid PIN or Key-Code on the user-interface;

a user entering of a valid password on the user-interface;

a valid user swiping or gesturing on a touch sensor-array;

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a valid sequence of a user tapping of the device detectable by device accelerometer;

a valid user sequence of user motioning of the device detectable by device motion sensor unit;

a skin-contact sensing identifying a valid user on a device contact sensor;

a touching of an identified user's skin on a device touch sensor array;

a device biometric recognition of a valid user via a device biometric sensing; and

a biometric sensing of the device remaining continuously in the proximity possession of a valid user via device skin-proximity sensor; and, wherein the personal computing device conveys the limited-use payment information through the user interface.

35. (new) An online payment system comprising:

a thin card-shaped payment card device that bears no fixed payment numbers on the card device; and

a computing device operable for completing an online payment transaction and comprising:

a display;

a user-interface;

a processor; and

a memory for storing a payment card information accessible to the processor,

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wherein card issuer provided payment card information is wirelessly downloaded into the computing device, and

wherein at least one of the devices is configured to dynamically generate a limited-use payment information, upon the authorization of a valid computing device user, and

wherein the payment information provided by the computing device is used in online transactions in place of a card issuers payment card information.

36. (new) The system of Claim 35 wherein the card device bears no fixed payment numbers, and bears only: the cardholders name; the brand logo; and the card payment network logo.

37. (new) The system of Claim 35 wherein the dynamically generated limited-use payment information is displayable on a display of the card device.

38. (new) The system of Claim 35 wherein the limited-use payment information includes a static limited-use card account number, a limited-duration card expiration date, and a limited-use card security code and,

wherein the dynamically generated limited-use payment information is wirelessly conveyed by the card device to complete an online transaction.

39. (new) The system of Claim 35 wherein the computing device is operable to generate the limited-use card security code number, for use in place of a

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card issuers card security code by generating said limited-use number via cryptographically combining information from at least one of a set comprising:

a 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;

a transaction information;

and a cryptographic combination of at least two of the above set, and wherein the computing device is operable to display the generated limited-use card security code on the display.

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40. (new) The system of Claim 35 wherein the computing device is further operable to obtain a user payment approval through at least one user-interface element of the card device, from a set comprising:

a display interface,

a touch-screen interface,

a touch ID button,

input buttons,

a touch key-pad,

a key-pad,

a key-board,

an optical sensor array,

a motion detection unit,

an accelerometer,

the swiping of a recognized user skin over a device sensor array,

a biometric sensor,

a wireless interface,

an NFC interface,

an RF interface,

a device biometric sensing the device is continuously remaining in contact with a valid user; and,

wherein the card device is operable to display at least one of a set comprising: the transaction information, the merchant information, the time, the location of the

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transaction, the payment bank logo, the card issuer icon, the payment card image, and the amount, on a display of the card device, and,

a user input providing for at least one user action from a set comprising: an approving of a transaction, a denying of a transaction, and an adjusting of a transaction, via the user-interface.

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Title

Please amend the Title of the Application as follows:

MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC PAYMENT DEVICE

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Substitute Specification

Please replace the Specification with the Substitute Specification attached hereto, in accordance with 37 C.F.R. § 1.125. Both marked up and clean versions are supplied. The substitute specification includes no new matter.

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REMARKS

Claims 21-40 are pending in the present application. Claims 1-20 are canceled without prejudice. Claims 21-40 are newly presented. No new matter is added. Applicants respectfully request reconsideration of the above-captioned application in view of the indicated amendments and the following remarks.

Amendments to the Specification

Paragraphs [0072-79] and Table 1 of the Substitute Specification find support at least in the exemplary embodiments disclosed in U.S. Provisional Application 61/794,891, incorporated by reference into the present application. No new matter is added.

Drawings

Figures 8A, 8B, 9, 10, 11, 12, 13A and 13B are newly presented. No new matter is added.

The following discussion refers to paragraph numbers of the originally-filed specification, prior to amendments submitted herewith.

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Figures 8A and 8B find support at least in the exemplary embodiments disclosed in paragraph [0005], e.g., "RF antenna built into the card," in paragraph [0009], e.g., "inductor assembly under processor control for generating a magnetic field," in paragraph [0052], e.g., "transactions performed wirelessly between a card and a device," Figure 2C and in paragraph [0015], e.g., "Figure 2C depicts an exemplary process of selecting an account from a plurality of stored accounts," in paragraph [0027], e.g., "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),"in paragraph [0029], e.g., "touch sensor array 245, which may comprise a touch screen panel, a keypad," in paragraph [0031], e.g., "where a plurality of accounts stored by the credit card device memory is displayed. The plurality of accounts 209 are stored by memory 207, and are displayed using display 250," in paragraph [0042], e.g., "the display 450 can be used to cue the user for a security question," "respond correctly using the input buttons," in paragraph [0044], e.g., "is able to be a full or partial number," "the number displayed on the credit card device is a static number, but the number transmitted during a transaction is a limited-duration credit card number as described above," "last four digits of the credit card number," in paragraph [0051], e.g., "total credit available… remaining credit available," and in paragraph [0060], e.g., "detect a contact of human skin."

Figures 8A and 8B further find support at least in the exemplary embodiments disclosed in Claim 7 of U.S. Provisional Application 61/794,891, incorporated into the present application by reference, e.g.:

> wherein said device incorporates a display allowing credit card number, time, passcodes, sequence codes, amounts and other credit card transaction information to be displayed for user, merchant, bank or credit card authority,

and in Claim 8 of U.S. Provisional Application 61/794,891, incorporated into the present application by reference, e.g.:

> an apparatus for conducting credit payment transactions … wherein the edge of said device contains a connector for connection to standard computing devices such as a USB interface

et seq., inter alia.

Figure 9 finds support at least in the exemplary embodiments disclosed in paragraph [0029], e.g., "user input may be made via the touch sensor array 245, which may comprise a touch screen panel, a keypad, or a combination thereof," in paragraph [0042], e.g., "respond correctly using the input buttons," in paragraph [0047], e.g.:

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

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> be a tap of the credit card device 201b detected by accelerometers 235, or a gesture, swipe, or a key input received by touch sensor array 245.

Figure 9 also finds support at least in the exemplary embodiments disclosed in Figure 2C and in paragraph [0015], e.g., "FIG. 2C depicts an exemplary process of selecting an account from a plurality of Stored accounts," in paragraph [0044], e.g., "The number displayed last four digits of the credit card number," and "the number displayed on the credit card device is a static number, but the number transmitted during a transaction is a limited-duration credit card number as described above," "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, " and in paragraph [0052], e.g.:

> transactions performed wirelessly between a card and a device (e.g., card-to-card, card-to-computer device having a reader dongle, card-to-ATM) are provided according to embodiments of the present disclosure. For simplicity, the following describes a card-to-card transaction, but it will be understood that card-to-device transactions are similarly provided,

et seq., inter alia.

Figure 10 finds support at least in the exemplary embodiments disclosed in paragraph [0049], e.g.:

> In one embodiment, the credit card device 501 is able to be used to make online purchases. In one embodiment, the credit card device 501 is equipped

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with a means 570 for communicating with the USB port on a computer or other device in order to make online purchases. In one embodiment the credit card device 501 may have an area cut-out, such that contact terminals corresponding to a USB cable connector are contained within, enabling connection of a USB cable (e.g., a micro-USB connection). When performing online transactions, the credit card device 501 can uniquely generate a limited-duration credit card number (as described above) for online purchases. The credit card device 501 receives a user input indicating that a transaction is imminent, and an authorization. The user input is able to comprise a gesture, a swipe, a key input sequence, and combinations thereof. The limited-duration credit card number is able to be displayed on the front display of the credit card device 501. In one embodiment, the credit card device 501 is able to use RFID 265 or near field communication NFC 260 technology in order to connect to a personal computer 590. This enables a per-transaction, limited-use credit card number, enhancing the security of the credit account by substantially negating the possibility of a theft of the credit card number used to perform the transaction leading to account compromise,

and in paragraph [0052], e.g., "transactions performed wirelessly between a card and a device," *et seq., inter alia*.

Figure 11 finds support at least in the exemplary embodiments disclosed in paragraph [0004], e.g.:

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

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> 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.

Figure 11 also finds support at least in the exemplary embodiments disclosed in paragraph [0009], e.g., "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," in paragraph [0027], e.g., "graphical icons (such as a logo for a bank, or other images) in paragraph [0045], e.g., "a credit card device that has no fixed number," "because a transaction cannot be conducted with an expired limited-duration credit card number, or only the static portion of the credit card number," in paragraph [0044], e.g."

> 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," and "limited-duration credit card number generated may be based on the user's private information, the user's bank information, the time of day or the facility that is reading the card."

Figure 11 finds further support at least in the exemplary embodiments disclosed in Claim 5 of U.S. Provisional Application 61/794,891, incorporated into the present application by reference, e.g.:

> wherein said device contains a … counter unit which generates a sequential parameter when the card is read by said credit card reader, and which along with certain user information, transaction identifiers, user secrets, credit card authority secrets is combined to generate a limited-use credit card number…

et seq., inter alia.

Figure 12 finds support at least in the exemplary embodiments disclosed in Figures 2A, 2B, and in paragraph [0027], e.g., "power source 255," Figure 2C and in paragraph [0031], e.g.:

> a process of selecting an account from a plurality of stored accounts in order to perform a transaction with the selected account, according to an embodiment of the present disclosure. The process 280 begins at step 282, where a plurality of accounts stored by the credit card device memory is displayed. The plurality of accounts 209 are stored by memory 207, and are displayed using display 250. A user indicates an account selected from the plurality of accounts at step 284. The selection is able to be made by keypad or touch sensor array 245, and an indication of the selected account can be displayed via display 250,

and in paragraph [0046], e.g.,:

> A credit card device (e.g., credit card device 201b) is connected to a computer system (e.g. computer system 590), via any of the connection means available to the credit card device (USB 270, NFC 260, and RFID 265). User data and other

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

et seq., inter alia.

Double Patenting

Claims 1-20 are rejected on the ground of nonstatutory double patenting over claims 1-20 of U.S. Patent No. 10, 013,693.

Claims 1-20 are canceled herein.

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CONCLUSION

Claims 21-40 are pending in the present application. Applicants respectfully request reconsideration of the present application in view of the indicated amendments and the remarks presented herein.

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

Respectfully submitted,

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UNITED STATES PATENT APPLICATION

FOR

MULTI-FUNCTION ELECTRONIC PAYMENT DEVICE

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MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC PAYMENT DEVICE

RELATED APPLICATIONS

[0001] This is a Continuation application of co-pending, commonly-owned U.S. Patent Application Serial No. 15/250,698, now U.S. Patent 10,013,693, filed 08-29-2016, which in turn was a continuation of U.S. patent application Ser. No. 14/680,946, now U.S. Patent 9,430,765 (Attorney Docket No. WYAT-0002.USC1) entitled "MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE," filed Apr. 7, 2016 to inventor David Wyatt, which is itself a continuation of U.S. patent application Ser. No. 14/217,261, now U.S. Patent 9,022,286 (Attorney Docket No. WYAT-0002.US), similarly entitled "MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE," filed Mar. 17, 2014 by the same inventor David Wyatt, and claims the benefit of U.S. Provisional Patent No. 61/794,891 (Attorney Docket No. WYAT-0002.A) entitled "Multi-Functional Credit Card Device," filed Mar. 15, 2013 to inventor David Wyatt. The benefit of the earlier filing dates is hereby claimed and the contents of the earlier filed related applications are further incorporated by reference in their entirety.

FIELD OF THE INVENTION

[0002] Embodiments according to the present disclosure generally relate to electronic or smart credit cardmulti-function electronic devices and, more specifically, to more

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secure, smart ~~credit card~~multi-function 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.

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[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.

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SUMMARY OF THE INVENTION

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

[0008] An embodiment includes a ~~credit card device~~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 card-to-card transactions. Methods are also described for generating a limited-duration credit card number when performing a transaction for the purpose of creating a limited-use credit card number, which is limited in scope of use to a predetermined number of authorized transactions. Furthermore said device may interact with other similar devices in proximity for the purpose of funds or credit/debit transfers.

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

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

[0010] According to another aspect of the present disclosure, a ~~credit card device~~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 card-to-card transaction between two ~~credit card device~~multi-function electronic devices by a detected proximity of a first ~~credit card device~~multi-function electronic device and a second ~~credit card device~~multi-function electronic device and an input of information by a first user via said touch sensor array, and wherein the card-to-card transaction comprises an exchange of stored currency and said user data between the first ~~credit card device~~multi-function electronic device and the second ~~credit card device~~multi-function electronic device via the NFC unit.

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[0011] According to yet another aspect of the present disclosure, a method of performing a transaction comprises: receiving an input signal at a ~~credit card device~~multi-function electronic device from a user enabling operation of a near-field communication (NFC) unit of the ~~credit card device~~multi-function electronic device; receiving an indication of an amount of currency for a transaction; generating at said ~~credit card device~~multi-function electronic device a limited-duration credit card number; and transmitting said limited-duration credit card number from said ~~credit card device~~multi-function electronic 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 ~~credit card device~~multi-function electronic device and a standard magnetic card reader, according to an embodiment of the present disclosure.

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

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

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

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

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

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

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

[0021] Figure 8A illustrates an exemplary multifunction electronic device, in accordance with embodiments of the present invention.

[0022] Figure 8B illustrates exemplary displayed characteristics of multifunction electronic device, in accordance with embodiments of the present invention.

[0023] Figure 9 illustrates an exemplary process of performing a financial transaction with a portable electronic device in conjunction with a payment reader, in accordance with embodiments of the present invention.

[0024] Figure 10 illustrates an exemplary process for performing a financial transaction with a portable electronic device in conjunction with a personal computer, in accordance with embodiments of the present invention.

[0025] Figure 11 illustrate an exemplary electronic credit-card-like multi-function electronic device that has no fixed payment information, in accordance with embodiments of the present invention.

[0026] Figure 12 illustrates an exemplary process for user selection of a preferred payment account for an electronic credit card-like device, in accordance with embodiments of the present invention. ~~Figure 8~~

DETAILED DESCRIPTION OF THE INVENTION

[0018][0027] 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.

[0019][0028] 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

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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.

[0029][0029] 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

[0030][0030] In one embodiment of the present disclosure, a smart ~~credit card device~~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

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a planar coil formed within the material that embodies the ~~credit card~~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 credit card reader. As the magnetic strip of a conventional credit card is passed through a magnetic reader head, stripes of alternating magnetic polarity embedded in the strip induce a magnetic field of alternating polarity at the reader head. The pattern formed by the alternating polarity of the magnetic field encodes information, which when transformed by a transducer to a current signal in the magnetic reader head, provides user information for a transaction.

[0033][0031] Embodiments of the present disclosure provide a ~~credit card device~~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 credit card, the magnetic field produced by the planar coil is able to be read by a pickup (or "transducer") and to thereby transmit information to the magnetic card reader. Figure 1 illustrates a credit card transaction 100 performed between a ~~credit card device~~multi-function electronic device 101 and a conventional magnetic reader 150. The ~~credit card device~~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 ~~credit card device~~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

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~~credit card~~ 101 so as to be read by magnetic head reader 155. The magnetic head reader 155 responds to the magnetic field 120 by producing a current in the conventional fashion, which is then interpreted as encoded information by the magnetic reader 150. Therefore the magnetic field of alternating polarity 120 produced by the ~~credit card device~~multi-function electronic device 101 has a substantially identical encoding effect as a traditional magnetic strip.

[0023][0032] A characteristic of encoding information in a conventional magnetic card strip is that binary information is encoded by the pattern of alternating magnetic polarity formed by ferromagnetic stripes embedded on the magnetic strip. As the conventional magnetic card strip has a standardized format, the encoding of information is provided at a specified data density (bits per inch), according to which conventional magnetic readers are designed for interpretation of encoded data. In order to most ably emulate a conventional credit card interaction with a conventional magnetic reader the ~~credit card device~~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 ~~credit card device~~multi-function electronic device 101 and the magnetic reader head 155. These features, as well as other characteristics of the ~~credit card device~~multi-function electronic device of the present

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disclosure, can be better appreciated by a description of the internal components and functions of ~~credit card device~~multi-function electronic device 101.

[0024][0033] Figures 2A and 2B depict exemplary embodiments of ~~the~~ a smart ~~credit card device~~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, ~~credit card device~~multi-function electronic device 201a is shown in a block diagram view. ~~Credit card device~~Multi-function electronic device 201a comprises a processor 205 and a memory unit 207, the processor 205 operatively coupled to the components of ~~credit card device~~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 ~~credit card device~~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

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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). See, for example, Figures 8A and 11. Further, an optional backup power source 255 is depicted.

[0026][0034] In one embodiment, the processor unit 205 is connected to the planar coil 220 and the motion detection units, via the motion detection module 210. The processor unit 205 is responsible for determining the appropriate rate with which to output data from the planar coil 220, wherein output data is encoded using alternating polarity of a generated magnetic field. The rate of the alternating polarity of the magnetic field is generated in accordance with the detected movement speed with which the card is swiped through the reader, in order for the reader to receive the encoded data at the appropriate rate. Magnetic card readers, which are designed to read conventional credit cards, are constructed to read data at specified input rates that correspond with the data density present in conventional magnetic card strips. The magnetic data symbols generated by the planar coil 220 are produced to align with the rate at which data is being read by the magnetic card reader. Accordingly, it is irrelevant if the ~~credit card device~~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 ~~credit card device~~multi-function electronic device 201a is detected to be passing across the magnetic reader head.

[0026][0035] Figure 2B depicts a ~~credit card device~~multi-function electronic device 201b according to an embodiment of the present disclosure. ~~Credit card~~ D~~d~~evice 201b

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comprises a processor 205 and a memory unit 207, the processor 205 operatively coupled to the components of ~~credit card device~~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 ~~credit card device~~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. See also, for example, Figures 8 and 9. The display 250 is able to display an alphanumeric sequence, as well as graphical icons (such as a logo for a bank, or other images). Further, an optional backup power source 255 is depicted. ~~Credit card device~~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 RF antennae, through the coil interface 215. In one embodiment one or both the NFC ~~and the~~and the RFID may have antennae dedicated to that individual sub-system. A universal serial

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bus (USB) connector 270 is coupled to the processor unit 205. The functionality of the components with regard to exemplary uses of ~~credit card device~~multi-function electronic devices 201a and 201b is described in greater detail in the following description.

[0027][0036] A further aspect of the present disclosure provides a single ~~credit card device~~multi-function electronic device that can be used for multiple banks or financial institutions. For example, instead of carrying a separate credit card for each account of a variety of credit card companies, a customer need only to carry a single card according to embodiments of the present disclosure. The capability of the ~~credit card device~~multi-function electronic device to generate a multitude of credit card numbers provides the ability of the ~~credit card device~~multi-function electronic device to be associated with multiple accounts. ~~Futhermore~~Furthermore, inputs at the touch sensor array on the ~~credit card device~~multi-function electronic device can be used to select the appropriate bank or credit provider account stored in the memory unit of the ~~credit card device~~multi-function electronic device.

[0038][0037] 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 ~~credit card device~~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

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286 the ~~credit card device~~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 ~~credit card device~~multi-function electronic device is encoded with a limited-duration credit card number that is associated with the selected account. The limited-duration credit card number is able to be generated according to the selected account, a timestamp, a transaction amount, an indicated merchant, user key or secrets, on-card unique hardware secrets, credit card authority key or secrets, user input from the card interface, and other information associated with the transaction.

MOVEMENT RATE FEEDBACK

[0029][0038] The relative movement rate of ~~credit card device~~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 credit card 201a in a distinct manner. The rate detection assembly 225, which is positioned alongside (but independent of) the planar coil 220, is able to detect the location of a magnetic head reader as the rate detection assembly 220 is being passed through the credit card reader. The reader module of a conventional credit card reader comprises a metal head having a small gap at the tip of the head. A pickup armature resides in this gap, such that as the metal head passes over a credit card strip, an electric field is induced in the head reader pickup circuit. In one embodiment the rate detection

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assembly 225 is constructed of an array of auxiliary inductor coils and magnetic pickup coils. As the metal head of the card reader assembly passes over the arrangement of auxiliary inductor coils and magnetic pickup coils of the rate detection assembly 225, a disturbance in the magnetic field flowing between the two is induced, generating a change in current and producing a detected movement signal. The change in current is detected by the motion detection module 210, and is used to determine the rate of motion of the card reader head passing across the surface of the ~~credit card device~~multi-function electronic device 201a (and therefore along the planar coil 220).

[0039][0039] The optical sensor array 230 is also operable to detect a movement rate of the ~~credit card device~~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.

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[0043][0040] The set of accelerometers 235 are also operable to detect a movement rate of the ~~credit card device~~multi-function electronic device 201a. The set of accelerometers 235 are positioned in the ~~credit card device~~multi-function electronic device 201a in order to effectively measure the position and acceleration of the ~~credit card device~~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 ~~credit card device~~multi-function electronic device 201a.

[0044][0041] The detected movement signal is received by the motion detection module 210. The detected movement signal is generated by any one of the set of motion detection units, or any combination of motion detection units of the set. For example, the movement detection signal is able to be generated by the combination of the rate detection assembly 225 and the optical sensor array 230. In an embodiment, the movement detection module 210 is able to determine the movement rate of the ~~credit card device~~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.

[0045][0042] In one embodiment, the generation of the magnetic field by the planar coil 220 at a specified rate of alternating polarity is accomplished according to the

following description. One or more of the motion detection units in the set of motion detection units (rate detection assembly 225, optical sensor array 230, and set of accelerometers 235) detect a movement rate of the ~~credit card device~~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 ~~credit card device~~multi-function electronic device 201a – thus, a higher determined ~~credit card device~~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 ~~credit card device~~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.

[0034][0043] Figure 3 illustrates an exemplary process 300 for determining the rate to alternate the polarity of the generated magnetic field of the ~~credit card~~

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~~device~~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 ~~credit card device~~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 ~~credit card device~~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 ~~credit card device~~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 ~~credit card device~~multi-function electronic device. In this manner, while a standard magnetic card reader is detected to be in proximity to the ~~credit card device~~multi-function electronic device, the movement rate of the ~~credit card device~~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 ~~said~~the magnetic card reader.

SECURITY

[0035][0044] Security is an area of concern for credit card holders, as the small form factor makes theft quite easy, and additionally there are many ways for a malicious third-party to record the account number of a credit card in order to later make

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

[0036][0045] In one aspect, security of the ~~credit card device~~multi-function electronic device is enhanced by providing a means of locking the ~~credit card device~~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 ~~credit card device~~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 ~~credit card device~~multi-function electronic device 401 via a keypad or touch sensor array 445. In Figure 4A, the ~~credit card device~~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 ~~said~~the key-pad or ~~said~~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 ~~credit card device~~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 ~~credit card device~~multi-function electronic device 401 are consistent with the spirit and scope of the present disclosure.

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[0037][0046] In order to unlock the ~~credit card device~~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 ~~credit card device~~multi-function electronic device 401. The display 450b is able to display a message indicating the ~~credit card device~~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 ~~credit card device~~multi-function electronic device 401.

[0049][0047] Embodiments of the present disclosure provide additional functionality for the touch sensor array 445. For example, there may be touch contact terminals that a user can press to wake up the ~~credit card device~~multi-function electronic device 401, to cause the battery to supply power, or to place the ~~credit card device~~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 ~~credit card device~~multi-function electronic device 401 without entering in a password, an automatic phone call may be triggered to the appropriate fraud protection authorities.

[0038][0048] In one embodiment of the present disclosure, the display 450 is a thin-film liquid crystal display ("LCD"). The display 450 is able to have multiple uses. In one embodiment, the display 450 can be used to cue the user for a security question upon input of an improper password. Or if fraud protection services need to contact a customer, they can verify the customer's identity by transmitting a security question to

the display 450 of user's ~~credit card device~~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. See also, for example, Figures 8 and 9.

LIMITED-DURATION CREDIT CARD NUMBER

[0040][0049] A further security feature of the ~~credit card device~~multi-function electronic device provided in the present disclosure is the capability of producing a limited-duration credit card number for performing transactions using accounts of the card. The ~~credit card device~~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 ~~credit card device~~multi-function electronic device and verified by the credit authority according to the timestamp and the transmitted user information. The limited-duration credit card number is able to be produced at the time the ~~credit card device~~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 credit card number is able to be limited to only one transaction, a finite number of transactions, or may be limited to a specified period of time – e.g., 2 minutes, 10 minutes, 3 hours – after which time that particular limited-duration number would become invalid. As detailed above, if an expired limited-duration credit card is attempted to be used for a transaction, the transaction is denied and an automatic notification is able to be made to a credit authority in order to notify the user and to

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prevent transactions on the account. The transaction count is able to be determined through the action of passing the card through magnetic reader, and the process of transmitting ~~said~~the card number to ~~said~~the card reader.

[0044][0050] In one embodiment, the number on the front of the card is able to be a full or partial number. In an embodiment, the number displayed on the ~~credit card device~~multi-function electronic device is a static number, but the number transmitted during a transaction is a limited-duration credit card number as described above. The number displayed on the ~~credit card device~~multi-function electronic device may not necessarily be a static number. For example, the first four and last four digits of the credit card number are able to be fixed, while the remaining eight digits can be dynamically generated. As the credit card is read by the machine, part or all of the number may be dynamically produced at the time the card is read. As described above, the dynamic part of the limited-duration credit card number generated may be based on the user's private information, the user's bank information, the time of day or the facility that is reading the card. Further, the expiration date of the ~~credit card device~~multi-function electronic device can also be dynamically generated. See also, for example, Figures 8, 9 and 11.

[0053][0051] Effectively, embodiments of the present disclosure provide a ~~credit card device~~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 credit card transaction matters. Accordingly, unauthorized use of the ~~credit card device~~multi-function electronic device is highly

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

[0042][0052] With reference to Figure 2A, 2B, In one embodiment, the process steps enabling a card transaction are as follows. A ~~credit card device~~multi-function electronic device (e.g., ~~credit card device~~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 ~~credit card device~~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 ~~credit card device~~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 ~~credit card device~~multi-function electronic device 201b for transactions. In an alternative embodiment, rather than a currency amount being downloaded to the ~~credit card device~~multi-function electronic device 201b, the user account information (e.g., username and password) is stored such that a subsequent authorized ~~credit card device~~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 ~~credit card device~~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 ~~credit card device~~multi-function electronic device 201b is connected.

[0044][0053] Transactions may be authenticated on the specified account by entry of the username and password for the account during the transaction, using the touch sensor array 245. In an embodiment, a password for an account is represented by a user input (such as a gesture, a swipe, and/or an unlock keycode) which is entered on ~~credit card device~~multi-function electronic device 201b during a transaction for account authentication. See also, for example, Figure 9. According to an embodiment of the present disclosure, a user that has "primed" the ~~credit card device~~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 ~~credit card device~~multi-function electronic device 201b detected by accelerometers 235, or a gesture, swipe, or a key input received by touch sensor array 245. See also, for example, Figure 9.

[0049]A transaction is able to be communicated using the planar coil 220. In one embodiment, when the transaction is a credit card transaction, a limited-duration credit card number is generated. A user inputs an amount for the transaction using the touch sensor array 245, and the limited-duration credit card number is generated to correspond with the entered amount. The binary data corresponding to this limited-duration credit card number is sent from the processor unit 205 to the coil interface 215, where it is converted to an analog signal in order to drive the planar coil 220 to generate a magnetic field having an alternating polarity corresponding to the encoded data of the limited-duration credit card number.

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ONLINE TRANSACTIONS

[0046][0055] Figure 5 displays the ~~credit card device~~multi-function electronic device 501 in connection with a computing device 590. In one embodiment, the ~~credit card device~~multi-function electronic device 501 is able to be used to make online purchases. In one embodiment, the ~~credit card device~~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 ~~credit card device~~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 ~~credit card device~~multi-function electronic device 501 can uniquely generate a limited-duration credit card number (as described above) for online purchases. The ~~credit card device~~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 credit card number is able to be displayed on the front display of the ~~credit card device~~multi-function electronic device 501. In one embodiment, the ~~credit card device~~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 credit card number, enhancing the security of the credit account by substantially negating the possibility of a theft of the credit card number used to perform the transaction leading to account compromise. See also, for example, Figure 10.

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[0047][0056] According to an embodiment, the transaction is able to include information regarding a user account, such as an email address of the user, and upon reconnection of ~~credit card device~~multi-function electronic device 201b to a computer system (for instance, computer system 590), the transaction information stored on ~~credit card device~~multi-function electronic device 201b could be "replayed" by the computer system in order to finalize the transaction.

[0058][0057] In one embodiment, a means of limiting an available credit amount are provided. According to the download process described above, the ~~credit card device~~multi-function electronic device is able to have a total credit available. The ~~credit card device~~multi-function electronic device is able to reference the total credit available in subsequent transactions, and will provide limited-duration credit card numbers corresponding to amounts up to, but not exceeding, the remaining credit available to the ~~credit card device~~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 credit card number, and therefore an authenticated transaction cannot proceed. In general, the ~~credit card device~~multi-function electronic device will only successfully generate a limited-duration credit card number if the proper conditions for a transaction are determined to be present. The proper conditions for a transaction comprise a correct identification having been made by the user (via a gesture, swipe, and/or key input) and an amount for the transaction indicated to be less than the total credit available to the account indicated for the transaction.

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[0060][0058] In addition to transactions performed using conventional magnetic card readers (such as at point-of-sale locations, banks, and automated teller machines (ATMs)) and via cable connection with a computing device, transactions performed wirelessly between a card and a device (e.g., card-to-card, card-to-computer device having a reader dongle, card-to-ATM) are provided according to embodiments of the present disclosure. See, for example, Figures 8 and 10. For simplicity, the following describes a card-to-card transaction, but it will be understood that card-to-device transactions are similarly provided.

[0061][0059] Figure 6 illustrates a card-to-card transaction according to one embodiment. A first ~~credit card device~~multi-function electronic device 601a comprises a display 650a, and is in contact with a second ~~credit card device~~multi-function electronic device 601b. A contact interaction between the cards is indicated by interaction 680. In one embodiment, the contact interaction is a tapping of ~~credit card device~~multi-function electronic device 601a against ~~credit card device~~multi-function electronic device 601b. In another embodiment, an optical sensor array at one or both of the cards detects interaction 680. In another embodiment, interaction 680 indicates a swipe of ~~credit card device~~multi-function electronic device 601a across ~~credit card device~~multi-function electronic device 601b. In one embodiment a user input through ~~said~~the key-pad initiates and enables a transaction from first card to second card. In one embodiment the presence of second card in preparation for card to card transaction is confirmed through "polling", the process of which involves transmission of data between cards, and confirmed receipt of transmitted data by response received from second card received at

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first card, including information confirming receipt of ~~said~~the information, by second card.

[0062][00601] The planar coil comprised by each of ~~credit card device~~multi-function electronic device 601a and ~~credit card device~~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 ~~credit card device~~multi-function electronic device 601a and ~~credit card device~~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 card (e.g., ~~credit card device~~multi-function electronic device 601a) receiving the transaction information operates its planar coil in an antenna mode. This enables ~~credit card device~~multi-function electronic device 601a and ~~credit card device~~multi-function electronic device 601b to authentically perform a transaction, and to transfer a currency between ~~credit card device~~multi-function electronic device 601a and ~~credit card device~~multi-function electronic device 601b. As described above, in an embodiment the transaction is able to use a limited-duration card number to encode the transaction.

[0053][00611] In an embodiment, a set of accelerometers is used to detect the beginning of the transaction, for instance, a transaction performed by a swipe of ~~credit card device~~multi-function electronic device 601a across ~~credit card device~~multi-function electronic device 601b. Further, the set of accelerometers can detect a "priming" action for a ~~credit card device~~multi-function electronic device, i.e., an indication for a ~~credit card device~~multi-function electronic device that a transaction is imminent. The priming

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action can be a tap of the ~~credit card device~~multi-function electronic device 601a, or tapping the ~~credit card device~~multi-function electronic device 601a against the ~~credit card device~~multi-function electronic device 601b. In one embodiment, a touch sensor array is able to be used for the priming action.

[0053][0062] In an embodiment of a card-to-card transaction, one card (e.g. 601a, the card of the user having a currency debit) generates the limited-duration credit card number, which is transmitted via the card's planar coil. The ~~credit card device~~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 credit card number, identifying both the correct account and the amount of the transaction.

[0054][0063] In one embodiment, the ~~credit card device~~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 ~~credit card device~~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 ~~credit card device~~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 credit card 201b to a computing device provides a means of connecting

to the cryptocurrency servers and finalizing the transaction. Further, the ~~credit card device~~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.

[0055][0064] In a card-to-card cryptocurrency exchange, a record of the transaction can be made according to the following. A first card (e.g. 601a) making a deduction with an amount indicated via touch sensor array 245 is able to generate a record of the transaction and store the record in the card memory, while a second card (e.g. 601b) receiving the cryptocurrency is able to generate a confirmation of the received transaction amount. In one embodiment, the amount indicated is provided by the receiving card 601b. The hashed record of the transaction contains the unique information of each user, along with the transaction amount. The success or failure of the transaction is able to be displayed on the respective displays of credit cards 601a and 601b.

ACCOUNT THEFT AND UNINTENDED USE PREVENTION

[0056][0065] 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

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limited-duration credit card numbers and other security features provided for by the credit card of the present disclosure and previously described, a further security feature regarding the wireless communication means of the ~~credit card device~~multi-function electronic device is described herein.

[0057][0066] In one embodiment, wireless communication means of the ~~credit card device~~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 ~~credit card device~~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 ~~credit card device~~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

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combination). For example, heat applied at one surface of the ~~credit card device~~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 ~~credit card device~~multi-function electronic device 201b (e.g., the processor unit 205, the NFC 260, and the RFID 265).

[0058][0067] In an embodiment, the communication means are activated only so long as the activation signal continues to be detected. In another embodiment, the communication means are activated for a specified amount of time following detection of the activation signal. For example, if using the ~~credit card device~~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 card for a specified duration (for instance, one minute). In an embodiment the detection of motion through accelerometer input indicates activation by a valid user. In one embodiment the specific motion detected through accelerometer input corresponding with a specific user action, such as a "flick", "swipe", "spin", "wave", "tap," may be used to initiate activation, wherein ~~said~~the motion is not normally generated at idle and during periods of inactivity. For example ~~said~~the motion not being generated accidentally while ~~said~~the card is stored in a user's wallet, carried while the user is actively moving, or is being handed from user to a clerk at a point of transaction. In one embodiment the specific motion, or sequence of motions, may be associated with a user, and stored on ~~said~~the card memory, such that performing the correct sequence when prompted can confirm the

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

[0059][0068] Figure 7 depicts a process of selectively enabling the communication capability of the ~~credit card device~~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 ~~credit card device~~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 ~~credit card device~~multi-function electronic device motion; and a galvanic sensor indication that the credit card is in a user grasp. The input received from the user enables operation of a near-field communication (NFC) unit of the ~~credit card device~~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.

[0060][0069] The ~~credit card device~~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 ~~credit card device~~multi-function electronic device generates a limited-duration credit card number, which at step 707 is transmitted to a recipient of the transaction. In one embodiment, the limited-duration credit card

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number has a limited recurrence, and is limited in scope of use to a predetermined number of authorized transactions.

[0061][0070] 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.

[0071] 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.

[0072] 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

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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.

[0073] 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.

[0074] 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.

[0075] In one embodiment, the number on the front of the card can be a full or partial number. The number may not have to necessarily be a static number. For example, the first four and last four digits of the card number can be fixed while the remaining eight can be dynamically generated. As the credit card is read by the machine, part or all of the number may be dynamically produced at the time the card is read. The dynamic part of the number generated may be based on the user's private information, the user's bank information, the time of day or the facility that is reading the card. Further, the expiration date of the card can also be dynamically generated. Effectively, a credit card can be created that has no fixed number and therefore cannot be stolen. Only the

number generated at the instant the card is being used matters. Accordingly, unauthorized use of the card is nearly impossible because no transaction can be conducted with only the partial static part of the credit card number. In one embodiment of the present invention, enough dynamically generated numbers are provided for on the credit card such that a unique credit card number can be generated for each transaction. In this embodiment, the credit card of the present invention effectively acts as a unique per transaction credit card.

[0076] In embodiments of the present invention comprising dynamically created credit card numbers, a single credit card can be used for multiple banks. For example, instead of carrying a separate credit card for all the different credit card companies, a customer would only need to carry a single card and one of the inputs on the front of the card can be used to select the appropriate bank or credit provider.

[0077] 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.

[0078] In one embodiment, the credit card of the present invention could also be used to make online purchases. In this embodiment, the card could use RFID or near field

technology so that it can connect to a personal computer and be used to uniquely generate a credit card number for online purchases. The number could also, in one embodiment, be displayed on the front LCD of the card. In one embodiment, the card may also be equipped with a means for communicating with the USB port on the computer in connection with making the online purchases.

TABLE 1

What is claimed is:

1. An apparatus for conducting credit transactions comprising:

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

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

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

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

a microprocessor operatively coupled to said inductor assembly and said at least one detection unit, wherein said microprocessor is operable to simulate

magnetic-strip data fields using the inductor assembly, at a rate determined from said auxiliary detection units.

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

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

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

allow user input of information,

allow introducing a transaction specific identifier,

to confirm/deny transaction information,

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

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

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

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

8. An Apparatus for conducting credit transactions comprising,

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

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.

[0079]

[0080] 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.

~~[0079]~~

MULTI-FUNCTION~~AL CREDIT CARD TYPE PORTABLE~~ ELECTRONIC PAYMENT DEVICE

ABSTRACT

An embodiment includes a ~~credit card device~~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~~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 ~~said~~the device for the purpose of authorizing or controlling use of ~~said~~the device in the application of credit, debit and cash transactions, including cryptocurrency and card-to-card transactions. Methods are also described for generating a limited-duration credit card number when performing a transaction for the purpose of creating a limited-use credit card number, which is limited in scope of use to a predetermined number of authorized transactions. Furthermore ~~said~~the device may interact with other similar devices in proximity for the purpose of funds or credit/debit transfers.

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UNITED STATES PATENT APPLICATION

FOR

MULTI-FUNCTION ELECTRONIC PAYMENT DEVICE

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MULTI-FUNCTION ELECTRONIC PAYMENT DEVICE

RELATED APPLICATIONS

[0001] This is a Continuation application of co-pending, commonly-owned U.S. Patent Application Serial No. 15/250,698, now U.S. Patent 10,013,693, filed 08-29-2016, which in turn was a continuation of U.S. patent application Ser. No. 14/680,946, now U.S. Patent 9,430,765 (Attorney Docket No. WYAT-0002.USC1) entitled "MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE," filed Apr. 7, 2016 to inventor David Wyatt, which is itself a continuation of U.S. patent application Ser. No. 14/217,261, now U.S. Patent 9,022,286 (Attorney Docket No. WYAT-0002.US), similarly entitled "MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE," filed Mar. 17, 2014 by the same inventor David Wyatt, and claims the benefit of U.S. Provisional Patent No. 61/794,891 (Attorney Docket No. WYAT-0002.A) entitled "Multi-Functional Credit Card Device," filed Mar. 15, 2013 to inventor David Wyatt. The benefit of the earlier filing dates is hereby claimed and the contents of the earlier filed related applications are further incorporated by reference in their entirety.

FIELD OF THE INVENTION

[0002] Embodiments according to the present disclosure generally relate to electronic or smartmulti-function electronic devices and, more specifically, to more secure, smart multi-function electronic payment devices and transaction processing thereof.

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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

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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.

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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 card-to-card transactions. Methods are also described for generating a limited-duration credit card number when performing a transaction for the purpose of creating a limited-use credit card number, which is limited in scope of use to a predetermined number of authorized transactions. Furthermore said device may interact with other similar devices in proximity for the purpose of funds or credit/debit transfers.

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

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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 card-to-card transaction between two multi-function electronic devices by a detected proximity of a first multi-function electronic device and a second multi-function electronic device and an input of information by a first user via said touch sensor array, and wherein the card-to-card transaction comprises an exchange of stored currency and said user data between the first multi-function electronic device and the second multi-function electronic 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

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electronic device from a user enabling operation of a near-field communication (NFC) unit of the multi-function electronic device; receiving an indication of an amount of currency for a transaction; generating at said multi-function electronic device a limited-duration credit card number; and transmitting said limited-duration credit card number from said multi-function electronic device to a recipient of the transaction.

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BRIEF DESCRIPTION OF THE DRAWINGS

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

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

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

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

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

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

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

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

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

[0021] Figure 8A illustrates an exemplary multifunction electronic device, in accordance with embodiments of the present invention.

[0022] Figure 8B illustrates exemplary displayed characteristics of multifunction electronic device, in accordance with embodiments of the present invention.

[0023] Figure 9 illustrates an exemplary process of performing a financial transaction with a portable electronic device in conjunction with a payment reader, in accordance with embodiments of the present invention.

[0024] Figure 10 illustrates an exemplary process for performing a financial transaction with a portable electronic device in conjunction with a personal computer, in accordance with embodiments of the present invention.

[0025] Figure 11 illustrate an exemplary electronic credit-card-like multi-function electronic device that has no fixed payment information, in accordance with embodiments of the present invention.

[0026] Figure 12 illustrates an exemplary process for user selection of a preferred payment account for an electronic credit card-like device, in accordance with embodiments of the present invention.

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DETAILED DESCRIPTION OF THE INVENTION

[0027] 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.

[0028] 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.

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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.

[0029] 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

[0030] 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 credit card reader. As the magnetic strip of a conventional credit card is passed through a magnetic reader head, stripes of alternating magnetic polarity embedded in the strip induce a magnetic field of alternating polarity at the reader head. The pattern formed by the alternating polarity of the magnetic field encodes information, which when transformed by a transducer to a current signal in the magnetic reader head, provides user information for a transaction.

[0031] 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 credit card, the magnetic field produced by the planar coil is able to be read by a pickup (or "transducer") and to thereby transmit information to the magnetic card reader. Figure 1 illustrates a credit card 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

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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.

[0032] A characteristic of encoding information in a conventional magnetic card strip is that binary information is encoded by the pattern of alternating magnetic polarity formed by ferromagnetic stripes embedded on the magnetic strip. As the conventional magnetic card strip has a standardized format, the encoding of information is provided at a specified data density (bits per inch), according to which conventional magnetic readers are designed for interpretation of encoded data. In order to most ably emulate a conventional credit card interaction with a conventional magnetic reader the 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.

[0033] 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

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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). See, for example, Figures 8A and 11. Further, an optional backup power source 255 is depicted.

[0034] 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

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205 is responsible for determining the appropriate rate with which to output data from the planar coil 220, wherein output data is encoded using alternating polarity of a generated magnetic field. The rate of the alternating polarity of the magnetic field is generated in accordance with the detected movement speed with which the card is swiped through the reader, in order for the reader to receive the encoded data at the appropriate rate. Magnetic card readers, which are designed to read conventional credit cards, are constructed to read data at specified input rates that correspond with the data density present in conventional magnetic card strips. The magnetic data symbols generated by the planar coil 220 are produced to align with the rate at which data is being read by the magnetic card reader. Accordingly, it is irrelevant if the 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.

[0035] 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,

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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. See also, for example, Figures 8 and 9. 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 RF antennae, through the coil interface 215. In one embodiment one or both the NFC and the RFID may have antennae dedicated to that individual sub-system. A universal serial bus (USB) connector 270 is coupled to the processor unit 205. The functionality of the components with regard to exemplary uses of multi-function electronic devices 201a and 201b is described in greater detail in the following description.

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[0036] 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 credit card for each account of a variety of credit card companies, a customer need only to carry a single card according to embodiments of the present disclosure. The capability of the multi-function electronic device to generate a multitude of credit card 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.

[0037] 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

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encoded with a limited-duration credit card number that is associated with the selected account. The limited-duration credit card number is able to be generated according to the selected account, a timestamp, a transaction amount, an indicated merchant, user key or secrets, on-card unique hardware secrets, credit card authority key or secrets, user input from the card interface, and other information associated with the transaction.

MOVEMENT RATE FEEDBACK

[0038] 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 credit card 201a in a distinct manner. The rate detection assembly 225, which is positioned alongside (but independent of) the planar coil 220, is able to detect the location of a magnetic head reader as the rate detection assembly 220 is being passed through the credit card reader. The reader module of a conventional credit card reader comprises a metal head having a small gap at the tip of the head. A pickup armature resides in this gap, such that as the metal head passes over a credit card strip, an electric field is induced in the head reader pickup circuit. In one embodiment the rate detection assembly 225 is constructed of an array of auxiliary inductor coils and magnetic pickup coils. As the metal head of the card reader assembly passes over the arrangement of auxiliary inductor coils and magnetic pickup coils of the rate detection assembly 225, a disturbance in the magnetic field flowing between the two is induced, generating a change in current and producing a

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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).

[0039] 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.

[0040] 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

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generating signals that allow for determination of the orientation, motion and acceleration of the multi-function electronic device 201a.

[0041] 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.

[0042] 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

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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.

[0043] 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

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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

[0044] Security is an area of concern for credit card holders, as the small form factor makes theft quite easy, and additionally there are many ways for a malicious third-party to record the account number of a credit card in order to later make fraudulent transactions on the account. Embodiments of the present disclosure address security concerns of a credit card owner on several fronts.

[0045] 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

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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.

[0046] 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.

[0047] 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

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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.

[0048] 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. See also, for example, Figures 8 and 9.

LIMITED-DURATION CREDIT CARD NUMBER

[0049] A further security feature of the multi-function electronic device provided in the present disclosure is the capability of producing a limited-duration credit card number for performing transactions using accounts of the card. The 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 credit authority according to the timestamp and the transmitted user information. The limited-duration credit card number is able to be produced at the time the multi-function electronic device is performing a transaction,

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and is able to be generated according to the user's private information, a bank information, information regarding the facility performing the transaction, and the time of day. The limited-duration credit card number is able to be limited to only one transaction, a finite number of transactions, or may be limited to a specified period of time – e.g., 2 minutes, 10 minutes, 3 hours – after which time that particular limited-duration number would become invalid. As detailed above, if an expired limited-duration credit card is attempted to be used for a transaction, the transaction is denied and an automatic notification is able to be made to a credit authority in order to notify the user and to prevent transactions on the account. The transaction count is able to be determined through the action of passing the card through magnetic reader, and the process of transmitting the card number to the card reader.

[0050] 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 credit card 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 credit card number are able to be fixed, while the remaining eight digits can be dynamically generated. As the credit card is read by the machine, part or all of the number may be dynamically produced at the time the card is read. As described above, the dynamic part of the limited-duration credit card number generated may be based on the user's private information, the user's bank information, the time of day or the facility that is reading the card. Further, the expiration date of

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the multi-function electronic device can also be dynamically generated. See also, for example, Figures 8, 9 and 11.

[0051] 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 credit card 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 credit card number, or only the static portion of the credit card number. In one embodiment of the present disclosure, sufficient dynamically generated numbers are provided for on the credit card such that a unique credit card number can be generated for each transaction. In this embodiment, the credit card of the present disclosure effectively acts as a unique per-transaction credit card.

[0052] 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

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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.

[0053] 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. See also, for example, Figure 9. 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

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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. See also, for example, Figure 9.

[0054] A transaction is able to be communicated using the planar coil 220. In one embodiment, when the transaction is a credit card transaction, a limited-duration credit card number is generated. A user inputs an amount for the transaction using the touch sensor array 245, and the limited-duration credit card number is generated to correspond with the entered amount. The binary data corresponding to this limited-duration credit card number is sent from the processor unit 205 to the coil interface 215, where it is converted to an analog signal in order to drive the planar coil 220 to generate a magnetic field having an alternating polarity corresponding to the encoded data of the limited-duration credit card number.

ONLINE TRANSACTIONS

[0055] 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

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online transactions, the multi-function electronic device 501 can uniquely generate a limited-duration credit card 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 credit card 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 credit card number, enhancing the security of the credit account by substantially negating the possibility of a theft of the credit card number used to perform the transaction leading to account compromise. See also, for example, Figure 10.

[0056] 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.

[0057] 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 credit card numbers corresponding to amounts up to, but not

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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 credit card number, and therefore an authenticated transaction cannot proceed. In general, the multi-function electronic device will only successfully generate a limited-duration credit card number if the proper conditions for a transaction are determined to be present. The proper conditions for a transaction comprise a correct identification having been made by the user (via a gesture, swipe, and/or key input) and an amount for the transaction indicated to be less than the total credit available to the account indicated for the transaction.

CARD-TO-DEVICE TRANSACTIONS

[0058] In addition to transactions performed using conventional magnetic card readers (such as at point-of-sale locations, banks, and automated teller machines (ATMs)) and via cable connection with a computing device, transactions performed wirelessly between a card and a device (e.g., card-to-card, card-to-computer device having a reader dongle, card-to-ATM) are provided according to embodiments of the present disclosure. See, for example, Figures 8 and 10. For simplicity, the following describes a card-to-card transaction, but it will be understood that card-to-device transactions are similarly provided.

[0059] Figure 6 illustrates a card-to-card 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 cards is indicated by interaction 680. In one embodiment, the contact interaction is a

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

[0060] 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 card (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 card number to encode the transaction.

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[0061] 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.

[0062] In an embodiment of a card-to-card transaction, one card (e.g. 601a, the card of the user having a currency debit) generates the limited-duration credit card number, which is transmitted via the card's planar coil. The 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 credit card number, identifying both the correct account and the amount of the transaction.

[0063] 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

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portion of the transaction, using the processor unit 205 and the real-time clock 240 along with user information pertinent to the cryptocurrency account and the transaction. A subsequent connection of the credit card 201b to a computing device provides a means of connecting to the cryptocurrency servers and finalizing the transaction. Further, the 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.

[0064] In a card-to-card cryptocurrency exchange, a record of the transaction can be made according to the following. A first card (e.g. 601a) making a deduction with an amount indicated via touch sensor array 245 is able to generate a record of the transaction and store the record in the card memory, while a second card (e.g. 601b) receiving the cryptocurrency is able to generate a confirmation of the received transaction amount. In one embodiment, the amount indicated is provided by the receiving card 601b. The hashed record of the transaction contains the unique information of each user, along with the transaction amount. The success or failure of the transaction is able to be displayed on the respective displays of credit cards 601a and 601b.

ACCOUNT THEFT AND UNINTENDED USE PREVENTION

[0065] 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

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

[0066] 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

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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).

[0067] 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 card for a specified duration (for instance, one minute). In an embodiment the detection of motion through accelerometer input indicates activation by a valid user. In one embodiment the specific motion detected through accelerometer input corresponding with a specific user action, such as a “flick”, “swipe”, “spin”, “wave”, “tap,” may be used to initiate activation, wherein the motion is not normally generated at idle and during periods of inactivity. For example the motion not being generated accidentally while the card is stored in a user’s wallet, carried while the user is actively moving, or is being handed from user to a clerk at a point of transaction. In one embodiment the specific motion, or sequence of motions, may be associated with a user,

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and stored on the card memory, such that performing the correct sequence when prompted can confirm the possession of the card by the known owner, thus initiating activation and enabling usage.

[0068] 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 credit card 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.

[0069] 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 credit card number, which at step 707 is transmitted to a recipient of the transaction. In one

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embodiment, the limited-duration credit card number has a limited recurrence, and is limited in scope of use to a predetermined number of authorized transactions.

[0070] 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.

[0071] 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.

[0072] 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

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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.

[0073] 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

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produce the data from the main planar coil at the appropriate rate for the credit card reader.

[0074] 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.

[0075] 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

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number generated at the instant the card is being used matters. Accordingly, unauthorized use of the card is nearly impossible because no transaction can be conducted with only the partial static part of the credit card number. In one embodiment of the present invention, enough dynamically generated numbers are provided for on the credit card such that a unique credit card number can be generated for each transaction. In this embodiment, the credit card of the present invention effectively acts as a unique per transaction credit card.

[0076] In embodiments of the present invention comprising dynamically created credit card numbers, a single credit card can be used for multiple banks. For example, instead of carrying a separate credit card for all the different credit card companies, a customer would only need to carry a single card and one of the inputs on the front of the card can be used to select the appropriate bank or credit provider.

[0077] 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.

[0078] 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

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technology so that it can connect to a personal computer and be used to uniquely generate a credit card number for online purchases. The number could also, in one embodiment, be displayed on the front LCD of the card. In one embodiment, the card may also be equipped with a means for communicating with the USB port on the computer in connection with making the online purchases.

TABLE 1

What is claimed is:

1. An apparatus for conducting credit transactions comprising:

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

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

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

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

a microprocessor operatively coupled to said inductor assembly and said at least one detection unit, wherein said microprocessor is operable to simulate

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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

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

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

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

8. An Apparatus for conducting credit transactions comprising,
wherein the edge of said device contains a connector for connection to standard computing devices such as a USB interface.

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[0079] 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.

[0080] 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.

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MULTI-FUNCTION 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 card-to-card transactions. Methods are also described for generating a limited-duration credit card number when performing a transaction for the purpose of creating a limited-use credit card number, which is limited in scope of use to a predetermined number of authorized transactions. Furthermore the device may interact with other similar devices in proximity for the purpose of funds or credit/debit transfers.

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Electronic Acknowledgement Receipt	
EFS ID:	36470519
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC 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.USC1C1C
Receipt Date:	01-JUL-2019
Filing Date:	02-JUL-2018
Time Stamp:	20:33:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		WYAT-0002.pdf	116061 e91b4746fdd7fd647d0f82b069137f5372552229	yes	27

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	15
	Specification	16	17
	Applicant Arguments/Remarks Made in an Amendment	18	27

Warnings:					
Information:					
2	Specification	WYAT-0002USC1C1C_replacement_marked_up.pdf	252954 7246417ad0caa5cc653da998855968c4befc6bb7	no	48
Warnings:					
Information:					
3	Specification	WYAT-0002USC1C1C_spec_clean.pdf	224084 c3b942e4625b963f24c6959254a657dbba8f087c	no	46
Warnings:					
Information:					
		Total Files Size (in bytes):	593099		

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.

DocCode – SCORE

SCORE Placeholder Sheet for IFW Content

Application Number: 16025829 Document Date: 07/15/2019

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

- Drawing

At the time of document entry (noted above):

- USPTO employees may access SCORE content via DAV or via the SCORE web page.
- External customers may access SCORE content via PAIR using the Supplemental Content tab.

Form Revision Date: March 1, 2019

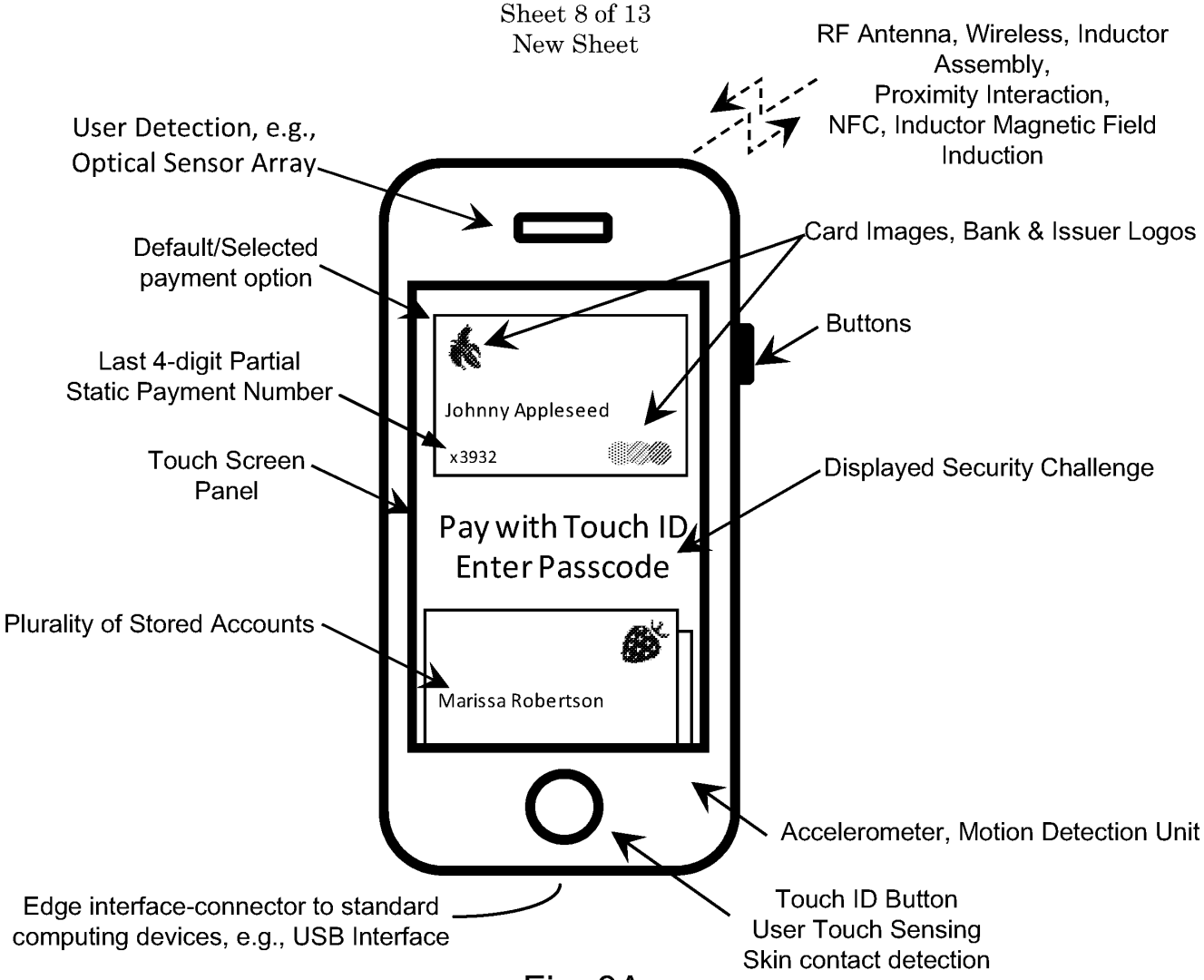


Fig. 8A

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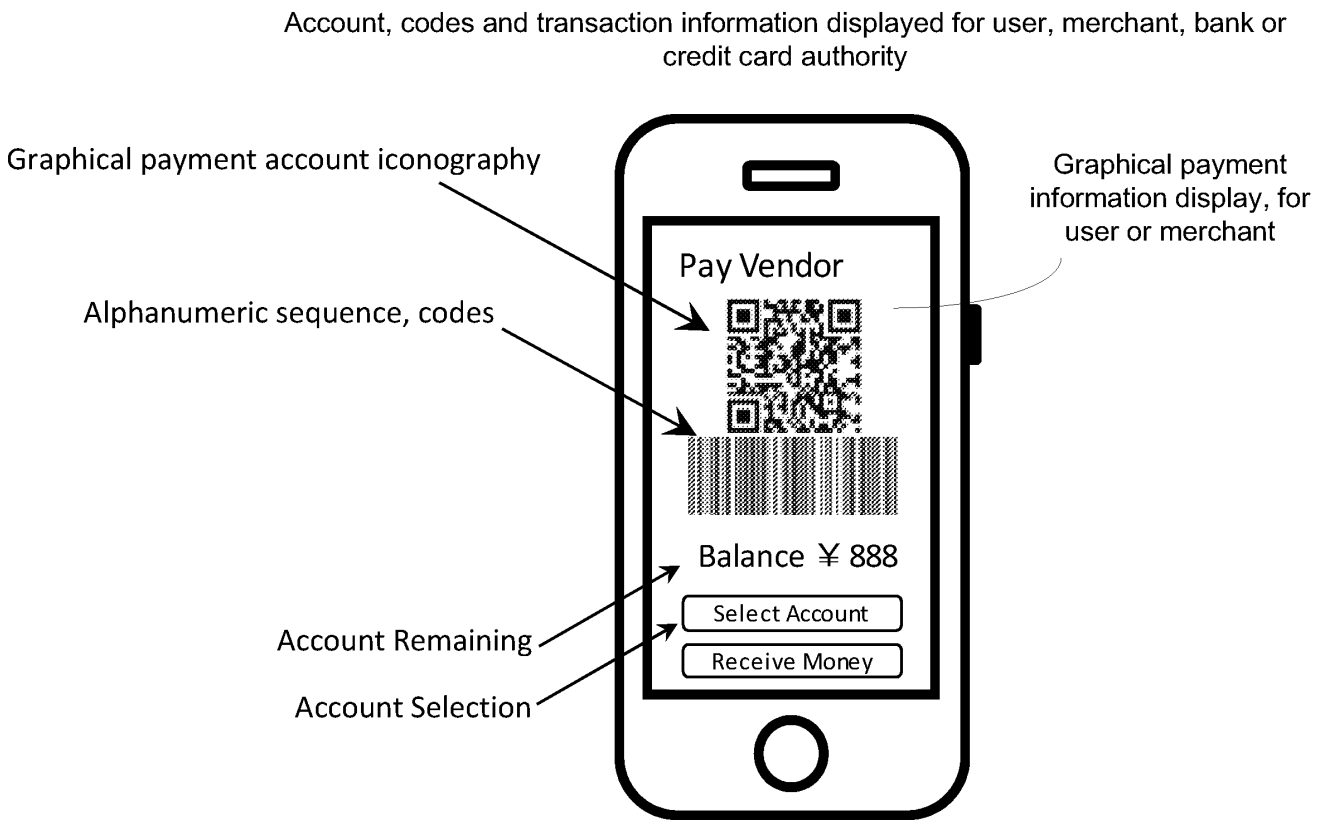


Fig. 8B

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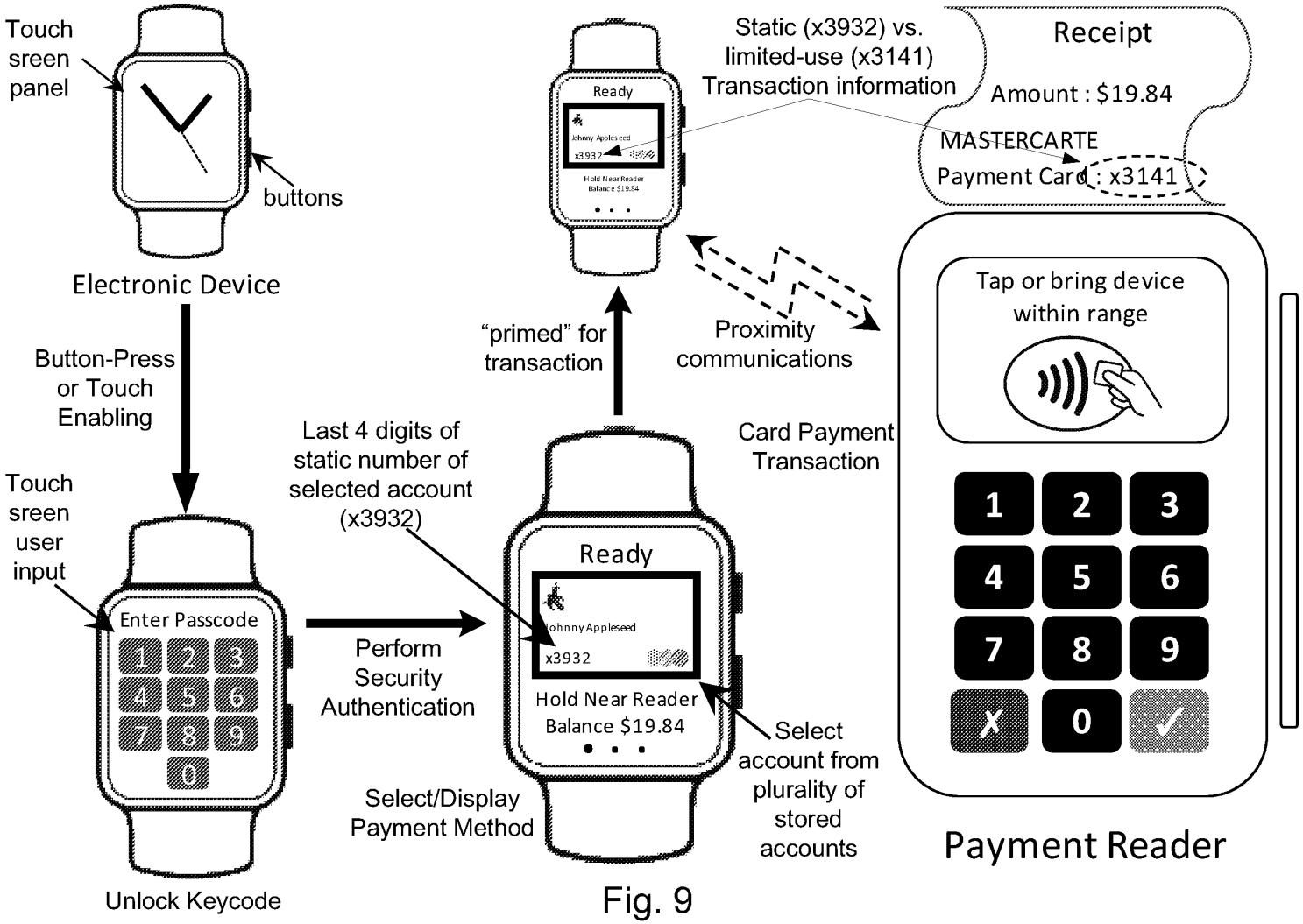


Fig. 9

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Online Transaction

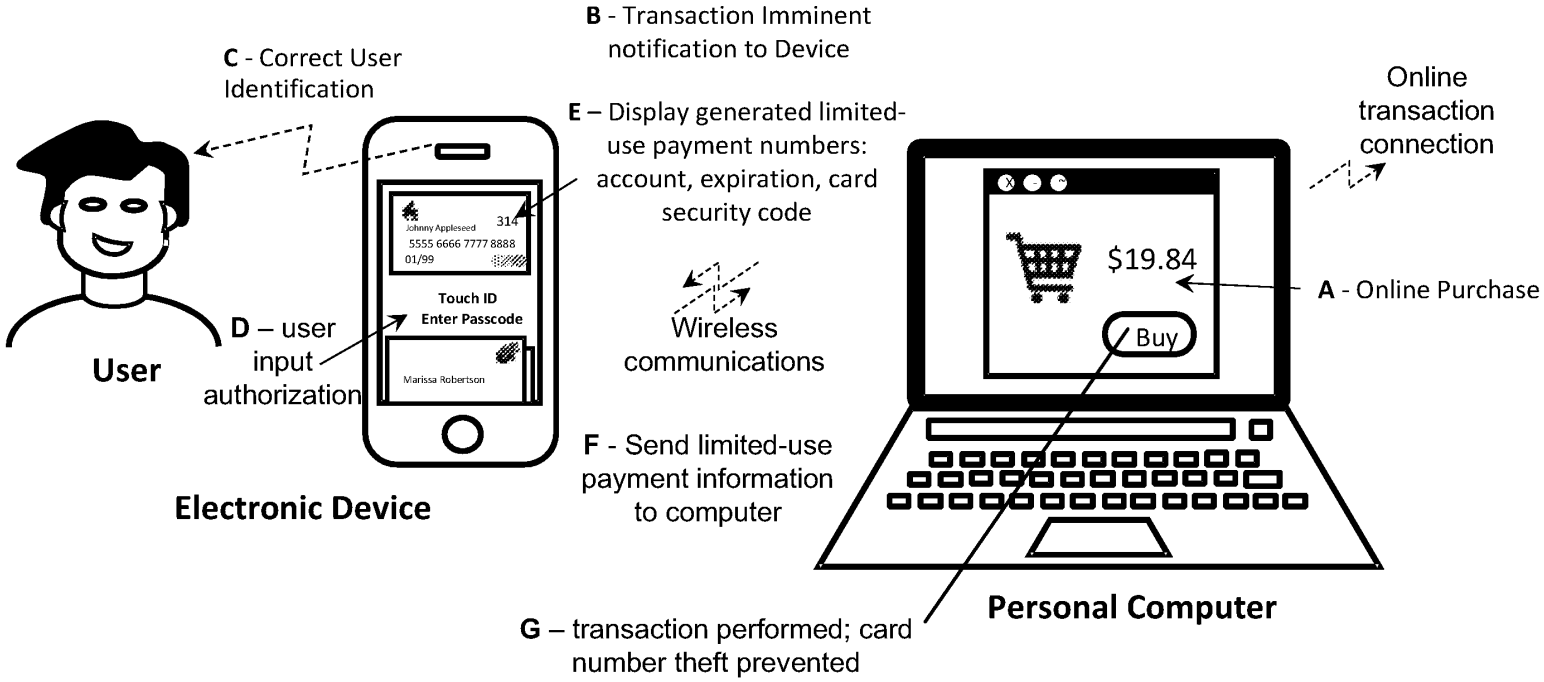


Fig 10

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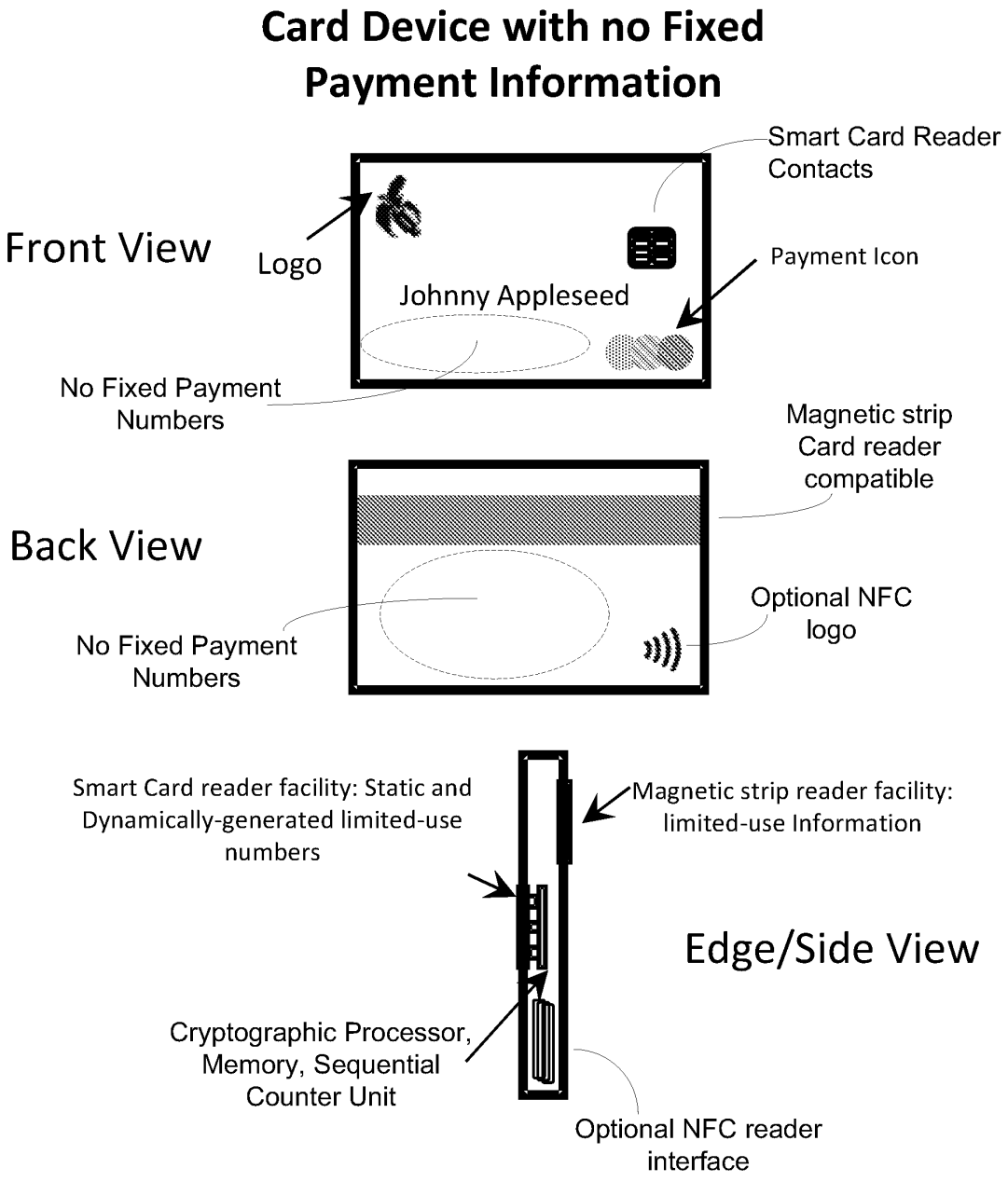

Card Device with no Fixed Payment Information
Front View
Logo
Smart Card Reader Contacts
Payment Icon
Johnny Appleseed
No Fixed Payment Numbers
Back View
Magnetic strip Card reader compatible
Optional NFC logo
No Fixed Payment Numbers
Smart Card reader facility: Static and Dynamically-generated limited-use numbers
Magnetic strip reader facility: limited-use Information
Edge/Side View
Cryptographic Processor, Memory, Sequential Counter Unit
Optional NFC reader interface

Fig 11

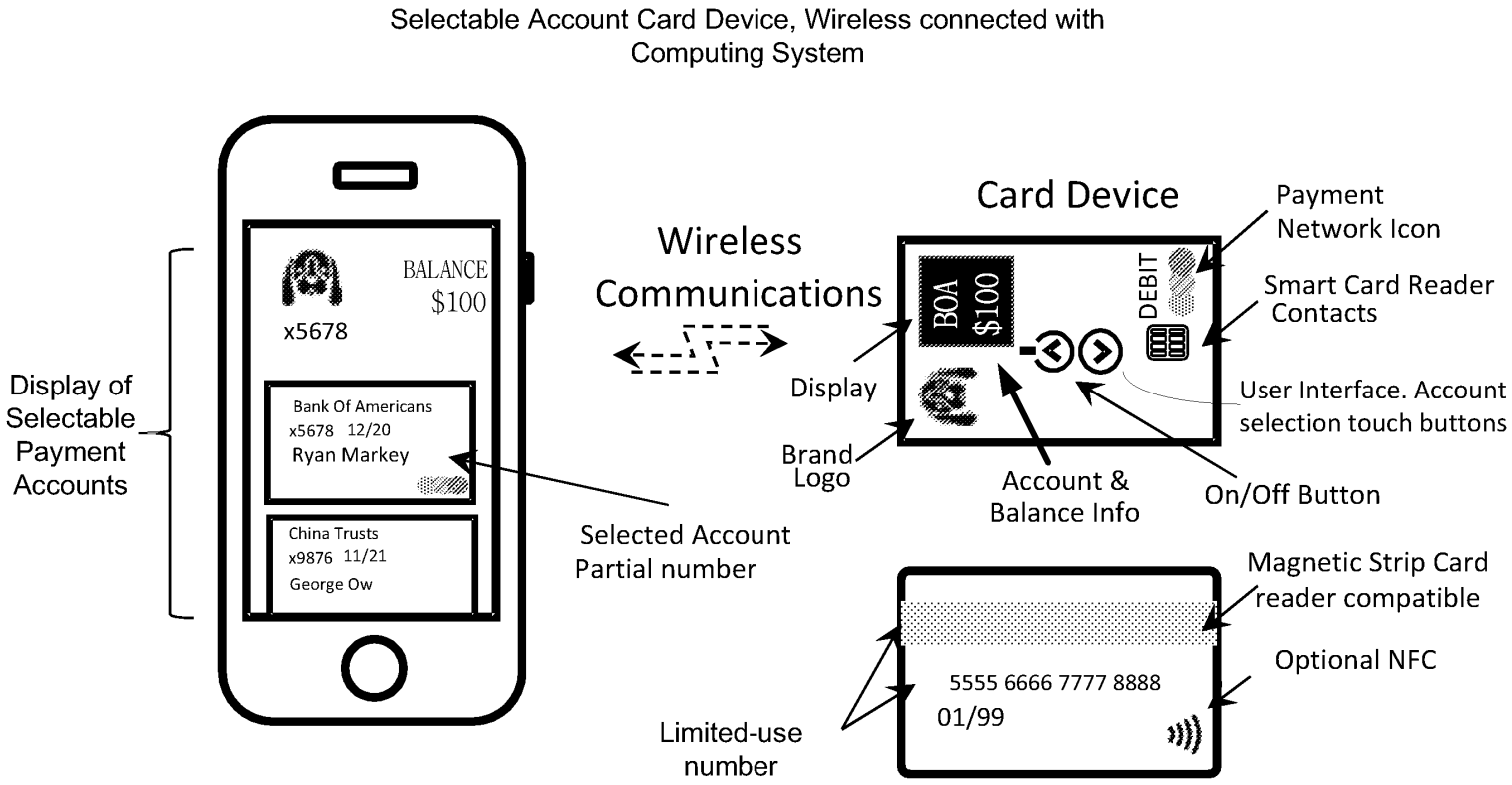


Fig. 12

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Electronic Acknowledgement Receipt	
EFS ID:	36589182
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE
First Named Inventor/Applicant Name:	David WYATT
Customer Number:	136197
Filer:	Anthony C. Murabito/Steve Johnson
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	WYAT-0002.USC1C1C
Receipt Date:	15-JUL-2019
Filing Date:	02-JUL-2018
Time Stamp:	18:44:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Supplemental Response or Supplemental Amendment	WYAT-0002USC1C1C_SUPPLEMENTAL_AMDT_7-15-2019.pdf	30497 52f6f26df025f96180ca8a49e5ec7ce7308134fc	no	3
Warnings:					

Information:					
2	Drawings-only black and white line drawings	WYAT-0002USC1C1C_NewFigures.pdf	533674 62e5d8696f6944e2597422bdf97d396dee3c4640	no	6
Warnings:					
Information:					
			Total Files Size (in bytes):	564171	

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New Applications Under 35 U.S.C. 111

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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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: WYATT

Serial:	16/025,829	Group Art Unit:	2887
Filed:	02-JUL-2018	Examiner:	Lee, Seung H.
For:	Multi-Function Electronic Device (as amended)		

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

SUPPLEMENTAL RESPONSE

Dear Examiner Lee:

In response to the Office Action mailed 4/1/2019, and with respect to the Amendment and Response filed 7/1/2019 in the above captioned Patent Application, Applicants respectfully request the Examiner to enter the indicated amendments and to consider the following remarks.

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Remarks

Due to inadvertent omission in the Response filed 7/1/2019, Figures 8A, 8B, 9, 10, 11 and 12, referred to in the Response and in the Replacement Specification filed 7/1/2019, were not included with the other materials of the Response.

Figures 8A, 8B, 9, 10, 11, and 12 are newly presented and included herewith. No new matter is added.

Figures 13A and 13B, referred to in the Response filed 7/1/2019, were not referred to in the Replacement Specification filed 7/1/2019, are not included herewith, and are not a part of the present application.

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CONCLUSION

Claims 21-40 are pending in the present application. Applicants respectfully request reconsideration of the present application in view of the indicated amendments and the remarks presented herein.

The Examiner is urged to contact Applicant's undersigned representative if the Examiner believes such action would expedite resolution of the present Application. Applicant believes no extension of time is necessary. However, this conditional petition is being made to provide for the possibility that Applicant has inadvertently overlooked the need for a petition for extension of time. If an additional extension of time is required, please consider this a petition therefore. Please charge any additional fees or apply any credits to our PTO deposit account number: 50-4160.

Respectfully submitted,

MURABITO, HAO & BARNES LLP

Date: July 15, 2019

/Anthony C. Murabito/
Anthony C. Murabito
Reg. No. 35,295

Two North Market Street
Third Floor
San Jose, California 95113
(408) 938-9060

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UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C	3866

136197 7590 09/10/2019

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	

MAIL DATE	DELIVERY MODE
09/10/2019	PAPER

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

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

Office Action Summary	**Application No.** 16/025,829	**Applicant(s)** WYATT, David	
	Examiner SEUNG H LEE	**Art Unit** 2887	**AIA (FITF) Status** No

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

Period for Reply

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

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

Status

1)☑ Responsive to communication(s) filed on 7/01/2019.

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

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

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

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

Disposition of Claims*

5) ☑ Claim(s) 21-40 is/are pending in the application.

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

6) ☑ Claim(s) 31-34 is/are allowed.

7) ☑ Claim(s) 21 and 35-40 is/are rejected.

8) ☑ Claim(s) 21-30 is/are objected to.

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

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

Application Papers

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

11)☑ The drawing(s) filed on 7/15/2019 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

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

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

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

2. Receipt is acknowledged of the response filed on July 01, 2019, which has been entered in the file.

Claim Rejections - 35 USC § 112

3. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 35-40 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Re claim 35: The phrase “wherein at least one of the devices is configured to dynamically generate a limited-use payment information” in claim 35, line 12 is unclear. It is vague and indefinite to the examiner what the applicant is intending to describe of that device. That is, is the card device generating payment information, or is the computing device generating the same in response to the valid authorization of the user?

Clarification and correction is required.

Claims 36-40 are rejected because claims are depended on the rejected claim 35.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file

provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

6. Claim 21 is rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 6, and 13 of U.S. Patent No. 10013693. Although the claims at issue are not identical, they are not patentably distinct from each other because the instant application claims a payment device comprising a thin shaped body having no fixed payment numbers disposed thereon; a memory; a cryptographic processor coupled to the memory; and a reader interface, including at least one interface selected from a set comprising: a magnetic- stripe, a smart card reader interface, a mag-stripe inductor interface, an RF interface, an NFC interface, and a wireless interface, and wherein payment information for a transaction is operable to be conveyed via the reader interface and comprises limited-use payment information, and wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities.

Claims 1, 6, and 13 of U.S. Patent No. 10013693 an apparatus comprising a thin card shaped sized body, a memory configured to store a plurality of identification data, a processor coupled to the memory, wherein the processor is configured to generate a card information based on the plurality of identification data, wherein the generated card information is configured to be used in place of card issuer information, a wireless interface configured to wirelessly communicate the card information, wherein the processor is configured to transmit the card information via the wireless interface, a display configured to display the card information, and a real-time clock configured to produce a timestamp, wherein the real-time clock is configured to produce a cryptographically protected timestamp, wherein in response to activation of the processor the card information is generated and the apparatus is enabled for transmission of the card information via the wireless interface.

Allowable Subject Matter

7. Claims 31-34 are allowed.

8. Claims 22-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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

None of prior art teaches the payment device and an online payment system as set forth in the claims.

Response to Arguments

10. Applicant's arguments with respect to claim 21, 35-40 have been considered but are moot because the arguments do not apply in the current rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an

interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

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

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

/SEUNG H LEE/
Primary Examiner, Art Unit 2887

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/025,829	WYATT, David
	Examiner	Art Unit
	SEUNG H LEE	2887

CPC - Searched*		
Symbol	Date	Examiner
G06K17/0022 OR G06K19/0719 OR G06K19/07703 OR G06K19/12 OR G06K19/14 OR G06K7/0008	09/06/2019	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	09/06/2019	sl
14/217261, 14/680946, 15/250698 (parent cases)	09/06/2019	sl

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

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/025,829	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	03/29/2019	09/06/2019							
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	12	"51523147".FMID.	US-PGPUB; USPAT; FPRS; JPO	OR	OFF	2019/09/06 08:23
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S2	9031	235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:53
S3	2123	235/449.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:53
S4	1108	235/439.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:54
S5	1725	235/493.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:54
S6	12807	S2 S3 S4 S5	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:54
S8	900	S6 and (generat$4 same (magnetic near20 field))	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:55
S9	267	S6 and (generat$4 same (magnetic near20 field) same card same reader)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:56

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S10	25	S6 and (generat$4 same (magnetic near20 field) same card same reader same inductor)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/11/28 19:57
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S13	0	S11 and (card same display same tempora$6 same inductor)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 15:40
S14	6	("7841539").URPN.	USPAT	OR	OFF	2014/12/13 16:03
S15	226906	((credit ic smart) adj5 card)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 16:14
S16	3536	S15 same nfc	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 16:15
S17	50	S16 same (generat$4 with number)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2014/12/13 16:15
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S25	99	S24 same (antenna wireless$4 contactless$4)	US-PGPUB; USPAT; USOCR	OR	OFF	2014/12/13 20:14
S26	45	S25 same (button keypad key input$4 activat$4)	US-PGPUB; USPAT; USOCR	OR	OFF	2014/12/13 20:14
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S32	1118	235/439.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/12/13 21:37
S33	1725	235/493.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/12/13 21:37
S34	12831	S30 S31 S32 S33	US-PGPUB; USPAT; EPO; JPO	OR	ON	2014/12/13 21:37
S35	58	S34 and S24	US-	OR	ON	2014/12/13

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S45	1842	235/493.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:13
S46	17411	S42 S44 S45	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:13
S48	448	S46 and ((transfer$4 trasnaction) same	US-	OR	ON	2015/09/24

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		(first adj20 card) same (second adj20 card))	PGPUB; USPAT; USOCR; EPO; JPO			10:14
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S53	0	S51 same proximity same touch	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:24
S54	55	S51 same touch	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:25
S55	4	S54 same exchang$4	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:25
S56	1109	((transfer$4 trasnaction) same (first adj20 card) same (second adj20 card)).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:47
S57	37	S56 and (touch same sensor)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2015/09/24 10:48
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			USOCR			
S71	507	("5530232").URPN.	USPAT	OR	ON	2016/02/29 07:54
S72	828	((smart ic) adj5 card) same((multiple plurality) near20 account)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/29 08:05
S73	109	S72 same display$4	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/29 08:05
S74	69	S73 same (select$4 menu)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/29 08:05
S75	221	("4736094").URPN.	USPAT	OR	ON	2016/02/29 08:09
S76	565	("5578808").URPN.	USPAT	OR	ON	2016/02/29 08:51
S77	1	"9022286".pn.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/02/29 08:54
S78	8	("20060032908" | "20080223937" | "20130048712" | "6631849" | "6641050" | "7793851" | "7841539" | "8702007").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/02/29 08:54
S79	2	("8702007").URPN.	USPAT	OR	ON	2016/02/29 08:59
S80	20	("20030046554" | "20040050930" | "20050039027" | "20070220272" | "20090153297" | "20100294835" | "20140026213" | "20140084059" | "20140145513" | "20140175178" | "20140189813" | "20140258109" | "20140327922" | "6356868" | "8276816" | "8702007" | "8730009" | "8756680" | "8775814" | "8775819").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/02/29 08:59
S81	10	("7841539").URPN.	USPAT	OR	ON	2016/03/01 21:44
S82	3	("20060261174" | "20070119952" | "20110140841").PN.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/03/01 21:51
S83	60	("2006/0261174").URPN.	USPAT	OR	ON	2016/03/01 21:53
S84	251867	((credit ic smart) adj5 card)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/01 21:56
S85	41	S84 same ((multiple plurlaity) near5 account) same display$4 same select$4	US-PGPUB;	OR	OFF	2016/03/01 21:56

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			USPAT; EPO; JPO			
S86	251867	((credit ic smart) adj5 card)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:06
S87	41	S86 same ((multiple plurlaity) near5 account) same display$4 same select$4	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:06
S88	4	S87 same wireless$4	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:07
S89	29573	S86 same wireless$4	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:08
S90	99	S89 same ((multiple plurlaity) near5 account)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:08
S91	632	S86 same (dual near20 interface)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:10
S92	0	S91 and 235/390.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:10
S93	48	S91 and 235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:10
S94	0	S91 and 235/392.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:10
S95	181	S91 and 235/492.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:10
S96	0	S95 and((multiple plurlaity) near5 account)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:11
S97	16	S95 and (display$4 same select$4)	US-PGPUB;	OR	OFF	2016/03/02 10:11

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			USPAT; EPO; JPO			
S98	143	S86 same generat$4 same duration same number	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:20
S99	5	S98 and 235/492.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:21
S100	6841	S86 same limit$4 same transaction same (time number)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:26
S101	175	S100 and 235/492.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:26
S102	101	S101 and 235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:27
S103	31542	S87 sme (static same dynamic$6 same portion)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:40
S104	0	S87 same (static same dynamic$6 same portion)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 10:40
S105	153	S86 same (static same dynamic$6 same portion)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 11:05
S106	0	S105 and crytographically	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 12:02
S107	301	S86 same accelerometer	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 12:02
S108	0	S105 and crytographic$4 same timestamp	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 12:06
S109	8275	S86 same sensor	US-PGPUB;	OR	OFF	2016/03/02 12:06

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			USPAT; EPO; JPO			
S110	12	S109 same detect$4 same idle	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/03/02 12:07
S111	9266	((G06K17/0022 OR G06K19/0719 OR G06K19/07703 OR G06K19/12 OR G06K19/14 OR G06K7/0008).CPC.)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2016/06/14 13:14
S112	9317	235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/06/14 13:14
S113	2204	235/449.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/06/14 13:14
S114	1264	235/439.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/06/14 13:14
S115	1769	235/493.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/06/14 13:14
S116	21502	S112 S113 S114 S115 S111	US-PGPUB; USPAT; EPO; JPO	OR	ON	2016/06/14 13:14
S117	0	S116 and crytographic$4 same timestamp	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/06/14 13:14
S118	231	S116 and accelerometer	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/06/14 13:15
S119	184	S116 and (static same dynamic$6 same portion)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/06/14 13:15
S120	3	S116 and crytographically	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/06/14 13:16
S121	360	S116 and (dynamic$6 same wireless)	US-	OR	OFF	2016/06/14

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			PGPUB; USPAT; EPO; JPO			13:16
S122	94	S116 and (dynamic$6 same wireless same security)	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2016/06/14 13:16
S123	7	"9022286"	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2016/06/14 13:31
S124	1	"9430946"	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2017/05/01 13:49
S125	2	"9430746"	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2017/05/01 13:49
S126	1	"9430765"	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2017/05/01 13:49
S127	7	"51523147".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 15:22
S128	36	"250698"	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 13:56
S129	1	"1000002425033".FMID.	US-PGPUB; USPAT; FPRS	OR	ON	2017/07/09 13:56
S130	3	"9430765".pn. "9022286".pn. "9224083".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2017/07/09 13:58
S131	10658	((G06K17/0022 OR G06K19/0719 OR G06K19/07703 OR G06K19/12 OR G06K19/14 OR G06K7/0008).CPC.)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2017/07/09 14:15
S132	9321	235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 14:15

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S133	2210	235/449.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 14:15
S134	1268	235/439.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 14:15
S135	1771	235/493.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 14:15
S136	22889	S132 S133 S134 S135 S131	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 14:15
S137	42	S136 and (account same timestamp)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2017/07/09 14:16
S138	42	"250698"	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:17
S139	11166	((G06K17/0022 OR G06K19/0719 OR G06K19/07703 OR G06K19/12 OR G06K19/14 OR G06K7/0008).CPC.)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2019/03/29 08:44
S140	9323	235/380.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:44
S141	2210	235/449.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:44
S142	1267	235/439.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:44
S143	1771	235/493.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:44
S144	23398	S140 S141 S142 S143 S139	US-PGPUB; USPAT; EPO;	OR	ON	2019/03/29 08:44

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			JPO			
S145	48	S144 and (account same timestamp)	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:44
S146	4	S144 and (card same (wireless$4 contactless) same generat$4 same issue$4 same (stamp timestamp time-stamp))	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:46
S147	69	(card same (wireless$4 contactless) same generat$4 same issue$4 same (stamp timestamp time-stamp))	US-PGPUB; USPAT; EPO; JPO	OR	ON	2019/03/29 08:47
S148	28	"025829"	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2019/08/19 18:12
S149	96	("7841539").URPN.	USPAT	OR	OFF	2019/08/22 08:11
S150	28	"025829"	US-PGPUB; USPAT; EPO; JPO	OR	OFF	2019/09/04 06:12

9/6/2019 8:50:11 AM
C:\Users\slee5\Documents\EAST\Workspaces\16-025829.wsp

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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
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/025,829	Filing Date 07/02/2018	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

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

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	11/07/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/CHRISTINE MOLLISH/
*** 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.

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	16025829
Filing Date	02-Jul-2018
First Named Inventor	David WYATT
Attorney Docket Number	WYAT-0002.USC1C1C
Title of Invention	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Virtual Electric Inc.	100%

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

10013693

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior 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 presently shortened by any terminal disclaimer.

◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

○ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.	
Applicant claims the following fee status: ◉ Small Entity ○ Micro Entity ○ Regular Undiscounted I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.	
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application Registration Number 35295 ○ A sole inventor ○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application ○ A joint inventor; all of whom are signing this request	
Signature	/Anthony C. Murabito/
Name	/Anthony C. Murabito/

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	16025829
Filing Date:	02-Jul-2018
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE
First Named Inventor/Applicant Name:	David WYATT
Filer:	Anthony C. Murabito/Missy Isaac
Attorney Docket Number:	WYAT-0002.USC1C1C

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	2814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

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

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 16025829

Filing Date: 02-Jul-2018

Applicant/Patent under Reexamination: WYATT

Electronic Terminal Disclaimer filed on November 7, 2019

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt	
EFS ID:	37691222
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC 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.USC1C1C
Receipt Date:	07-NOV-2019
Filing Date:	02-JUL-2018
Time Stamp:	18:21:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	$160
RAM confirmation Number	E2019A7I21401419
Deposit Account	504160
Authorized User	Missy Isaac
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 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	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	33533 85c1b7afaeaa482cc968ffbd63cfb919357e2ce4	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30500 2e768046c5cb3314cbaf9dc3fbcc3debafb65583	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	64033		

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.

Doc Code: A.NE.AFCP
Document Description: After Final Consideration Pilot Program Request

PTO/SB/434 (05-13)

CERTIFICATION AND REQUEST FOR CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0

Practitioner Docket No.:	Application No.:	Filing Date:
WYAT-0002.USC1C1C	16/025,829	2018-07-02
First Named Inventor:	**Title:**	
David WYATT	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC DEVICE	

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0 (AFCP 2.0) OF THE ACCOMPANYING RESPONSE UNDER 37 CFR 1.116.

1. The above-identified application is (i) an original utility, plant, or design nonprovisional application filed under 35 U.S.C. 111(a) [a continuing application (*e.g.*, a continuation or divisional application) is filed under 35 U.S.C. 111(a) and is eligible under (i)], or (ii) an international application that has entered the national stage in compliance with 35 U.S.C. 371(c).
2. The above-identified application contains an outstanding final rejection.
3. Submitted herewith is a response under 37 CFR 1.116 to the outstanding final rejection. The response includes an amendment to at least one independent claim, and the amendment does not broaden the scope of the independent claim in any aspect.
4. This certification and request for consideration under AFCP 2.0 is the only AFCP 2.0 certification and request filed in response to the outstanding final rejection.
5. Applicant is willing and available to participate in any interview requested by the examiner concerning the present response.
6. This certification and request is being filed electronically using the Office's electronic filing system (EFS-Web).
7. Any fees that would be necessary consistent with current practice concerning responses after final rejection under 37 CFR 1.116, *e.g.*, extension of time fees, are being concurrently filed herewith. [There is no additional fee required to request consideration under AFCP 2.0.]
8. By filing this certification and request, applicant acknowledges the following:
    - Reissue applications and reexamination proceedings are not eligible to participate in AFCP 2.0.
    - The examiner will verify that the AFCP 2.0 submission is compliant, *i.e.*, that the requirements of the program have been met (see items 1 to 7 above). For compliant submissions:
        - The examiner will review the response under 37 CFR 1.116 to determine if additional search and/or consideration (i) is necessitated by the amendment and (ii) could be completed within the time allotted under AFCP 2.0. If additional search and/or consideration is required but cannot be completed within the allotted time, the examiner will process the submission consistent with current practice concerning responses after final rejection under 37 CFR 1.116, *e.g.*, by mailing an advisory action.
        - If the examiner determines that the amendment does not necessitate additional search and/or consideration, or if the examiner determines that additional search and/or consideration is required and could be completed within the allotted time, then the examiner will consider whether the amendment places the application in condition for allowance (after completing the additional search and/or consideration, if required). If the examiner determines that the amendment does not place the application in condition for allowance, then the examiner will contact the applicant and request an interview.
            - The interview will be conducted by the examiner, and if the examiner does not have negotiation authority, a primary examiner and/or supervisory patent examiner will also participate.
            - If the applicant declines the interview, or if the interview cannot be scheduled within ten (10) calendar days from the date that the examiner first contacts the applicant, then the examiner will proceed consistent with current practice concerning responses after final rejection under 37 CFR 1.116.

Signature	Date
/Anthony C. Murabito/	11/07/2019
Name (Print/Typed) Anthony C. Murabito	Practitioner Registration No. 35295

***Note**: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.*

[✓] * Total of 1 forms are submitted.

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:

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
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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:	37691656
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTIONAL CREDIT CARD TYPE PORTABLE ELECTRONIC 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.USC1C1C
Receipt Date:	07-NOV-2019
Filing Date:	02-JUL-2018
Time Stamp:	18:56:38
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	After Final Consideration Program Request	WYAT-0002-USC1C1C_AFCP_11-07-2019.pdf	227814 a46d6a21dff5228b8343fa804f61dfe692e5e8b2	no	2
Warnings:					

Information:					
2	Response After Final Action	WYAT-0002USC1C1C_AMDT_11-07-2019.pdf	52436 33c2a6180d92d29602229665459005f3d21464e1	no	19
Warnings:					
Information:					
			Total Files Size (in bytes):	280250	

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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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: WYATT

Serial:	16/025,829	Group Art Unit:	2887
Filed:	02-JUL-2018	Examiner:	Lee, Seung H.
For:	Multi-Function Electronic Device (as amended)		

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

AMENDMENT, RESPONSE, and
REQUEST for CONSIDERATION under the
AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0

Dear Examiner Lee:

In response to the Office Action mailed 9/10/2019 in the above captioned Patent Application, and per the Certification and Request for Consideration under the After Final Consideration Pilot Program 2.0 accompanying this response, please enter the indicated amendments and consider the following remarks for filing in the above captioned patent application.

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In the Claims:

Claims 1-20 (canceled)

21. (previously presented)A payment device comprising:

a thin shaped body having no fixed payment numbers disposed thereon;

a memory;

a cryptographic processor coupled to the memory; and

a reader interface, including at least one interface selected from a set comprising: a magnetic-stripe, a smart card reader interface, a mag-stripe inductor interface, an RF interface, an NFC interface, and a wireless interface, and

wherein payment information for a transaction is operable to be conveyed via the reader interface and comprises limited-use payment information, and wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities.

22. (previously presented) The device of Claim 21, wherein the body comprises fixed payment information disposed thereon and wherein the fixed payment information includes only: a card-holder name; a payment issuing logo; and a card payment network logo, and wherein further, the body is free of any account numbers, expiration dates, card security codes, or other fixed payment numbers, disposed thereon.

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23. (previously presented) The device of Claim 21, wherein the limited-use payment information is conveyed via the magnetic-stripe and is unique to the payment device and to the magnetic stripe, and

wherein the limited-use payment information is limited to use by the payment device and is operable for conveying payment information to a magnetic-stripe payment card reader, and

wherein said limited-use payment information has a limited period of valid use, and

wherein said limited-use payment information is not valid when used other than through a magnetic stripe payment card reader.

24. (previously presented) The device of Claim 21, wherein said limited-use payment information is provided by a card issuing authority for use by the payment device and wherein the card processing authority rejects as invalid, any use of said limited-use payment information obtained via any means other than: a payment card reader reading said limited-use payment information from the reader interface.

25. (previously presented) The device of Claim 21, wherein a request for payment includes at least one of a set comprising: payment information, transaction information, merchant information, and payment card reader information, and

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wherein a card-present transaction is one including the limited-use payment information, and valid payment card reader information, and wherein a card-not-present transaction is one including at least a portion of said limited-use card payment information, and not including valid payment card reader information; and,

wherein a processing authority is operable to approve as valid, a card-present payment transaction; and,

wherein said card processing authority is operable to reject, as not valid, a use of the limited-use card payment information in a card-not-present payment transaction; and

wherein a card issuing authority receiving said request for payment is operable to decline a transaction not involving a valid card-present use of a limited-use card payment information portion used in place of card issuer supplied payment information.

26. (previously presented) The device of Claim 21, wherein a card processing authority is operable to reject as invalid, a use of the limited-use payment information provided via the reader interface, in online payment transactions.

27. (previously presented) The device of Claim 21, wherein a card issuer providing the limited-use payment information, for use by the payment device, limits valid approval of said limited-use payment information to performing a card-present payment transaction by the card device, and wherein said card issuer

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declines as invalid a use of said limited-use payment information in transactions other than wherein the payment device is present, and

wherein a card issuer limits said card payment information to use for a finite amount of time, and declines as invalid use when said amount of time has expired, and

wherein a card issuer limits use to payment for transactions with the user approving, and declines as invalid use when the card user is denying an approval, and

wherein a card issuer limits to use in place of card issuer information for payments by the payment device.

28. (previously presented) The device of Claim 21, wherein the reader interface is operable to wirelessly receive cardholder transaction information and to identify a valid user through at least one user-validation action, selected from a set of comprising:

a device touch ID sensor identifying a touch of the valid user;

a device touch sensor-array receiving a user entered valid passcode;

a device key-pad receiving a use entered a valid passcode;

a device user interface receiving a user entered a valid PIN or Key-Code;

a device user interface receiving a user entered a valid password;

a device user interface reading a user swipe or gesture;

a user tapping a predetermined sequence on the device;

a user motioning the device in accordance with a sequence;

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a skin-contact sensing identifying a valid user;

a device sensor array reading a touch of an identified user;

a device biometric recognition of a valid user; and

a biometric sensing of the device remaining continuously in the possession of a valid user,

wherein a display of the device is operable to display transaction information through a user interface, and wherein transaction information includes at least one of a set comprising: a transaction time; a transaction amount; transaction merchant information; a transaction location; a transaction facility; card information; a partial card number; graphical card images; and

wherein upon validating the user, the user-interface is operable to receive a valid user input, of at least one user action selected from a set comprising: a payment approval authorization; a payment denial; and an adjustment of a transaction payment.

29. (previously presented) The device of Claim 21, wherein a dynamically-generated one-time limited-use payment information portion is generated by said processor when coupled to a reader interface accessible to said processor, and

wherein the payment information conveyed to a payment card reader, at the time of transaction, includes at least one of a portion of: a static limited-use portion; and a dynamically-generated limited-use portion, and

wherein said static limited-use payment information is provided by a card issuing authority for use in place of a card issuer payment information.

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30. (previously presented) The device of Claim 21, wherein the processor cryptographically dynamically generates a one-time limited-use number based on combination of a card device transaction sequence count, and at least one of a set of information including:

a user information;

a user card account number;

a device account number;

device secret keys;

card issuer keys;

a time;

a merchant;

a location;

an online address;

a payment information;

a card reader information;

an account information;

an amount;

a transaction information; and

a cryptographic combination of at least two of the above set of information, and wherein the processor increments the card device transaction sequence count on each transaction.

31. (previously presented) An online payment system, the system comprising:

a thin payment device comprising no fixed payment numbers visible thereon; and

a personal computing device, wherein the personal computing device comprises:

a processor;

a memory;

a wireless interface;

a display operable to provide a visual user-interface operable for performing online transactions; and

a user-interface coupled to the processor, and

wherein the wireless interface is operable to wirelessly connect to the thin payment device to obtain card device payment account information, and

wherein the processor is operable to generate limited-use payment information based on the card device payment account information, and

wherein the personal computing device is operable to generate complete payment information, including the limited-use payment information, and to convey said complete payment information via at least one interface of a set comprising: said display; and the wireless interface, and

wherein the limited-use payment information is configured to be used in place of a card issuer payment information.

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32. (previously presented) The system of Claim 31, wherein the thin payment device bears no fixed payment numbers, and bears only: the cardholders name; a brand logo; and the card payment network logo.

33. (previously presented) The system of Claim 31 wherein the personal computing device is configured for presenting on the display a limited-use card security code number for use in payments in place of card issuer payment information, and

wherein the personal computing device is further configured to generate said limited-use card security code responsive to an input request from a valid user, via said user-interface, and

wherein said limited-use number is generated on the personal computing device from at least one information from a set comprising:

a payment device user information;

a payment device account number;

a payment device sequence counter;

a payment device identifier;

payment device secrets;

a payment device key;

computing device secrets;

computing device keys;

payment device issuer secrets;

payment device issuer keys;

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a time;

an expiration date;

an amount;

a merchant locality;

an online location;

a transaction information; and

a cryptographic combination of at least two of the above.

34. (previously presented) The system as described in Claim 31 wherein the personal computing device is configured for presenting on the display, a limited-use card account number, and a limited-duration expiration date, for use in payments in place of a card issuer payment information, and

wherein said personal computing device is further configured to generate said limited-use card payment information responsive to an input request from a valid user, and

wherein the personal computing device is configured to identify a valid device-user through at least one user-validation input available to the personal computing device, of a set comprising:

a touch ID sensor operable to identify the touch a valid user;

a user entering of a valid passcode on a touch sensor-array;

a user entering of a valid passcode on a key-pad;

a user entering of a valid PIN or Key-Code on the user-interface;

a user entering of a valid password on the user-interface;

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a valid user swiping or gesturing on a touch sensor-array;

a valid sequence of a user tapping of the device detectable by device accelerometer;

a valid user sequence of user motioning of the device detectable by device motion sensor unit;

a skin-contact sensing identifying a valid user on a device contact sensor;

a touching of an identified user's skin on a device touch sensor array;

a device biometric recognition of a valid user via a device biometric sensing; and

a biometric sensing of the device remaining continuously in the proximity possession of a valid user via device skin-proximity sensor; and, wherein the personal computing device conveys the limited-use payment information through the user interface.

35. (currently amended) An online payment system comprising:

a thin card-shaped payment card device that bears no fixed payment numbers on the card device; and

a computing device operable for completing an online payment transaction and comprising:

a display;

a user-interface;

a processor; and

a memory for storing a payment card information accessible to the processor,

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wherein card issuer provided payment card information is wirelessly downloaded into the computing device, and

wherein at least one of the ~~devices~~ set comprising the computing device and the card-shaped payment device is configured to dynamically generate a limited-use payment information, upon the authorization of a valid computing device user, and

wherein the payment information provided by the computing device is used in online transactions in place of a card issuers payment card information.

36. (previously presented) The system of Claim 35 wherein the card device bears no fixed payment numbers, and bears only: the cardholders name; the brand logo; and the card payment network logo.

37. (previously presented) The system of Claim 35 wherein the dynamically generated limited-use payment information is displayable on a display of the card device.

38. (previously presented) The system of Claim 35 wherein the limited-use payment information includes a static limited-use card account number, a limited-duration card expiration date, and a limited-use card security code and,

wherein the dynamically generated limited-use payment information is wirelessly conveyed by the card device to complete an online transaction.

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39. (previously presented) The system of Claim 35 wherein the computing device is operable to generate the limited-use card security code number, for use in place of a card issuers card security code by generating said limited-use number via cryptographically combining information from at least one of a set comprising:

a 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;

a transaction information;

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and a cryptographic combination of at least two of the above set, and wherein the computing device is operable to display the generated limited-use card security code on the display.

40. (previously presented) The system of Claim 35 wherein the computing device is further operable to obtain a user payment approval through at least one user-interface element of the card device, from a set comprising:

a display interface,

a touch-screen interface,

a touch ID button,

input buttons,

a touch key-pad,

a key-pad,

a key-board,

an optical sensor array,

a motion detection unit,

an accelerometer,

the swiping of a recognized user skin over a device sensor array,

a biometric sensor,

a wireless interface,

an NFC interface,

an RF interface,

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a device biometric sensing the device is continuously remaining in contact with a valid user; and,

wherein the card device is operable to display at least one of a set comprising: the transaction information, the merchant information, the time, the location of the transaction, the payment bank logo, the card issuer icon, the payment card image, and the amount, on a display of the card device, and,

a user input providing for at least one user action from a set comprising: an approving of a transaction, a denying of a transaction, and an adjusting of a transaction, via the user-interface.

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REMARKS

Claims 21-40 are pending in the present application. Claims 1-20 were previously canceled. Claim 35 is amended. No new matter is added. Applicants respectfully request reconsideration of the above-captioned application in view of the indicated amendments and the following remarks.

There are no prior art-based rejections.

Allowable Matter

The Official Action indicates that Claims 31-34 are allowed.

The Official Action indicates that Claims 22-30 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants thank the Examiner for indicating allowed and allowable material.

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Double Patenting

Claim 21 is rejected under the judicially created (non-statutory) doctrine of obviousness-type double patenting over Claims 1, 6, and 13 of U.S. Patent No. 10,013,693.

An eTerminal Disclaimer over U.S. Patent 10,013,693 was filed and accepted, EFS ID 37691222, thereby obviating this provisional double patenting rejection.

After Final Consideration Pilot 2.0

This response includes a request for consideration under the After Final Consideration Pilot 2.0 (Form PTO/SB/434) and an amendment to at least one independent claim that does not broaden the scope of the independent claim in any aspect.

35 U.S.C. § 112

Claim 35, and Claims 36-40 by virtue of their dependence there from, are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically, the rejection finds the phrase, "wherein

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at least one of the devices is configured to dynamically generate a limited-use payment information," unclear.

The amendments to Claim 35 presented herein correct the cited informalities.

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CONCLUSION

Claims 21-40 are pending in the present application. All Claims are believed to be in condition for allowance, and such allowance is earnestly sought.

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

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

Respectfully submitted,

MURABITO, HAO & BARNES LLP

Date: 11/07/2019

/Anthony C. Murabito/
Anthony C. Murabito
Reg. No. 35,295

Two North Market Street
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San Jose, California 95113
(408) 938-9060

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NOTICE OF ALLOWANCE AND FEE(S) DUE

136197 7590 11/21/2019

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: 11/21/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C	3866

TITLE OF INVENTION: MULTI-FUNCTION ELECTRONIC DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	02/21/2020

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

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

HOW TO REPLY TO THIS NOTICE:

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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.

PTOL-85 (Rev. 02/11)

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

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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 11/21/2019

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.

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

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C	3866

TITLE OF INVENTION: MULTI-FUNCTION ELECTRONIC DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	02/21/2020

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

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

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

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

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

1 _____
2 _____
3 _____

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

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

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

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

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

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

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

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

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

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

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C	3866

136197 7590 11/21/2019

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: 11/21/2019

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.

PTOL-85 (Rev. 02/11)

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

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

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 16/025,829	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 11/07/2019.
   ☐ 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 21-40 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

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

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

   * Certified copies not received: _____ .

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

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

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

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

Attachment(s)

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

/SEUNG H LEE/
Primary Examiner, Art Unit 2887

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Continuation of Attachment(s) 7. Other: AFCP 2.0 Decision

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Terminal Disclaimer

1. The terminal disclaimer filed on November 07, 2019 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of **U.S. Patent No. 10013693** has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

2. Claims 21-40 are allowed.

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

None of prior art teaches a payment device comprising a thin shaped body having no fixed payment numbers disposed thereon, a memory, a cryptographic processor coupled to the memory, and a reader interface, including at least one interface selected from a set comprising: a magnetic- stripe, a smart card reader interface, a mag-stripe inductor interface, an RF interface, an NFC interface, and a wireless interface, and wherein payment information for a transaction is operable to be conveyed via the reader interface and comprises limited-use payment information, and wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities as set forth in the claims.

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

Conclusion

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

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

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

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

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SEUNG H LEE/
Primary Examiner, Art Unit 2887

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/025,829	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	03/29/2019	09/06/2019	11/14/2019						
	1	✓	-	-						
	2	✓	-	-						
	3	✓	-	-						
	4	✓	-	-						
	5	✓	-	-						
	6	✓	-	-						
	7	✓	-	-						
	8	✓	-	-						
	9	✓	-	-						
	10	✓	-	-						
	11	✓	-	-						
	12	✓	-	-						
	13	✓	-	-						
	14	✓	-	-						
	15	✓	-	-						
	16	✓	-	-						
	17	✓	-	-						
	18	✓	-	-						
	19	✓	-	-						
	20	✓	-	-						
1	21		✓	=						
2	22		O	=						
3	23		O	=						
4	24		O	=						
5	25		O	=						
6	26		O	=						
7	27		O	=						
8	28		O	=						
9	29		O	=						
10	30		O	=						
11	31		=	=						
12	32		=	=						
13	33		=	=						
14	34		=	=						
15	35		✓	=						
16	36		✓	=						
17	37		✓	=						
18	38		✓	=						
19	39		✓	=						
20	40		✓	=						

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/025,829	WYATT, David
	Examiner	Art Unit
	SEUNG H LEE	2887

CPC - Searched*		
Symbol	Date	Examiner
G06K17/0022 OR G06K19/0719 OR G06K19/07703 OR G06K19/12 OR G06K19/14 OR G06K7/0008	11/14/2019	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	11/14/2019	sl
14/217261, 14/680946, 15/250698 (parent cases)	11/14/2019	sl

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	same as above	11/14/2019	sl

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/025,829	WYATT, David
	Examiner	**Art Unit**
	SEUNG H LEE	2887

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

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/SEUNG H LEE/ Primary Examiner, Art Unit 2887	14 November 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2C

U.S. Patent and Trademark Office — Part of Paper No.: 20191114

IPR2025-01150
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/025,829	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		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/SEUNG H LEE/ Primary Examiner, Art Unit 2887	14 November 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2C

U.S. Patent and Trademark Office — Part of Paper No.: 20191114

IPR2025-01150
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/025,829	WYATT, David
	Examiner	**Art Unit**
	SEUNG H LEE	2887

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

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	21	10	30	19	39										
2	22	11	31	20	40										
3	23	12	32												
4	24	13	33												
5	25	14	34												
6	26	15	35												
7	27	16	36												
8	28	17	37												
9	29	18	38												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/SEUNG H LEE/ Primary Examiner, Art Unit 2887	14 November 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2C

U.S. Patent and Trademark Office Part of Paper No.: 20191114

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AFCP 2.0 Decision	Application No.	Applicant(s)	
	16/025,829	WYATT, David	
	Examiner	Art Unit	AIA (FITF) Status
	SEUNG H LEE	2887	No

This is in response to the After Final Consideration Pilot request filed 07 November 2019.

1. **Improper Request** – The AFCP 2.0 request is improper for the following reason(s) and the after final amendment submitted with the request will be treated under pre-pilot procedure.

   ☐ An AFCP 2.0 request form PTO/SB/434 (or equivalent document) was not submitted.

   ☐ A non-broadening amendment to at least one independent claim was not submitted.

   ☐ The request is not the first proper AFCP 2.0 request submitted in response to the most recent final rejection.

   ☐ Other: _____

2. **Proper Request**

   A. After final amendment submitted with the request will not be treated under AFCP 2.0.
   The after final amendment cannot be reviewed and a search conducted within the guidelines of the pilot program.

   ☐ The after final amendment will be treated under pre-pilot procedure.

   B. Updated search and/or completed additional consideration.
   The examiner performed an updated search and/or completed additional consideration of the after final amendment within the time authorized for the pilot program. The result(s) of the updated search and/or completed additional consideration are:

   ☑ 1. All of the rejections in the most recent final Office action are overcome and a Notice of Allowance is issued herewith.

   ☐ 2. The after final amendment would not overcome all of the rejections in the most recent final Office action . See attached interview summary for further details.

   ☐ 3. The after final amendment was reviewed, and it raises a new issue(s). See attached interview summary for further details.

   ☐ 4. The after final amendment raises new issues, but would overcome all of the rejections in the most recent final Office action. A decision on determining allowability could not be made within the guidelines of the pilot. See attached interview summary for further details, including any newly discovered prior art.

   ☐ 5. Other: _____

   Examiner Note: Please attach an interview summary when necessary as described above.

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Apple EX1066 Page 344

Bibliographic Data

Application No: 16/025,829

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-FUNCTIONAL ELECTRONIC PAYMENT DEVICE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
07/02/2018	235	2887	WYAT-0002.USC1C1C
RULE			

APPLICANTS

Virtual Electric Inc., San Jose, CA, UNITED STATES

INVENTORS

David WYATT San Jose, CA, UNITED STATES

CONTINUING DATA

This application is a CON of 15250698 08/29/2016 PAT 10013693

15250698 is a CON of 14680946 04/07/2015 PAT 9430765

14680946 is a CON of 14217261 03/17/2014 PAT 9022286

14217261 has PRO of 61794891 03/15/2013

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

07/18/2018

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

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

FILING FEE RECEIVED

$1,565

OK to enter 11/14/2019 /SL/

WYAT-0002.USC1C1C PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: WYATT

Serial:	16/025,829	Group Art Unit:	2887
Filed:	02-JUL-2018	Examiner:	Lee, Seung H.
For:	Multi-Function Electronic Device (as amended)		

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

AMENDMENT, RESPONSE, and
REQUEST for CONSIDERATION under the
AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0

Dear Examiner Lee:

In response to the Office Action mailed 9/10/2019 in the above captioned Patent Application, and per the Certification and Request for Consideration under the After Final Consideration Pilot Program 2.0 accompanying this response, please enter the indicated amendments and consider the following remarks for filing in the above captioned patent application.

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Electronic Acknowledgement Receipt	
EFS ID:	38004225
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTION ELECTRONIC 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.USC1C1C
Receipt Date:	11-DEC-2019
Filing Date:	02-JUL-2018
Time Stamp:	19:01:18
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		WYAT-0002_Supplemental_Amdt_12-11-2019.pdf	106029 b0cb603855b00033de3a0841d23dafcd117a3a86	yes	18

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	17	18
	Claims	3	16
	Amendment after Notice of Allowance (Rule 312)	1	2
Warnings:			
Information:			
	Total Files Size (in bytes):	106029	

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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.

REMARKS

Claims 21-40 are pending in the present application. Claims 1-20 were previously canceled. Claims 31, 35, and 37-40 are amended. No new matter is added. Applicants respectfully request entry of the indicated amendments.

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CONCLUSION

Claims 21-40 are pending in the present application. All Claims are believed to be in condition for allowance, and such allowance is earnestly sought.

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

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

Respectfully submitted,

MURABITO, HAO & BARNES LLP

Date: 12-11-2019

/Anthony C. Murabito/
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In the Claims:

Claims 1-20 (canceled)

21. (previously presented)A payment device comprising:

a thin shaped body having no fixed payment numbers disposed thereon;

a memory;

a cryptographic processor coupled to the memory; and

a reader interface, including at least one interface selected from a set comprising: a magnetic-stripe, a smart card reader interface, a mag-stripe inductor interface, an RF interface, an NFC interface, and a wireless interface, and

wherein payment information for a transaction is operable to be conveyed via the reader interface and comprises limited-use payment information, and wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities.

22. (previously presented) The device of Claim 21, wherein the body comprises fixed payment information disposed thereon and wherein the fixed payment information includes only: a card-holder name; a payment issuing logo; and a card payment network logo, and wherein further, the body is free of any account numbers, expiration dates, card security codes, or other fixed payment numbers, disposed thereon.

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23. (previously presented) The device of Claim 21, wherein the limited-use payment information is conveyed via the magnetic-stripe and is unique to the payment device and to the magnetic stripe, and

wherein the limited-use payment information is limited to use by the payment device and is operable for conveying payment information to a magnetic-stripe payment card reader, and

wherein said limited-use payment information has a limited period of valid use, and

wherein said limited-use payment information is not valid when used other than through a magnetic stripe payment card reader.

24. (previously presented) The device of Claim 21, wherein said limited-use payment information is provided by a card issuing authority for use by the payment device and wherein the card processing authority rejects as invalid, any use of said limited-use payment information obtained via any means other than: a payment card reader reading said limited-use payment information from the reader interface.

25. (previously presented) The device of Claim 21, wherein a request for payment includes at least one of a set comprising: payment information, transaction information, merchant information, and payment card reader information, and

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wherein a card-present transaction is one including the limited-use payment information, and valid payment card reader information, and wherein a card-not-present transaction is one including at least a portion of said limited-use card payment information, and not including valid payment card reader information; and,

wherein a processing authority is operable to approve as valid, a card-present payment transaction; and,

wherein said card processing authority is operable to reject, as not valid, a use of the limited-use card payment information in a card-not-present payment transaction; and

wherein a card issuing authority receiving said request for payment is operable to decline a transaction not involving a valid card-present use of a limited-use card payment information portion used in place of card issuer supplied payment information.

26. (previously presented) The device of Claim 21, wherein a card processing authority is operable to reject as invalid, a use of the limited-use payment information provided via the reader interface, in online payment transactions.

27. (previously presented) The device of Claim 21, wherein a card issuer providing the limited-use payment information, for use by the payment device, limits valid approval of said limited-use payment information to performing a card-present payment transaction by the card device, and wherein said card issuer

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declines as invalid a use of said limited-use payment information in transactions other than wherein the payment device is present, and

wherein a card issuer limits said card payment information to use for a finite amount of time, and declines as invalid use when said amount of time has expired, and

wherein a card issuer limits use to payment for transactions with the user approving, and declines as invalid use when the card user is denying an approval, and

wherein a card issuer limits to use in place of card issuer information for payments by the payment device.

28. (previously presented) The device of Claim 21, wherein the reader interface is operable to wirelessly receive cardholder transaction information and to identify a valid user through at least one user-validation action, selected from a set of comprising:

a device touch ID sensor identifying a touch of the valid user;

a device touch sensor-array receiving a user entered valid passcode;

a device key-pad receiving a use entered a valid passcode;

a device user interface receiving a user entered a valid PIN or Key-Code;

a device user interface receiving a user entered a valid password;

a device user interface reading a user swipe or gesture;

a user tapping a predetermined sequence on the device;

a user motioning the device in accordance with a sequence;

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a skin-contact sensing identifying a valid user;

a device sensor array reading a touch of an identified user;

a device biometric recognition of a valid user; and

a biometric sensing of the device remaining continuously in the possession of a valid user,

wherein a display of the device is operable to display transaction information through a user interface, and wherein transaction information includes at least one of a set comprising: a transaction time; a transaction amount; transaction merchant information; a transaction location; a transaction facility; card information; a partial card number; graphical card images; and

wherein upon validating the user, the user-interface is operable to receive a valid user input, of at least one user action selected from a set comprising: a payment approval authorization; a payment denial; and an adjustment of a transaction payment.

29. (previously presented) The device of Claim 21, wherein a dynamically-generated one-time limited-use payment information portion is generated by said processor when coupled to a reader interface accessible to said processor, and

wherein the payment information conveyed to a payment card reader, at the time of transaction, includes at least one of a portion of: a static limited-use portion; and a dynamically-generated limited-use portion, and

wherein said static limited-use payment information is provided by a card issuing authority for use in place of a card issuer payment information.

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30. (previously presented) The device of Claim 21, wherein the processor cryptographically dynamically generates a one-time limited-use number based on combination of a card device transaction sequence count, and at least one of a set of information including:

a user information;

a user card account number;

a device account number;

device secret keys;

card issuer keys;

a time;

a merchant;

a location;

an online address;

a payment information;

a card reader information;

an account information;

an amount;

a transaction information; and

a cryptographic combination of at least two of the above set of information, and wherein the processor increments the card device transaction sequence count on each transaction.

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31. (currently amended) An online payment system, the system comprising:

a thin payment device comprising no fixed payment numbers visible thereon; and

a personal computing device,

wherein the personal computing device comprises:

a processor;

a memory;

a wireless interface;

a display operable to provide a visual user-interface operable for performing online transactions; and

a user-interface coupled to the processor, and

wherein the wireless interface is operable to wirelessly ~~connect to the thin payment device to~~ obtain card device payment account information, and

wherein the processor is operable to generate limited-use payment information based on the card device payment account information, and

wherein the personal computing device is operable to generate complete payment information, including the limited-use payment information, and to convey said complete payment information via at least one interface of a set comprising: said display; and the wireless interface, and

wherein the limited-use payment information is configured to be used in place of a card issuer payment information.

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32. (previously presented) The system of Claim 31, wherein the thin payment device bears no fixed payment numbers, and bears only: the cardholders name; a brand logo; and the card payment network logo.

33. (previously presented) The system of Claim 31 wherein the personal computing device is configured for presenting on the display a limited-use card security code number for use in payments in place of card issuer payment information, and

wherein the personal computing device is further configured to generate said limited-use card security code responsive to an input request from a valid user, via said user-interface, and

wherein said limited-use number is generated on the personal computing device from at least one information from a set comprising:

a payment device user information;

a payment device account number;

a payment device sequence counter;

a payment device identifier;

payment device secrets;

a payment device key;

computing device secrets;

computing device keys;

payment device issuer secrets;

payment device issuer keys;

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a time;

an expiration date;

an amount;

a merchant locality;

an online location;

a transaction information; and

a cryptographic combination of at least two of the above.

34. (previously presented) The system as described in Claim 31 wherein the personal computing device is configured for presenting on the display, a limited-use card account number, and a limited-duration expiration date, for use in payments in place of a card issuer payment information, and

wherein said personal computing device is further configured to generate said limited-use card payment information responsive to an input request from a valid user, and

wherein the personal computing device is configured to identify a valid device-user through at least one user-validation input available to the personal computing device, of a set comprising:

a touch ID sensor operable to identify the touch a valid user;

a user entering of a valid passcode on a touch sensor-array;

a user entering of a valid passcode on a key-pad;

a user entering of a valid PIN or Key-Code on the user-interface;

a user entering of a valid password on the user-interface;

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a valid user swiping or gesturing on a touch sensor-array;

a valid sequence of a user tapping of the device detectable by device accelerometer;

a valid user sequence of user motioning of the device detectable by device motion sensor unit;

a skin-contact sensing identifying a valid user on a device contact sensor;

a touching of an identified user's skin on a device touch sensor array;

a device biometric recognition of a valid user via a device biometric sensing; and

a biometric sensing of the device remaining continuously in the proximity possession of a valid user via device skin-proximity sensor; and, wherein the personal computing device conveys the limited-use payment information through the user interface.

35. (currently amended) An online payment system comprising:

a thin card-shaped payment card device that bears no fixed payment numbers on the card device; and

a computing device operable for completing an online payment transaction and comprising:

a display;

a user-interface;

a processor; and

a memory for storing a payment card information accessible to the processor,

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wherein card issuer provided payment card information is wirelessly downloaded into the computing device, and

wherein at least one of the set comprising:

the computing device; and

the card-shaped payment device,

is configured to dynamically generate a limited-use payment information, upon the authorization of a valid computing device user, and

wherein the payment information provided by the computing device is used in online transactions in place of a card issuers payment card information.

36. (previously presented) The system of Claim 35 wherein the card device bears no fixed payment numbers, and bears only: the cardholders name; the brand logo; and the card payment network logo.

37. (currently amended) The system of Claim 35 wherein the dynamically generated limited-use payment information is displayable on a display of the ~~card~~ computing device.

38. (currently amended) The system of Claim 35 wherein the limited-use payment information includes a static limited-use card account number, a limited-duration card expiration date, and a limited-use card security code and,

wherein the dynamically generated limited-use payment information is ~~wirelessly~~ conveyed by the computing ~~card~~ device to complete an online transaction.

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39. (currently amended) The system of Claim 35 wherein the computing device is operable to generate ~~the~~ a limited-use card security code number, for use in place of a card issuers card security code by generating said limited-use number via cryptographically combining information from at least one of a set comprising:

a 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;

a transaction information;

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and a cryptographic combination of at least two of the above set, and wherein the computing device is operable to display the generated limited-use card security code on the display.

40. (currently amended) The system of Claim 35 wherein the computing device is further operable to obtain a user payment approval through at least one user-interface element of the computing ~~card~~ device, from a set comprising:

a display interface,

a touch-screen interface,

a touch ID button,

input buttons,

a touch key-pad,

a key-pad,

a key-board,

an optical sensor array,

a motion detection unit,

an accelerometer,

the swiping of a recognized user skin over a device sensor array,

a biometric sensor,

a wireless interface,

an NFC interface,

an RF interface,

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a device biometric sensing the device is continuously remaining in contact with a valid user; and,

wherein the computing ~~card~~ device is operable to display at least one of a set comprising: the transaction information, the merchant information, the time, the location of the transaction, the payment bank logo, the card issuer icon, the payment card image, and the amount, on a display of the computing ~~card~~ device, and,

a user input providing for at least one user action from a set comprising: an approving of a transaction, a denying of a transaction, and an adjusting of a transaction, via the user-interface.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: WYATT

Serial:	16/025,829	Group Art Unit:	2887
Filed:	02-JUL-2018	Examiner:	Lee, Seung H.
For:	Multi-Function Electronic Payment Device (as amended)		

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

AMENDMENT under 37 C.F.R. 1.312

Dear Examiner Lee:

In response to the Notice of Allowance, please enter the indicated amendments for filing in the above captioned patent application.

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Title:

Please change the Title of the Invention to: "Multi-Function Electronic Payment Device"

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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/025,829	07/02/2018	2887	865	WYAT-0002.USC1C1C	20	2

CONFIRMATION NO. 3866

CORRECTED FILING RECEIPT

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



Date Mailed: 01/22/2020

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.

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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 15/250,698 08/29/2016 PAT 10013693
which is a CON of 14/680,946 04/07/2015 PAT 9430765
which is a CON 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

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Apple EX1066 Page 367

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

If Required, Foreign Filing License Granted: 07/18/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/025,829**

Projected Publication Date: Not Applicable

Non-Publication Request: No

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

MULTI-FUNCTION ELECTRONIC PAYMENT DEVICE

Preliminary Class

235

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

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

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

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

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

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

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C	3866

136197 7590 01/22/2020

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

EXAMINER	
LEE, SEUNG H	

ART UNIT	PAPER NUMBER
2887	

MAIL DATE	DELIVERY MODE
01/22/2020	PAPER

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

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

Response to Rule 312 Communication	Application No.	Applicant(s)	
	16/025,829	WYATT, David	
	Examiner	Art Unit	AIA (FITF) Status
	SEUNG H LEE	2887	No

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

1. ☑ The amendment filed on 11 December 2019 under 37 CFR 1.312 has been considered, and has been:
   a) ☑ entered.
   b) ☐ entered as directed to matters of form not affecting the scope of the invention.
   c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
      Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.
   d) ☐ disapproved. See explanation below.
   e) ☐ entered in part. See explanation below.

/SEUNG H LEE/
Primary Examiner, Art Unit 2887

OK to enter 1/20/2020 /SL/

WYAT-0002.USC1C1C PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: WYATT

Serial:	16/025,829	Group Art Unit:	2887
Filed:	02-JUL-2018	Examiner:	Lee, Seung H.
For:	Multi-Function Electronic Payment Device (as amended)		

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

AMENDMENT under 37 C.F.R. 1.312

Dear Examiner Lee:

In response to the Notice of Allowance, please enter the indicated amendments for filing in the above captioned patent application.

IPR2025-01150
Apple EX1066 Page 373

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C	3866

136197 7590 02/13/2020

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

EXAMINER	
LEE, SEUNG H	

ART UNIT	PAPER NUMBER
2887	

MAIL DATE	DELIVERY MODE
02/13/2020	PAPER

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

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 16025829
Applicant : Wyatt
Filing Date : 07/02/2018
Date Mailed : 02/13/2020

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Marsha Palmer-Lee/
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Office of Data Management
(571) 272-4200

Application No. 16025829

IDENTIFICATION OF APPLICATION DEFICIENCIES
IN APPLICATION FILED ON OR AFTER SEPTEMBER 16, 2012

☐ Applicant must provide legible text for the following item(s).

- ☐ Specification filed , page(s) .
- ☐ Claims filed , claim(s) .
- ☐ Other: .

☒ Applicant must provide missing information on the following page(s) of the specification by amending the specification to add the missing text. No new matter may be added.
Page/line no(s). 41 (TABLE)

☐ The specification refers to one or more applications by attorney docket number and does not show the U.S. application number(s). Applicant must supply the U.S. application number in place of each attorney docket number.
Page/line no(s).

☐ Applicant must provide an Abstract of the Disclosure.

☐ The Application Data Sheet (ADS dated) does not supply the inventor's city and/or does not supply the inventor's U.S. state and/or does not supply the inventor's country. Applicant must submit a signed, in accordance with 37 CFR 1.76(e) and 1.33(b), application data sheet that corrects this deficiency. To be in compliance with 37 CFR 1.76, the corrected application data sheet must identify the information being changed by using underlining for additions and strikethroughs or brackets for deletions.

☐ Other:

PART B – FEE(S) TRANSMITTAL

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

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

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

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

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

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

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

Certificate of Mailing or Transmission

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

Mina Oliveri	(Typed or printed name)
/Mina Oliveri/	(Signature)
2-20-2020	(Date)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
16/025,829	07/02/2018	David Wyatt	WYAT-0002.USC1C1C	3866

TITLE OF INVENTION:

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$1000	$0	$0	$500	02/21/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS

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

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

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

2. For printing on the patent front page, list

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

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

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

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

(A) NAME OF ASSIGNEE	(B) RESIDENCE: (CITY and STATE or COUNTRY)
Virtual Electric Inc.	San Jose, CA

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

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

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

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

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

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

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

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

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

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

Authorized Signature /Anthony C. Murabito/ Date 2-20-2020

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

IPR2025-01150
Apple EX1066 Page 377

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.

Electronic Patent Application Fee Transmittal

Application Number:	16025829
Filing Date:	02-Jul-2018
Title of Invention:	MULTI-FUNCTION ELECTRONIC PAYMENT DEVICE
First Named Inventor/Applicant Name:	David WYATT
Filer:	Anthony C. Murabito/Mina Oliveri
Attorney Docket Number:	WYAT-0002.USC1C1C

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	500	500

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**500**

Electronic Acknowledgement Receipt	
EFS ID:	38649241
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTION 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.USC1C1C
Receipt Date:	20-FEB-2020
Filing Date:	02-JUL-2018
Time Stamp:	19:27:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	$500
RAM confirmation Number	E20202JJ28292856
Deposit Account	504160
Authorized User	Mina Oliveri
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.17 (Patent application and reexamination processing fees) 37 CFR 1.19 (Document supply fees)	

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	WYAT-0002USC1C1C_IssueFee_2-20-2020.pdf	273451 0a5b384636ea9c65ffb4e49a3ae5ef91c2cff2c9	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30116 4cffdf0303e2332bdcbeb91b6312d367d6fd27d6	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	303567		

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

Serial:	16/025,829	Group Art Unit:	2887
Filed:	02-JUL-2018	Examiner:	Lee, Seung H.
For:	Multi-Function Electronic Payment Device		

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

AMENDMENT under 37 C.F.R. 1.312

Dear Examiner Lee:

In response to the Notice to File Corrected Application Papers, dated 2/13/2020 (attached), please enter the indicated amendments for filing in the above captioned patent application.

IPR2025-01150
Apple EX1066 Page 383

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C	3866

136197 7590 02/13/2020

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

EXAMINER	
LEE, SEUNG H	

ART UNIT	PAPER NUMBER
2887	

MAIL DATE	DELIVERY MODE
02/13/2020	PAPER

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

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

IPR2025-01150
Apple EX1066 Page 384

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 16025829
Applicant : Wyatt
Filing Date : 07/02/2018
Date Mailed : 02/13/2020

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Marsha Palmer-Lee/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 16025829

IDENTIFICATION OF APPLICATION DEFICIENCIES IN APPLICATION FILED ON OR AFTER SEPTEMBER 16, 2012

☐ Applicant must provide legible text for the following item(s).

- ☐ Specification filed , page(s) .
- ☐ Claims filed , claim(s) .
- ☐ Other: .

☒ Applicant must provide missing information on the following page(s) of the specification by amending the specification to add the missing text. No new matter may be added.
Page/line no(s). 41 (TABLE)

☐ The specification refers to one or more applications by attorney docket number and does not show the U.S. application number(s). Applicant must supply the U.S. application number in place of each attorney docket number.
Page/line no(s).

☐ Applicant must provide an Abstract of the Disclosure.

☐ The Application Data Sheet (ADS dated) does not supply the inventor's city and/or does not supply the inventor's U.S. state and/or does not supply the inventor's country. Applicant must submit a signed, in accordance with 37 CFR 1.76(e) and 1.33(b), application data sheet that corrects this deficiency. To be in compliance with 37 CFR 1.76, the corrected application data sheet must identify the information being changed by using underlining for additions and strikethroughs or brackets for deletions.

☐ Other:

Electronic Acknowledgement Receipt	
EFS ID:	38853493
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTION 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.USC1C1C
Receipt Date:	12-MAR-2020
Filing Date:	02-JUL-2018
Time Stamp:	19:07:23
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		WYAT-0002_RESPONSE_3-12-2020.pdf	88426 f175aac025514ec5034600ff4e90a2ef37626e10	yes	4

	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Supplemental Response or Supplemental Amendment		1	1	
	Specification		2	4	
Warnings:					
Information:					
2	Miscellaneous Incoming Letter	NOTICE.pdf	99816 ba06343f5991f8dc6b2535acbea8dca3cd4ba285	no	3
Warnings:					
Information:					
		Total Files Size (in bytes):	188242		

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<u>National Stage of an International Application under 35 U.S.C. 371</u>
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<u>New International Application Filed with the USPTO as a Receiving Office</u>
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Specification:

Please delete the underlined heading "Table 1" on page 41 of the Specification as indicated below:

technology so that it can connect to a personal computer and be used to uniquely generate a credit card number for online purchases. The number could also, in one embodiment, be displayed on the front LCD of the card. In one embodiment, the card may also be equipped with a means for communicating with the USB port on the computer in connection with making the online purchases.

~~TABLE 1~~

What is claimed is:

1. An apparatus for conducting credit transactions comprising:

...

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REMARKS

Claims 21-40 are pending in the present application. Claims 1-20 were previously canceled. No claim amendments are presented herein. Page 41 of the Specification is amended. No new matter is added. Applicants respectfully request entry of the indicated amendments.

Examiner Interview Summary

Applicant's representative and Examiner Lee conducted an Examiner Interview via telephone on February 25, 2020. Agreement was reached that the amendments to the Specification presented herein will correct the informalities identified in the Notice to File Corrected Application Papers.

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Apple EX1066 Page 390

CONCLUSION

Claims 21-40 are pending in the present application. All Claims are believed to be in condition for allowance, and such allowance is earnestly sought.

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

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

Respectfully submitted,

MURABITO, HAO & BARNES LLP

Date: 3-12-2020

/Anthony C. Murabito/
Anthony C. Murabito
Reg. No. 35,295

Two North Market Street
Third Floor
San Jose, California 95113
(408) 938-9060

IPR2025-01150
Apple EX1066 Page 391

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C	3866

136197 7590 03/18/2020

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

EXAMINER
LEE, SEUNG H

ART UNIT	PAPER NUMBER
2887	

NOTIFICATION DATE	DELIVERY MODE
03/18/2020	ELECTRONIC

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

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

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
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Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 16025829
Applicant : Wyatt
Filing Date : 07/02/2018
Date Mailed : 03/18/2020

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See attachment(s).

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/Marsha Palmer-Lee/
Publication Branch
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☒ Other: Please verify pages 41-43 of the specification which has claim verbiage and claims 1-8, please verify if this text should be captured

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C	3866

136197 7590 03/18/2020

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

EXAMINER
LEE, SEUNG H

ART UNIT	PAPER NUMBER
2887	

NOTIFICATION DATE	DELIVERY MODE
03/18/2020	ELECTRONIC

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

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

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

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

IPR2025-01150
Apple EX1066 Page 395

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 16025829
Applicant : Wyatt
Filing Date : 07/02/2018
Date Mailed : 03/18/2020

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Marsha Palmer-Lee/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 16025829

IDENTIFICATION OF APPLICATION DEFICIENCIES IN APPLICATION FILED ON OR AFTER SEPTEMBER 16, 2012

☐ Applicant must provide legible text for the following item(s).

- ☐ Specification filed , page(s) .
- ☐ Claims filed , claim(s) .
- ☐ Other: .

☐ Applicant must provide missing information on the following page(s) of the specification by amending the specification to add the missing text. No new matter may be added.
Page/line no(s).

☐ The specification refers to one or more applications by attorney docket number and does not show the U.S. application number(s). Applicant must supply the U.S. application number in place of each attorney docket number.
Page/line no(s).

☐ Applicant must provide an Abstract of the Disclosure.

☐ The Application Data Sheet (ADS dated) does not supply the inventor's city and/or does not supply the inventor's U.S. state and/or does not supply the inventor's country. Applicant must submit a signed, in accordance with 37 CFR 1.76(e) and 1.33(b), application data sheet that corrects this deficiency. To be in compliance with 37 CFR 1.76, the corrected application data sheet must identify the information being changed by using underlining for additions and strikethroughs or brackets for deletions.

☒ Other: Please verify pages 41-43 of the specification which has claim verbiage and claims 1-8, please verify if this text should be captured

Electronic Acknowledgement Receipt	
EFS ID:	38915222
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTION 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.USC1C1C
Receipt Date:	19-MAR-2020
Filing Date:	02-JUL-2018
Time Stamp:	15:32:01
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	Specification	WYAT-0002-USC1C1C_AMDT_03-19-2020.pdf	31687 ff75a1889739cf542fbc8f215af5563a476b3942	no	3
Warnings:					

Information:					
2	Miscellaneous Incoming Letter	16025829_NOTICE.pdf	107011 8b8f6dbefd2f1f8ece5beec06108e91af293ef8f	no	3
Warnings:					
Information:					
			Total Files Size (in bytes):	138698	

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

Serial:	16/025,829	Group Art Unit:	2887
Filed:	02-JUL-2018	Examiner:	Lee, Seung H.
For:	Multi-Function Electronic Payment Device		

Mail Stop Issue Fee
Honorable Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE TO FILE CORRECTED APPLCIATION PAPERS

Dear Sir or Madam:

In response to the Notice to File Corrected Application Papers, dated 3/18/2020 (attached), please enter the indicated remarks for filing in the above captioned patent application.

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Apple EX1066 Page 400

REMARKS

Claims 21-40 are pending in the present application. Claims 1-20 were previously canceled. No claim amendments are presented herein.

RESPONSE TO NOTICE TO FILE CORRECTED APPLCIATION PAPERS

The Notice to File Corrected Application Papers, dated 3/18/2020, asks Applicants to "verify if (text on pages 41-43 of the specification) should captured."

Yes.

The text on pages 41-43 is part of the Specification and should be captured. For example, the subject text is preceded by paragraph [0078], and followed by paragraph [0079] of the Specification. Although the text may resemble "claim verbiage," as characterized by the Notice, this text is not the claims of the Application, as allowed. The text in question is part of the Specification, and should be captured and included in the issued Patent.

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Apple EX1066 Page 401

CONCLUSION

Claims 21-40 are pending in the present application. All Claims are believed to be in condition for allowance, and such allowance is earnestly sought.

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

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

Respectfully submitted,

MURABITO, HAO & BARNES LLP

Date: 03/19/2020

/Anthony C. Murabito/
Anthony C. Murabito
Reg. No. 35,295

Two North Market Street
Third Floor
San Jose, California 95113
(408) 938-9060

IPR2025-01150
Apple EX1066 Page 402

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C	3866

136197 7590 03/26/2020

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

EXAMINER	
LEE, SEUNG H	

ART UNIT	PAPER NUMBER
2887	

NOTIFICATION DATE	DELIVERY MODE
03/26/2020	ELECTRONIC

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

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

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

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

Response to Rule 312 Communication	Application No. 16/025,829	Applicant(s)
	Examiner	Art Unit

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

1. ☒ The amendment filed on *12 March 2020* under 37 CFR 1.312 has been considered, and has been:

a) ☒ entered.

b) ☐ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

Publishing Division

Charles Bowen

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/025,829	04/21/2020	10628820	WYAT-0002.USC1C1C	3866

136197 7590 04/01/2020

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

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

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

David WYATT, San Jose, CA;
Virtual Electric Inc., San Jose, CA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PTO/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
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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 D. A. Wyatt	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.

PTO/AIA/96 (08-12)
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.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: CARDWARE, INC

Application No./Patent No.: 10,628,820 Filed/Issue Date: 04/21/2020

Titled: MULTI-FUNCTION 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 058889, Frame 0693, 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.

PTO/AIA/96 (08-12)
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.

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:	45435695
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTION 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.USC1C1C
Receipt Date:	08-APR-2022
Filing Date:	02-JUL-2018
Time Stamp:	20:21:13
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	Power of Attorney	WYAT-0002USC1C1C1_AIA_80_POA_to_MHB_Signed.pdf	170922 5e2119e9f430d371f87d7dc705baf305bcf98a34	no	2
Warnings:					

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	WYAT-0002USC1C1C1_aia0096_Statement_under_3_73c.pdf	215942 ae46300c8cfa3e8a35bbfccb38b82e4cc970982f	no	3
Warnings:					
Information:					
			Total Files Size (in bytes):	386864	

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.

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

Docket Number (Optional)

WYAT-0002USC1C1C1

Application/Control Number: 16/025,829
Filing Date: 07-02-2018
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION ELECTRONIC PAYMENT DEVICE
Patent No.: 10628820

The patentee, CARDWARE, INC, owner of 100 percent interest in the instant patent hereby disclaims, except as provided below, the terminal part of the statutory term of the instant patent which would extend beyond the expiration date of the full statutory term of patent No. 9022286 (the "**reference** patent"), as the term of said **reference** patent is presently shortened by any terminal disclaimer. The patentee hereby agrees that the instant patent shall be enforceable only for and during such period that the instant patent and the **reference** patent are commonly owned. This agreement runs with the instant patent and is binding upon the grantee, its successors or assigns.

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3. ☑ A statement under 37 CFR 3.73 is attached herewith. Form PTO/SB/96 or PTO/AIA/96, as appropriate, may be used.

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/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-0002USC1C1C1

Application/Control Number: 16/025,829
Filing Date: 07-02-2018
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION ELECTRONIC PAYMENT DEVICE
Patent No.: 10628820

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/Jose S. Garcia/	4-14-2022
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Docket Number (Optional)

WYAT-0002USC1C1C1

Application/Control Number: 16/025,829
Filing Date: 07-02-2018
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION ELECTRONIC PAYMENT DEVICE
Patent No.: 10628820

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
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Application/Control Number: 16/025,829
Filing Date: 07-02-2018
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION ELECTRONIC PAYMENT DEVICE
Patent No.: 10628820

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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.

PTO/SB/26a (02-14)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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TERMINAL DISCLAIMER IN A PATENT OR PROCEEDING IN VIEW OF ANOTHER PATENT

Docket Number (Optional)

WYAT-0002USC1C1C1

Application/Control Number: 16/025,829
Filing Date: 07-02-2018
First Named Inventor: DAVID WYATT
Title: MULTI-FUNCTION ELECTRONIC PAYMENT DEVICE
Patent No.: 10628820

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.

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.

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.**

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.
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PTO/AIA/96 (08-12)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: CARDWARE, INC

Application No./Patent No.: 10,628,820 Filed/Issue Date: 04/21/2020

Titled: MULTI-FUNCTION 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 058889, Frame 0693, 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.

PTO/AIA/96 (08-12)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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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.

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:	16025829				
Filing Date:	02-Jul-2018				
Title of Invention:	MULTI-FUNCTION 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($)
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	2814	5	170	850
		Total in USD ($)		**850**

Electronic Acknowledgement Receipt	
EFS ID:	45479266
Application Number:	16025829
International Application Number:	
Confirmation Number:	3866
Title of Invention:	MULTI-FUNCTION 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:	02-JUL-2018
Time Stamp:	17:16:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$850
RAM confirmation Number	E20224DH16594856
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-0002USC1C1C1_sb0026a_TD_1_of_5.pdf	193620 d67f842bc11cc0d454c5ff3b7b1f186503420a20	no	2
Warnings:					
Information:					
2	Terminal Disclaimer Filed	WYAT-0002USC1C1C1_sb0026a_TD_2_of_5.pdf	180913 b81a48fa138688e31cf4c699323e24310d8c6321	no	2
Warnings:					
Information:					
3	Terminal Disclaimer Filed	WYAT-0002USC1C1C1_sb0026a_TD_3_of_5.pdf	180902 e72557884f17193f30d897261d26de98d3cfeab5	no	2
Warnings:					
Information:					
4	Terminal Disclaimer Filed	WYAT-0002USC1C1C1_sb0026a_TD_4_of_5.pdf	180913 f382620ddf42fe42f2d201a356145e049e487eed	no	2
Warnings:					
Information:					
5	Terminal Disclaimer Filed	WYAT-0002USC1C1C1_sb0026a_TD_5_of_5.pdf	180934 8eb4a5b28f9101b72a95409a95a3fe01a4b3a648	no	2
Warnings:					
Information:					
6	Assignee showing of ownership per 37 CFR 3.73	WYAT-0002USC1C1C1_aia0096_Statement_under_3_73c.pdf	225608 a12462af27f536b9e667d89fbe3b5bfed86487d1	no	3
Warnings:					
Information:					

7	Fee Worksheet (SB06)	fee-info.pdf	37820 179d113f4d7e018d3d1b3dd3138bf246ba276f5c	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	1180710	

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

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/025,829	07/02/2018	David WYATT	

CONFIRMATION NO. 3866

POA ACCEPTANCE LETTER

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

OC000000133164163

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/

IPR2025-01150
Apple EX1066 Page 431

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/025,829	07/02/2018	David WYATT	WYAT-0002.USC1C1C

CONFIRMATION NO. 3866

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

POWER OF ATTORNEY NOTICE

OC000000133164135

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/

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

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
Entered: July 18, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

CARDWARE INC.,
Patent Owner.

IPR2023-00314
Patent 10,628,820 B2

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

ROESEL, *Administrative Patent Judge.*

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

I. INTRODUCTION

A. Background and Summary

Samsung Electronics Co., Ltd. ("Petitioner") filed a Petition (Paper 2, "Pet.") seeking an *inter partes* review of claims 1–20 (the "challenged claims") of U.S. Patent No. 10,628,820 B2 (Ex. 1001, "the '820 Patent"). CardWare Inc. ("Patent Owner") filed a Preliminary Response. Paper 6 ("Prelim. Resp."). With prior authorization, Petitioner filed a Reply (Paper 9, "Prelim. Reply"), and Patent Owner filed a Sur-reply (Paper 10, "Prelim. Sur-reply").

Pursuant to our delegated authority, we may not institute an *inter partes* review "unless . . . the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a) (2018); 37 C.F.R. § 42.4(a) (2022). After considering the information presented in the Petition, the Preliminary Response, the Preliminary Reply, and Preliminary Sur-reply, we determine that Petitioner has shown a reasonable likelihood that it would prevail in showing that at least one of the challenged claims is unpatentable and that discretionary denial is not appropriate. Therefore, we grant institution of an *inter partes* review.

Our findings and conclusions below are based on the record developed thus far. This is not a final decision as to the patentability of any challenged claim. Any final decision will be based on the full record developed during trial.

B. Related Matters

The parties identify the following as a related matter: *CardWare Inc. v. Samsung Electronics Co., Ltd.*, No. 2:22-cv-00141 (E.D. Tex.) ("district court litigation"). Pet. 74; Paper 4, 1 (Patent Owner's mandatory notices).

Petitioner also identifies IPR2023-00196, IPR2023-00210, IPR2023-00211, IPR2023-00219, in which Petitioner challenges patents that are related to the '820 Patent and asserted by Patent Owner in the district court litigation. Pet. 74.

C. The '820 Patent (Ex. 1001)

The '820 Patent is titled, "Multi-functional electronic payment device" and discloses methods of using such a device to perform transactions, including transactions using a card reader and online transactions. Ex. 1001, codes (54), (57), 2:17–23, 12:49–13:19. According to the '820 Patent, existing types of credit cards have "security limitations" and are "susceptible to theft and/or compromise." *Id.* at 1:66–2:3. The '820 Patent addresses these concerns with a credit card device having various security features, including "the capability of producing a limited-duration credit card number for performing transactions using accounts of the card." *Id.* at 10:56–59.

D. Illustrative Claims

Petitioner challenges claims 1–20 of the '820 Patent. Pet. 1. Claims 1, 11, and 15 are independent and are reproduced below with the paragraph designations used in the Petition.

1. [1.0] A payment device comprising:

[1.1] a thin shaped body having no fixed payment numbers disposed thereon;

[1.2] a memory;

[1.3] a cryptographic processor coupled to the memory; and

[1.4] a reader interface, including at least one interface selected from a set comprising: a magnetic-stripe, a smart card reader interface, a mag-stripe inductor interface, an RF interface, an NFC interface, and a wireless interface, and

[1.5] wherein payment information for a transaction is operable to be conveyed via the reader interface and comprises limited-use payment information, and

[1.6] wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities.

11. [11.0] An online payment system, the system comprising:

[11.1] a thin payment device comprising no fixed payment numbers visible thereon; and

[11.2] a personal computing device, wherein the personal computing device comprises: a processor;

[11.3] a memory;

[11.4] a wireless interface;

[11.5] a display operable to provide a visual user-interface operable for performing online transactions; and

[11.6] a user-interface coupled to the processor, and

[11.7] wherein the wireless interface is operable to wirelessly obtain card device payment account information, and

[11.8] wherein the processor is operable to generate limited-use payment information based on the card device payment account information, and

[11.9] wherein the personal computing device is operable to generate complete payment information, including the limited-use payment information, and to convey said complete

payment information via at least one interface of a set comprising: said display; and the wireless interface, and

[11.10] wherein the limited-use payment information is configured to be used in place of a card issuer payment information.

15. [15.0] An online payment system comprising:

[15.1] a thin card-shaped payment card device that bears no fixed payment numbers on the card device; and

[15.2] a computing device operable for completing an online payment transaction and comprising: a display;

[15.3] a user-interface;

[15.4] a processor; and

[15.5] a memory for storing a payment card information accessible to the processor,

[15.6] wherein card issuer provided payment card information is wirelessly downloaded into the computing device, and

[15.7 wherein at least one of the set comprising: the computing device; and the card-shaped payment device, is configured to dynamically generate a limited-use payment information, upon the authorization of a valid computing device user, and

[15.8] wherein the payment information provided by the computing device is used in online transactions in place of a card issuers payment card information.

Ex. 1001, 19:58–20:7, 22:10–35, 23:39–59 (bracket designations added and paragraphs adjusted); *see* Pet. vi–xiii (Petitioner's claim listing).

E. Asserted Grounds and Evidence

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §[1]	Reference(s)/Basis
1, 2, 6, 10	103(a)	Mullen,[2] Kobylkin[3]
3–5, 7, 8	103(a)	Mullen, Kobylkin, Patel[4]
9	103(a)	Mullen, Kobylkin, Smith[5]
11, 12, 15–18, 20	103(a)	Smith, Kobylkin, Gomez[6]
13, 19	103(a)	Smith, Kobylkin, Gomez, Varadarajan[7]
14	103(a)	Smith, Kobylkin, Gomez, Varadarajan, Mullen

Petitioner submits the Declaration of Michael I. Shamos, Ph.D. (the "Shamos Declaration"), in support of the Petition. Ex. 1003.

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[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the '820 Patent claims the benefit of a provisional application filed before that date, we refer to the pre-AIA version of § 103. Ex. 1001, code (60).

[2] Ex. 1004, US 2008/0302876 A1, published December 11, 2008 ("Mullen").

[3] Ex. 1005, US 2013/0166441 A1, published June 27, 2013 ("Kobylkin").

[4] Ex. 1014, US 2012/0143754 A1, published June 7, 2012 ("Patel").

[5] Ex. 1006, US 2013/0232083 A1, published September 5, 2013 ("Smith").

[6] Ex. 1007, US 9,600,808 B1, issued March 21, 2017 ("Gomez").

[7] Ex. 1015, US 2011/0184867 A1, published July 8, 2011 ("Varadarajan").

II. DISCRETION UNDER 35 U.S.C. § 314(A)

A. Legal Standards

Patent Owner argues that we should exercise discretion to deny institution under 35 U.S.C. § 314(a) because the factors identified in *Apple, Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) ("*Fintiv*"), weigh in favor of denying institution. Prelim. Resp. 47–52; Prelim. Sur-reply. Petitioner argues we should not discretionarily deny institution under *Fintiv*. Pet. 71–73; Prelim. Reply.

The precedential decision in *Fintiv* identifies a non-exclusive list of factors parties may consider addressing where there is a related, parallel district court action to determine whether such action provides any basis for discretionary denial. *Fintiv*, 5–16. Those factors include:

> 1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
>
> 2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
>
> 3. investment in the parallel proceeding by the court and the parties;
>
> 4. overlap between issues raised in the petition and in the parallel proceeding;
>
> 5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
>
> 6. other circumstances that impact the Board's exercise of discretion, including the merits.

Id. at 5–6.

In evaluating the factors, we take a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review. *Id.* at 6. The Director has issued additional guidance on the application of *Fintiv*. *See* Katherine K. Vidal, *Interim Procedure for Discretionary*

Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (June 21, 2022)[8] ("*Fintiv* Memo"). Additionally, we are guided by the precedential decisions of the Director in *OpenSky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102, 49–50 (Oct. 4, 2022) (precedential) and *CommScope Techs. LLC v. Dali Wireless, Inc*, IPR2022-01242, Paper 23 (Feb. 27, 2023) (precedential) ("*CommScope*").

We are instructed to consider compelling merits under *Fintiv* factor six only after a determination that the first five *Fintiv* factors favor discretionary denial. *CommScope*, 4–5. Thus, we begin by considering the first five *Fintiv* factors.

B. Fintiv Factors

1. Factor 1 - Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted

"A district court stay of the litigation pending resolution of the PTAB trial allays concerns about inefficiency and duplication of efforts." *Fintiv*, 6. *Fintiv* indicated that, in previous Board decisions, the existence of a district court stay pending Board resolution of an *inter partes* review has weighed strongly against discretionary denial, while a denial of such a stay request sometimes weighs in favor of discretionary denial. *Id.* at 6–8.

Patent Owner notes that a stay was requested and not granted in the district court litigation, and asserts that this factor should be viewed as neutral. Prelim. Resp. 48; Ex. 2003.

Petitioner notes that the dismissal of the stay request was without prejudice, and that it maintains the right to move for a stay if we institute.

[8] Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf

Prelim. Reply 1, 2. Petitioner argues that the factor should be considered neutral. *Id.* at 2.

The court in the district court litigation noted in its denial of the stay request that it was following "the universal practice" in the district, to deny a stay based on post-grant review requests where institution decisions have not yet been issued, and provided no additional reasoning or indication of future action with respect to any potential renewal of the stay request. Ex. 2003. Because, "[i]n the absence of specific evidence, we will not attempt to predict" whether a district court would stay "based on a variety of circumstances and facts beyond our control and to which the Board is not privy," we find this factor to be neutral. *See Sand Revolution II, LLC v. Cont'l Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative) ("*Sand Revolution*").

2. Factor 2 - Proximity of the court's trial date to the Board's projected statutory deadline for a final written decision

The proximity factor in *Fintiv* asks us to evaluate our discretion in light of a trial date that has been set in a parallel litigation. *See Fintiv*, 3, 5 ("*NHK* applies to the situation where the district court has set a trial date to occur earlier than the Board's deadline to issue a final written decision in an instituted proceeding."; "When the patent owner raises an argument for discretionary denial under *NHK* due to an earlier trial date, the Board's decisions have balanced the following factors . . . .") (citing *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential)("*NHK*")). As noted above in the discussion of the first factor, *Fintiv* cites concern regarding "inefficiency and duplication of efforts." *Id.* at 6. In its analysis of the proximity factor, *Fintiv* echoes that concern in its guidance that "[i]f the court's trial date is at or around the

same time as the projected statutory deadline or even significantly after the projected statutory deadline, the decision whether to institute will likely implicate other factors discussed herein, such as the resources that have been invested in the parallel proceeding." *Id.* at 9. Similarly, in *NHK*, the Board expressed concern that a trial before the deadline for a final written decision addressing the same prior art and arguments would have undermined the Board's objectives of providing an effective and efficient alternative to district court litigation. *See NHK*, 20 (citing *General Plastic Indus. Co., Ltd. v. Cannon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16–17 (PTAB Sept. 6, 2017 (precedential))).

We are instructed that

> when analyzing the proximity of the court's trial date under factor two of *Fintiv*, when other relevant factors weigh against exercising discretion to deny institution or are neutral, the proximity to trial should not alone outweigh all of those other factors. Parties may present evidence regarding the most recent statistics on median time-to-trial for civil actions in the district court in which the parallel litigation resides for the PTAB's consideration. Where the parties rely on time-to-trial statistics, the PTAB will also consider additional supporting factors such as the number of cases before the judge in the parallel litigation and the speed and availability of other case dispositions.

Fintiv Memo, 8–9 (internal citations and footnote deleted).

Based on median time-to-trial data for the Eastern District of Texas, Petitioner asserts that "trial would be expected to occur in May, 2024." Pet. 71–72 (citing Ex. 1103, 35). According to Petitioner, a final written decision ("FWD") in this proceeding is anticipated in June, 2024. *Id.* Nevertheless, Petitioner argues that "[t]he Board should not deny institution due to the close proximity of the FWD and disposition date." *Id.*

Patent Owner contends that as the docket control order sets jury selection for February, 2024, the district court trial date precedes the anticipated final written decision deadline by five months. Prelim. Resp. 48 (citing Ex. 2001). Patent Owner additionally argues that, if the Board relies on median time-to-trial, then we should use specific time-to-trial data for the presiding judge, which would indicate an even earlier trial date than that scheduled in the docket control order. *Id.* at 49 (citing Ex. 2002, 1).

We "generally take courts' trial schedules at face value absent some strong evidence to the contrary," and here neither party presents strong evidence casting doubt on the trial date set in the district court's order. Because the trial in the district court litigation is scheduled to begin five months before our deadline to reach a decision, this factor weighs marginally in favor of discretionary denial. *Apple v. Fintiv*, IPR2020-00019, Paper 15, 13 (PTAB May 13, 2020) (informative).

3. Factor 3 - Investment in the parallel proceeding by the court and the parties

If, at the time of the institution decision, the district court has issued substantive orders related to the challenged patent, such as a claim construction order, this fact weighs in favor of denial. *See Fintiv*, 9–10. On the other hand, if the district court has not issued such orders, this fact weighs against discretionary denial. *Id.* at 10.

Petitioner argues that the bulk of investment in the district court litigation has yet to occur, and that no part of claim construction or document production had occurred at the time of the filing of the Petition. Pet. 72. Petitioner further argues that it was diligent in filing the Petition and that its diligence "heavily favors institution." Prelim. Reply 3.

Patent Owner argues that by the time of our decision, document production will be substantially complete and "the claim-construction process [will] be underway and completed shortly thereafter." Prelim. Resp. 50 (citing Ex. 2001, 3–4).

The docket control order shows that the claim construction hearing is not scheduled until August 1, 2023, and that substantial deadlines for the parties related to claim construction are still upcoming. Ex. 2001, 3. *Fintiv* also directs us to consider whether "the petitioner filed the petition expeditiously." *Fintiv*, 11. Although we are mindful of the investment of the parties to date, we find that, at this time, substantial work remains for the parties and no substantive orders related to the challenged patent have been issued by the district court. Additionally, on the record before us the filing of the Petition was expeditious. We determine this factor weighs against exercising discretion to deny institution.

4. Factor 4 - Overlap between issues raised in the petition and in the parallel proceeding

"[I]f the petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding, this fact has favored denial." *Fintiv*, 12. "Conversely, if the petition includes materially different grounds, arguments, and/or evidence than those presented in the district court, this fact has tended to weigh against exercising discretion to deny institution under *NHK*." *Id.* at 12–13. A stipulation as in *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential as to § II.A), if one is entered, would be highly relevant. "Consistent with *Sotera Wireless, Inc.*, the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a

parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB." *Fintiv* Memo 3 (footnote omitted).

Petitioner offers, in the Petition, a stipulation that, if IPR is instituted, "it will not pursue in the Related Litigation any invalidity grounds against the Challenged Claims of the '820 patent that are the same as those raised in this Petition." Pet. 72–73. It later offers an additional stipulation that "if this IPR is instituted, Petitioner will not pursue an invalidity defense in the E.D. Texas litigation with respect to the claims of the '820 Patent in the instituted IPR based on (i) any of the same grounds in the instituted IPR or (ii) any prior art reference that forms the basis of any ground in the instituted IPR." Prelim. Reply 1; Ex. 1110. Petitioner states that "this stipulation covers references that have the same (or substantially the same) disclosure but are not part of the grounds in the Petition." *Id.* Petitioner argues that this stipulation "leaves only meaningfully different prior art for use in E.D. Tex." Prelim. Reply 3.

Patent Owner argues that, in the new stipulation, Petitioner only restricts itself from pursuing "in district court the same grounds or the specific references in those grounds," but "leaves Petitioner free to pursue the very same arguments in district court under the guise of technically different references or combinations." Prelim. Sur-reply 1 (emphases omitted). Patent Owner argues that Petitioner's stipulation has "no practical effect" and, because Petitioner has not offered a *Sotera* stipulation, factor 4 favors denial. *Id.* at 2.

While not a *Sotera* stipulation, Petitioner's stipulation appears to be similar to that in *Sand Revolution*. *Sand Revolution*, 11–12 (finding that a stipulation not to pursue the same grounds in the parallel litigation

"mitigates to some degree the concerns of duplicative efforts"). We recognize that *Sand Revolution*-type stipulations are narrower in scope than *Sotera*-type stipulations. However, Petitioner's stipulation still reduces potential overlap with the district court litigation. In *Sand Revolution*, such a stipulation weighed marginally in favor of not exercising discretion. *Sand Revolution*, 12.

Additionally, we note that we have not been apprised by either party whether, in fact, the same art and arguments are anticipated to be the subject of the district court litigation. *See Fintiv*, 12.

We determine this factor weighs marginally against exercising discretion to deny institution.

5. Factor 5 - Whether the petitioner and the defendant in the parallel proceeding are the same party

If the petitioner is unrelated to the defendant in the parallel proceeding, that might weigh against discretionary denial. *See Fintiv*, 13–14.

The parties agree that Petitioner is the defendant in the related district court litigation. Pet. 74; Prelim. Resp. 52.

As with *Fintiv* factor 2, therefore, this factor weighs marginally in favor of exercising our discretion to deny the Petition.

C. Conclusion

We have considered the circumstances and facts before us in view of the first five *Fintiv* factors. Because our analysis is fact-driven, no single factor is determinative of our conclusion. Considering these five *Fintiv* factors, we determine that they do not favor a discretionary denial. As we do not find that the first five *Fintiv* factors favor discretionary denial, we

therefore do not make a determination regarding compelling merits under *Fintiv* factor 6, and our consideration ends with this conclusion. *CommScope*, 4–5.

III. REASONABLE LIKELIHOOD 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")); *see also* 37 C.F.R. § 42.104(b) (requiring a petition for *inter partes* review to identify how the challenged claim is to be construed and where each element of the claim is found in the prior art patents or printed publications relied upon).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved based on 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, i.e., secondary considerations. *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*, 550 U.S. at 418 (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")). Petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements," but "must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art ("POSITA") would have had "(1) a bachelor's degree in computer science, computer engineering, electrical engineering, or a related field, and (2) one to two years of experience working with payment processing and/or digital authentication systems, including familiarity with short-range wireless technologies." Pet. 4–5 (citing Ex. 1003 ¶¶ 42–47). According to Petitioner, "[a]dditional education could substitute for professional experience, or vice versa." *Id.* at 5.

For purposes of the Preliminary Response, Patent Owner does not dispute Petitioner's definition of a POSITA. Prelim. Resp. 21.

For purposes of this Decision, we apply Petitioner's definition of a POSITA, which is consistent with the scope and content of the '820 Patent and the asserted prior art.

C. Claim Construction

In an *inter partes* review, we apply the same claim construction standard as would be used by a district court to construe a claim in a civil action involving the validity or infringement of a patent. 37 C.F.R.

§ 42.100(b). Under that standard, claim terms are given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *Id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–19 (Fed. Cir. 2005) (en banc); *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365–66 (Fed. Cir. 2012). "The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy." *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (quoting *Vivid Techs., Inc. v. Am. Sci. Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

We address the meaning of several claim terms below and determine that no additional claim construction is needed for purposes of this Decision. Our claim constructions are not final, and we invite the parties to address claim construction in their post-institution submissions.

1. "no fixed payment numbers"

Claim element 1.1 recites "a thin shaped body having no fixed payment numbers disposed thereon." Claim element 11.1 recites "a thin payment device comprising no fixed payment numbers visible thereon." Claim element 15.1 recites "a thin card-shaped payment card device that bears no fixed payment numbers on the card device."

Petitioner contends that the limitations that recite "no fixed payment numbers" are directed to printed matter and are entitled to no patentable weight. Pet. 4. Patent Owner argues that "these limitations do not claim the content of any information" and, even if they did, "they are entitled to

patentable weight because they are functionally related to the claimed devices within the claimed system." Prelim. Resp. 22.

On this record, we agree with Petitioner that claim elements 1.1, 11.1, and 15.1 recite printed matter entitled to no patentable weight.

"[P]rinted matter encompasses any information claimed for its communicative content, and the doctrine prohibits patenting such printed matter unless it is 'functionally related' to its 'substrate,' which encompasses the structural elements of the claimed invention." *C R Bard Inc. v. AngioDynamics, Inc.*, 979 F.3d 1372, 1381 (Fed. Cir. 2020); *see also Praxair Distribution, Inc. v. Mallinckrodt Hosp. Prod. IP Ltd.*, 890 F.3d 1024, 1031 (Fed. Cir. 2018) ("Claim limitations directed to printed matter are not entitled to patentable weight unless the printed matter is functionally related to the substrate on which the printed matter is applied."); *In re Distefano*, 808 F.3d 845, 848 (Fed. Cir. 2015) ("[I]f a limitation claims (a) printed matter that (b) is not functionally or structurally related to the physical substrate holding the printed matter, it does not lend any patentable weight to the patentability analysis.").

In our view, claim elements 1.1, 11.1, and 15.1 recite printed matter entitled to no patentable weight claim because they require that a particular type of information—"fixed payment numbers"—be absent from the face of the thin shaped body, payment device, or card device. If they were affirmatively recited, "fixed payment numbers" would no doubt qualify as information claimed for its communicative content that is not functionally related to the substrate, as no reference to or functional use of fixed payment numbers is found in claims 1, 11, or 15. The negative limitation, that "no fixed payment numbers" are on the body or device, is just as much recitation of printed matter as the affirmative recitation would be. In both cases,

information is being claimed for its communicative content. Claim elements 1.1, 11.1, and 15.1 simply recite that a particular type of information—fixed payment numbers—is not included in the communication.

Patent Owner argues that claim elements 1.1, 11.1, and 15.1 are "functionally related to the claimed devices within the claimed system" because "the claimed 'no fixed payment numbers' enhances the security of the claimed systems . . . by removing the possibility that 'a malicious third party [would] record [such information] in order to later make fraudulent transactions on the account.'" Prelim. Resp. 22 (citing Ex. 1001, 9:55–62). We disagree. Our reviewing court instructs: "In evaluating the existence of a functional relationship, we have considered whether the printed matter merely informs people of the claimed information, or whether it instead interacts with the other elements of the claim to create a new functionality in a claimed device or to cause a specific action in a claimed process." *Bard*, 979 F.3d at 1381. Fixed payment numbers inform people of particular information, and claim elements 1.1, 11.1, and 15.1 recite that the matter printed on the card or device should not inform people of that particular information. The absence of fixed payment numbers does not interact with the other elements of the claim to create a new functionality in a claimed device or to cause a specific action in a claimed process.

The foregoing analysis applies equally to dependent claims 2, 12, and 16, which recite both affirmative and negative printed matter limitations.

2. "limited-use payment information"

Claim element 1.6 recites "wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities."

Patent Owner argues that claim 1 "is directed to a card device with a limited-use number, where the nature of the use-limitation is that it is usable only for card-present transactions 'at payment card reader facilities.'" Prelim. Resp. 31. Patent Owner argues that claim 1 is directed to in-person, card-present transactions, not online transactions as in claims 11 and 15, and "[t]he limited-use payment information of claim 1 is not usable for online transactions." *Id.* at 31, 34.

We disagree with Patent Owner's interpretation of "limited-use payment information" as excluding online transactions. Claims 11 and 15 are expressly directed to an "online payment system," while claim 1 is directed to a "payment device," without distinguishing between in-person and online transactions. Yet claims 1, 11, and 15 all recite the same term, "limited-use payment information." Patent Owner's argument that this term has a different meaning in claim 1 than in claims 11 and 15 violates "the principle that the same phrase in different claims of the same patent should have the same meaning." *In re Varma*, 816 F.3d 1352, 1363 (Fed. Cir. 2016). This principle "is a strong one, overcome only if 'it is clear' that the same phrase has different meanings in different claims." *Id.* (citing *Fin Control Sys. Pty, Ltd. v. OAM, Inc.*, 265 F.3d 1311, 1318 (Fed. Cir. 2001).

Patent Owner provides no clear showing to overcome the principle that "limited-use payment information" has the same meaning in each of claims 1, 11, and 15. The '820 Patent demonstrates that the nature of the use limitation relates to the number of transactions or period of time for which the payment information is valid. Ex. 1001, code (57) ("a limited-use credit card number, which is limited in scope of use to a predetermined number of authorized transactions"); *id.* at 2:28–32 (same). The Specification does not support Patent Owner's argument that "the nature of the use-limitation is

that it is usable only for card-present transactions 'at payment card reader facilities.'" Prelim. Resp. 31.

To support that argument, Patent Owner relies on claim 1's recitation of a payment device with a "reader interface" and claim 1.6's recitation that "the limited-use payment information is to be used . . . at payment card reader facilities." Prelim. Resp. 31–32. Patent Owner is mistaken, however, in characterizing online transactions as "card-not-present transactions" and asserting that "online payment systems do not convey payment information from the card via any reader interface, such as a magnetic-stripe, chip, or NFC contactless." Prelim. Resp. 32. Contrary to Patent Owner's argument, the '820 Patent teaches that online transactions are card-present transactions that may involve a card reader. Ex. 1001, 12:59–13:19, Figs. 5, 10 (describing and illustrating online transactions using a multi-function electronic device, i.e., a card device); *see also id.* at 18:30–31 ("[T]he credit card of the present invention could also be used to make online purchases."). According to claim 1, a card reader interface may be an RF interface or an NFC interface. The '820 Patent discloses that these types of interfaces may be used for connecting a card device to a personal computer for conducting an online transaction. *Id.* at 13:3–11, 18:31–35 ("[T]he card could use RFID or near field technology so that it can connect to a personal computer and be used to uniquely generate a credit card number for online purchases."). Accordingly, we do not adopt Patent Owner's construction that "limited-use payment information" in claim 1 is not usable for online transactions. Prelim. Resp. 34.

3. "card device payment account information"

Claim element 11.7 recites "wherein the wireless interface is operable to wirelessly obtain card device payment account information." Claim element 11.8 recites "wherein the processor is operable to generate limited-use payment information based on the card device payment account information."

Patent Owner argues that "[t]he plain and ordinary meaning of a card device payment account information is information that is associated with a particular device." Prelim. Resp. 37. According to Patent Owner, "[a]t a minimum, 'card device' should at least indicate an association of the payment account information with the particular 'card device.'" *Id.* at 38. We disagree. The phrase, "card device payment account information," appears in claim 11 and nowhere else in the '820 Patent. Claim 11 does not support Patent Owner's argument that "card device payment account information" must be associated with a particular card device. The term "card device" does not appear in claim 11 except as part of the phrase, "card device payment account information." To the extent Patent Owner equates a "card device" with "a thin payment device," there is no indication in claim 11 that "card device payment account information" is associated with the "thin payment device." Claim element 11.1 recites that the thin payment device has "no fixed payment numbers visible thereon," which negates at least one way that payment account information could be associated with a particular card device.

Patent Owner does not identify support in the Specification for its interpretation of "card device payment account information" as information associated with a particular device. Contrary to Patent Owner's argument, the Specification teaches that "account information . . . 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.)." Ex. 1001, 7:44–49. We see no indication in the '820 Patent that these types of account information are associated with a particular device.

D. Petitioner's Mullen-led Challenges

Petitioner challenges claims 1–10 based on Mullen and Kobylkin, adding Patel or Smith to the combination for some claims. Pet. 1, 6–37. Patent Owner opposes. Prelim. Resp. 23–36. We begin with an overview of Mullen and Kobylkin before turning to the disputed issues.

1. Mullen (Ex. 1004)

Mullen discloses a "dynamic credit card . . . in which a secure credit card number (e.g., a secret/hidden credit card number) is encoded based on a timing signal (e.g., an internal counter) to provide a dynamic credit card number." Ex. 1004, code (57). According to Mullen, the "dynamic number may be displayed to a user via a display (e.g., so that online purchases can be made) or written onto a magnetic stripe such that the number may be processed by traditional credit card merchants (e.g., swiped)." *Id.*

2. Kobylkin (Ex. 1005)

Kobylkin discloses an "instant disposable payment card" having a quick response ("QR") code, which can be scanned by the user to facilitate activation and/or funding of the payment card and/or creation of an account or activation of a pre-created account at a payment system provider. Ex. 1005, code (57). According to Kobylkin, the user "can then use the instant payment card to pay for purchases." *Id.*

3. Independent Claim 1

Petitioner challenges claim 1 based on Mullen and Kobylkin and relies on Mullen to teach most of the claim elements. Pet. 8–18.

a) Claim Element 1.1

Claim element 1.1 recites "a thin shaped body having no fixed payment numbers disposed thereon."

Petitioner contends that Mullen teaches claim element 1.1, alone or in combination with Kobylkin. Pet. 12–14.[9] Patent Owner does not dispute Petitioner contention that Mullen teaches a dynamic credit card having thin shaped body. Pet. 11; *see* Prelim. Resp. 24–30 (addressing claim element 1.1, without disputing that Mullen teaches a thin shaped body). As discussed above, we agree with Petitioner claim element 1.1's recitation of "no fixed payment numbers" is printed matter entitled to no patentable weight. We nevertheless address the parties' dispute about whether the cited art teaches that limitation.

Petitioner contends that Mullen's Figure 16 "shows an example dynamic credit card having no fixed payment numbers disposed thereon." Pet. 12–13 (citing Ex. 1004 ¶¶ 49, 50, Fig. 16). Patent Owner disputes that contention, arguing that "the full Figure 16 . . . plainly shows that the card number ("2424 242424, 24242") and the expiration date ("01/07") do not change." Prelim. Resp. 24–25. At this stage, we are not persuaded by Petitioner's contention for claim element 1.1 based on Mullen's Figure 16. According to the '820 Patent, a "fixed payment number" may include an expiration date. Ex. 1001, claim 2. Mullen's Figure 16 shows a credit card

[9] The next subsection addresses the parties' dispute about combining Mullen and Kobylkin.

bearing an expiration date, and Petitioner fails to show that the expiration date is not fixed. Ex. 1004, Fig. 16; *see id.* ¶ 49 (disclosing that "writings on a surface of the credit card" such as an expiration date "may be printed and/or pressed into a housing").

Next, Petitioner contends that, "[a]s another example," Mullen teaches a credit card number that is continually updated and encoded on a magnetic strip and not displayed to the user. Pet. 13 (citing Ex. 1004 ¶¶ 16, 70). Patent Owner disputes that contention, arguing that Mullen's dynamic credit card number "always" has "at least one *static* prefix number" that identifies "whether the remainder of the displayed payment information is static or dynamic." Prelim. Resp. 1–2 (citing Ex. 1004 ¶ 100).

For purposes of institution, we find that Petitioner makes a sufficient showing for claim element 1.1 based on Mullen's disclosure of a credit card number that is continually updated. Pet. 13 (citing Ex. 1004 ¶¶ 16, 70). Petitioner relies on Mullen paragraph 16, which discloses that "[a] dynamic credit card may also not include a display and the credit card number may be updated continually in real time." Ex. 1004 ¶ 16. Petitioner also relies on Mullen paragraph 70, which discloses "the dynamic information (e.g., the dynamic security code) may be displayed to a user" and the fixed information that identifies a user may be encoded on a magnetic stripe. *Id.* ¶ 70.

Although Patent Owner relies on Mullen's disclosure that a static or partially static number may be displayed on the dynamic credit card (Prelim. Resp. 1–2, 26 (citing Ex. 1004 ¶ 100, Fig. 12)), that is only one of several embodiments disclosed by Mullen. Mullen discloses other embodiments in which only dynamic payment numbers are displayed on the card. *Compare* Ex. 1004, Fig. 12, ¶ 100 ("A topology may be provided in display 1210 in

which a static or dynamic credit card number is provided."), *with id.* ¶ 92 ("FIG. 9 shows dynamic credit card 900 that may include display screen 931 . . . [which] may include, for example, dynamic credit card number 931, dynamic security code 932 . . ., dynamic expiration date 933, and number changing information 934."), *and* ¶¶ 95, 96 (FIG. 11 shows dynamic information topologies 1100. . . . Providing information 1121–1123 as dynamic information may allow 23 digits of dynamic information to be displayed.").

We have considered Patent Owner's argument that a continually updated card number would be "useless." Prelim. Resp. 27–28 (citing Ex. 1004 ¶¶ 16, 56). As discussed above, the cited paragraph 16 of Mullen supports Petitioner's contention. Mullen paragraph 56 addresses the speed at which the dynamic number changes and problems associated with increasing that speed. Ex. 1004 ¶ 56. On the present record, Mullen paragraph 56 does not appear to contradict Petitioner's contention for claim element 1.1.

b) Reason to Combine Mullen and Kobylkin

Citing Kobylkin's disclosure of a blank payment card, Petitioner contends that it would been obvious to modify Mullen's dynamic credit card to include "only selected, non-confidential information on its face" and "omit all fixed payment information from the front of the card." Pet. 8, 13–14 (citing Ex. 1003 ¶¶ 106–108, 115, 116; Ex. 1005 ¶ 17). According to Petitioner, there would be "less risk of fraud if confidential payment information, such as a static security code or other non-changing portion of the payment information, were not readily ascertainable simply by visually inspecting the face of the dynamic credit card." Pet 9 (citing Ex. 1004 ¶ 3;

Ex. 1005 ¶ 6). Patent Owner argues that "it makes no sense to modify [Mullen] with the disposable debit card of Kobylkin, which cannot be used for online transactions." Prelim. Resp. 2.

For purposes of institution, we find that Petitioner provides a sufficient rationale for combining Mullen and Kobylkin, as summarized above, and that Petitioner's rationale is sufficiently supported by the cited prior art and the Shamos Declaration. Pet. 8–9 (citing Ex. 1003 ¶¶ 106–108, 115, 116; Ex. 1004 ¶ 3; Ex. 1005 ¶¶ 6, 17). Petitioner relies on Mullen, which discloses "systems and methods that completely eliminate" credit card fraud involving unauthorized copying and use of credit card numbers that are glimpsed or digitally intercepted by a thief. Ex. 1004 ¶ 3. Petitioner also relies on Kobylkin, which addresses concerns about stolen payment cards and discloses a "disposable payment card [that] can be a substantially blank card" with "only a QR code or the like thereon." Ex. 1005 ¶¶ 6, 17.

Patent Owner argues that replacing (a) Mullen's capability to use a dynamic credit card for online purchases by displaying a number to the user with (b) Kobylkin's QR code-based approach would "reduce the functionality" of Mullen, which "is designed as a 'complete[]' fraud solution." Prelim. Resp. 28 (citing Ex. 1004 ¶¶ 4, 12, 20, 21).[10] Based on the present record, it appears that Patent Owner's argument misapprehends Petitioner's proposed combination, which does not appear to include modifying Mullen's dynamic credit card to include a QR code. *See* Pet. 8–9,

[10] Patent Owner mistakenly cites Mullen paragraph 4 instead of Mullen paragraph 3 when quoting Mullen's disclosure about "completely eliminat[ing]" credit card fraud. *Compare* Prelim. Resp. 28 (citing Ex. 1004 ¶ 4), *with* Ex. 1004 ¶ 3 ("It is therefore desirable to provide systems and methods that completely eliminate the possibility for such types of credit card fraud.").

13–14 (discussing the proposed combination of Mullen and Kobylkin, without mentioning a QR code).

Even if Petitioner's proposed combination included replacing Mullen's display with Kobylkin's QR code, we do not, on the present record, view the combination as reducing Mullen's functionality. Mullen discloses a number of alternative embodiments, at least one of which is a dynamic credit card that does not include a display. Ex. 1004 ¶ 16; *see* Pet. 13 (relying on this embodiment of Mullen). Although Mullen discloses that a dynamic credit card number may be displayed to a user and used for online purchases, Mullen does not require that every embodiment have that functionality. Ex. 1004, code (57) (disclosing, in the alternative, that the dynamic credit card number may be "written onto a magnetic stripe such that the number may be processed by traditional credit card merchants (e.g., swiped)."). Moreover, Kobylkin suggests that a payment card with a QR code may be used at an online store. Ex. 1005 ¶ 131 ("[T]he term 'store' can include any business or place of business. The store can be a brick and mortar store or an online store.").

Patent Owner additionally argues that a POSITA would not have expected Petitioner's Mullen-Kobylkin combination to present less risk of fraud because, according to Patent Owner, "[a] fixed number encoded into a QR graphical encoding does not enhance security, defend privacy, nor protect against duplication or theft." Prelim. Resp. 29. At this stage, Patent Owner provides no expert testimony or other evidence to support its argument about the risks associated with QR codes or whether replacing a human-readable number with a QR code would reduce the risk of fraud. *See Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1284 (Fed. Cir. 2017) (it was reasonable for the Board to accept expert testimony over bare

attorney argument); *Gemtron Corp. v. Saint-Gobain Corp.*, 572 F.3d 1371, 1380 (Fed. Cir. 2009) ("unsworn attorney argument . . . is not evidence and cannot rebut" record evidence).

Even if we accepted Patent Owner's unsupported attorney argument about QR codes, it would not preclude a determination of obviousness. Petitioner is not required to show that its proposed combination of Mullen and Kobylkin avoids all risks of credit card fraud. *See Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380–81 (Fed. Cir. 2023) ("[C]ontrary to the Board's suggestion, [petitioner] never had to show that [the proposed substitution] was an 'improvement' in a categorical sense."). It would be enough for Petitioner to show that Kobylkin's blank card with a QR code would have been a "suitable option" to replace fixed payment information on the front of Mullen's card, that credit card fraud was a "known problem . . . in the art," that Kobylkin's blank card with a QR code "helped address that issue," and that combining the teachings of Mullen and Kobylkin "wasn't beyond the skill of an ordinary artisan." *Id.* "Nothing more is required to show a motivation to combine under *KSR*." *Id.*

At this juncture, we make no determination about whether Petitioner meets this standard. We merely determine that Petitioner has articulated a sufficient rationale for combining the references, and it is reasonably likely that Petitioner's position will prevail.

c) Claim Element 1.6

Claim element 1.6 recites "wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities."

Petitioner contends that Mullen discloses claim element 1.6. Pet. 17–18. Petitioner asserts that Mullen's dynamic credit card number ("DCCN") is the recited "limited-use payment information" and that Mullen discloses that the DCCN is "utilized to represent a credit card number" in order to provide "increased security." *Id.* (citing Ex. 1003 ¶¶ 129–131; Ex. 1004 ¶¶ 24, 68, 90). Patent Owner argues that "Mullen does not disclose that use of a DCCN is to be limited to use at payment card facilities, as required by limitation 1(6)" and "[t]o the contrary, [Mullen] repeatedly recites that the same DCCN is used for transactions at payment card reader facilities *and* for online transactions." Prelim. Resp. 35.

For purposes of institution, we find that Petitioner makes a sufficient showing for claim element 1.6 based on Mullen's disclosure of a DCCN. Pet. 17–18 (citing Ex. 1003 ¶¶ 129–131; Ex. 1004 ¶¶ 24, 68, 90). Petitioner relies on Mullen's disclosure that "[a] dynamic credit card may allow for less digits to be utilized to represent a credit card number as a result of the increased security." Ex. 1004 ¶ 90; *see also id.* ¶¶ 12, 13, 19–24, 60–64, 68, 69 (describing transmission of a DCCN to a credit card processing/ authorization facility, which decodes the DCCN to obtain a secure credit card number).

Patent Owner's arguments are unavailing for two reasons. First, Patent Owner relies on a construction for "limited-use payment information" as excluding online transactions, which we do not adopt for the reasons discussed in Section III.C. above. Second, Patent Owner's arguments rest on the incorrect assertion that "all the embodiments [of Mullen] include a display for the express purpose of facilitating unlimited use, including for online transactions." Prelim. Resp. 35 (citing Ex. 1004, code (57), ¶¶ 65, 82, 112). As discussed above, Mullen does not require that every embodiment

display a dynamic credit card number usable for online purchases. Mullen discloses at least one embodiment that does not include a display. Ex. 1004, code (57); ¶ 16; *see* Pet. 13 (relying Mullen paragraph 16).

d) Remaining Claim Elements

At this stage, Patent Owner does not dispute Petitioner's contention that the combination of Mullen and Kobylkin teaches or suggests claim elements 1.0 and 1.2–1.5. Pet. 10–11, 14–17. We determine that Petitioner's showing for independent claim 1 is sufficient for purposes of institution.

4. Dependent Claims 2–10

Claims 2–10 depend from claim 1. Petitioner challenges these claims based on Mullen and Kobylkin, adding Patel or Smith for some claims. Pet. 1, 18–37. Patent Owner does not present arguments for dependent claims 2–10 separate from its arguments for independent claim 1.

E. Petitioner's Smith-led Challenges

Petitioner challenges claims 11–20 based on Smith, Kobylkin, and Gomez, adding Varadarajan or Mullen to the combination for some claims. Pet. 1, 37–71. Patent Owner opposes. Prelim. Resp. 36–45. We begin with an overview of Smith and Gomez before turning to the disputed issues. An overview of Kobylkin is provided in Section III.D.2 above.

1. Smith (Ex. 1006)

Smith discloses using a mobile device to conduct a contactless payment transaction. Ex. 1006 ¶¶ 2–6. Smith discloses processing a financial transaction by mapping a mobile cloud account to a payment account. *Id.* at code (57), ¶¶ 2, 6–8, 15, 32, Fig. 1. According to Smith, a mobile device, such as a smart phone, stores mobile cloud account data,

including a mobile cloud account number ("MCA") that is associated with a real account number ("RCA"). *Id.* ¶¶ 33, 34. The MCA enables the user to conduct a financial transaction without storing the RCA on the mobile device, thereby reducing the potential for fraud. *Id.* ¶¶ 32, 34.

2. Gomez (Ex. 1007)

Gomez discloses a secure payment card that generates an authentication cryptogram, which is unique for each attempted use of the payment card to make a transaction and which expires within a short period of time thereafter. Ex. 1007, codes (54), (57), 1:58–63, 5:13–18, 5:48–57, Figs. 2, 9, 10.

3. Independent Claims 11 and 15

Claims 11 and 15 are directed to an online payment system. Petitioner challenges these claims based on Smith, Kobylkin, and Gomez. Pet. 38–61. Petitioner contends that it would have been obvious (i) to configure Smith's mobile device to be used in activating and/or funding Kobylkin's disposable payment card; (ii) to include only selected, non-confidential information on the face of the card, as described in Kobylkin; and (iii) to implement a user credential check prior to Smith's mobile device generating a payment cryptogram, based on the teachings of Gomez. Pet. 38–43 (citing Ex. 1003 ¶¶ 230–237).

a) Claim Elements 11.7 and 11.8

Claim element 11.7 recites "wherein the wireless interface is operable to wirelessly obtain card device payment account information." Claim element 11.8 recites "wherein the processor is operable to generate limited-use payment information based on the card device payment account information."

Petitioner contends that Smith discloses or suggests claim elements 11.7 and 11.8. Pet. 53–55. Addressing claim element 11.7, Petitioner asserts that "Smith describes that the mobile device wirelessly obtains 'mobile cloud account data' (i.e., card device payment account information) when the 'mobile cardlet' including the mobile cloud account data is provisioned 'over-the-air (OTA)' (i.e., wirelessly) to the mobile device." Pet. 53 (citing Ex. 1003 ¶¶ 264–268; Ex. 1006 ¶¶ 44, 45, 50). Addressing claim element 11.8, Petitioner asserts that "Smith describes 'generating . . . a payment cryptogram' (i.e., limited-use payment information) based on at least a portion of the mobile cloud account data 802" (i.e., the card device payment account information." Pet. 54 (citing Ex. 1003 ¶¶ 269–272; Ex. 1006 ¶ 103).

Patent Owner disputes Petitioner's contention that Smith's mobile cloud account data is "card device payment account information," as recited in claim elements 11.7 and 11.8. Prelim. Resp. 37, 39–41. According to Patent Owner, "Smith never once states that the 'mobile cloud account data' is associated with the device that receives it as required by claim 11." *Id.*

For purposes of institution, we find that Petitioner makes a sufficient showing for claim element 11.7. Pet. 53–54 (citing Ex. 1003 ¶¶ 264–268; Ex. 1006 ¶¶ 44–50, 58, 59). Petitioner relies on Smith's disclosure that a mobile cardlet may be provisioned over-the-air to a secure element of a mobile device, where the mobile cardlet stores mobile cloud account data. Ex. 1006 ¶¶ 44, 45. We also find that Petitioner makes a sufficient showing for claim element 11.8. Pet. 54–55 (citing Ex. 1003 ¶¶ 269–272; Ex. 1006 ¶¶ 67, 99, 103, Fig. 12; Ex. 1013[11] ¶¶ 7, 21, 22, 29–31). Petitioner relies on

[11] US 2005/0043997, published February 24, 2005 ("Sahota").

Smith's disclosure of "generating . . . a payment cryptogram based on at least a portion of the mobile cloud account data." Ex. 1006 ¶ 103.

Patent Owner's preliminary response regarding claim elements 11.7 and 11.8 is premised on the argument that "[t]he plain and ordinary meaning of a card device payment account information is information that is associated with a particular device." Prelim. Resp. 37. For the reasons discussed above, we do not adopt Patent Owner's proposed construction.

Nevertheless, we determine that Petitioner's showing is sufficient even under Patent Owner's construction. At this stage, Patent Owner does not dispute Petitioner's contention that, according to Smith, mobile cloud account data is wirelessly provisioned to a mobile device. Pet. 53–54; Prelim. Resp. 39–40; *see also id.* at 43 (In Smith, "the mobile cloud account data is generated and provided to a mobile device."). Patent Owner argues that Smith's "mobile cloud account data" is not associated with the mobile device that receives it. *Id.* But Patent Owner acknowledges that "mobile cloud account data" includes a "mobile account number (MCA)" and that Smith's "master key identifier" is "unique" to the mobile device. *Id.* (citing Ex. 1006 ¶¶ 7, 9, 43, 49). Patent Owner's argument overlooks Smith's teaching of "a mapping database . . . wherein each mapping record includes at least a master key identifier, a mobile cloud account number (MCA), and a real card account number (RCA)." Ex. 1006 ¶ 8. In our preliminary view, this teaching shows an association between at least one component of Smith's mobile cloud account data—the mobile account number (MCA)—and a master key identifier that is unique to the mobile device.

b) Reason to Combine Smith with Kobylkin and Gomez

Petitioner contends that a POSITA would have been motivated to configure Smith's mobile device to be used in activating and/or funding Kobylkin's disposable payment card "so that the user could make beneficial and convenient use of disposable payment cards." Pet. 39. Petitioner further contends:

> Kobylkin's activation and funding operations on the same mobile device used for other purposes such as making contactless payment transactions in Smith's system, especially since using the same device for multiple tasks would have increased convenience to the user by not requiring the user to access different devices for Smith's payment transactions and Kobylkin's funding/activation of disposable cards.

Pet. 40 (citing Ex. 1003 ¶ 233).

Patent Owner argues that Petitioner does not "explain how or why a POSITA would activate or fund Kobylkin's instant disposable payment card (i.e., a physical card) in the context of the online (i.e., card-not-present) transactions claimed in claims 11 and 15." Prelim. Resp. 41 (citing Ex. 1005, code (57), ¶ 3).

For purposes of institution, we find that Petitioner provides a sufficient rationale for combining Smith and Kobylkin, as summarized above, and that Petitioner's rationale is sufficiently supported by the cited prior art and the Shamos Declaration. Pet. 39–41 (citing Ex. 1003 ¶¶ 230–234; Ex. 1005 ¶¶ 31, 50, 52; Ex. 1006 ¶¶ 33, 44). Petitioner relies on Kobylkin, which discloses that disposable payment cards are "easily made" and "have no value to anyone unless and when the user funds the . . . disposable payment cards;" that funding the disposable payment cards "can be easily accomplished anywhere by the user scanning the QR code with a

user smart phone;" and the disposable payment cards "provide a safe way for the user to make payments, while limiting exposure that a credit or debit card can have." Ex. 1005 ¶ 52. Petitioner also relies on Smith's reference to "NFC-capable mobile devices." Ex. 1006 ¶¶ 3, 4.

Patent Owner's argument rests on a mistaken interpretation of claims 11 and 15 as involving "card-not-present" transactions. Prelim. Resp. 41–42. Claim 11 recites "a thin payment device,' i.e., a card, and further recites that a personal computing device obtains "card device payment account information" and uses it "to generate complete payment information, including the limited-use payment information" which is conveyed via an interface. Claim 15 requires "a thin card-shaped payment card device" and "card issuer provided payment card information is wirelessly downloaded into the computing device." These recitations demonstrate that the "online payment system" of claims 11 and 15 involves card-present transactions.

Petitioner contends that "a POSITA would have been motivated . . . to implement a user credential check prior to Smith's mobile device generating a payment cryptogram, based on the teachings of Gomez." Pet. 41 (citing Ex. 1003 ¶ 236). Petitioner further contends:

> Implementing Gomez's credential checking in Smith's mobile device would further Smith's aim of "reducing the potential for fraud" by preventing the use of a stolen mobile device to initiate fraudulent transactions, such as by the mobile device verifying a user's fingerprint prior to initiating a payment transaction, as taught by Gomez.

Pet. 42 (citing Ex. 1003 ¶ 236; Ex. 1006 ¶¶ 34, 45; Ex. 1007, 5:14–18).

Patent Owner argues that Smith "already includes security measures to prevent fraudulent access to the functions of the mobile device" and that Gomez discloses a less secure payment card. Prelim. Resp. 42–43.

For purposes of institution, we find that Petitioner provides a sufficient rationale for combining Gomez with Smith and Kobylkin, as summarized above, and that Petitioner's rationale is sufficiently supported by the cited prior art and the Shamos Declaration. Pet. 41–43 (citing Ex. 1003 ¶¶ 236, 237; Ex. 1006 ¶¶ 33, 34, 45; Ex. 1007, 5:14–18, 10:34–42). Petitioner relies on Smith, which indicates that "reducing the potential for fraud" is one aim of the disclosed system. Ex. 1006 ¶ 34. Petitioner also relies on Gomez, which discloses a payment card that "generates an authentication cryptogram for each attempted transaction only after the cardholder successfully presents a credential, such as a fingerprint or PIN number, into the payment card." Ex. 1007, 5:14–18.

Patent Owner's counterargument raises factual issues as to the motivations of a POSITA, but does not preclude a determination of obviousness. *See Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1331 (Fed. Cir. 2019) ("Whether a skilled artisan would have been motivated to combine prior art references is . . . a question of fact."); *see also Intel*, 61 F.4th at 1380–81 (holding that the Board improperly rejected *KSR*'s known-technique rationale when it reasoned that Kabemoto "already addresses" the prior art problem and that it "fail[ed] to see why" a POSITA would regard Bauman's technique as an obvious improvement to Kabemoto).

c) Claim Element 15.6

Claim element 15.6 recites "wherein card issuer provided payment card information is wirelessly downloaded into the computing device."

For claim element 15.6, the parties dispute whether Smith's mobile cloud account data is "card issuer provided payment card information." *Compare* Pet. 59 (citing Ex. 1003 ¶¶ 290–292; Ex. 1006 ¶¶ 37, 44, Figs. 3, 4), *with* Prelim. Resp. 43–44 (arguing that Smith's mobile cloud account data "is generated and provided to a mobile device by a mobile cloud service provider, not the card issuer"). We find that Petitioner's contention is sufficient for purposes of institution. Petitioner relies on Smith's disclosure that "the service provider 110 . . . may be operated by or on behalf of the issuer 112." Ex. 1006 ¶ 37.

The parties also dispute whether "Kobylkin describes the mobile device wirelessly downloading the card number of a disposable payment card via an NFC channel when a user uses his or her device to activate or fund the disposable payment card." *Compare* Pet. 59 (citing Ex. 1005 ¶¶ 31, 50, 70, 71), *with* Prelim. Resp. 45 (arguing that Kobylkin's mobile device is merely a "transient conduit" for the card account number, which is not downloaded or saved on the device, citing Ex. 1005 ¶ 31). On the current record, it is unclear whether Kobylkin discloses or suggests downloading a card number to the mobile device. We do not need to resolve this issue because we determine that Petitioner provides a sufficient contention for claim element 15.6 based on Smith.

d) Remaining Claim Elements

At this stage, Patent Owner does not dispute Petitioner's contention that the combination of Smith, Kobylkin, and Gomez teaches or suggests the

claim elements 11.0–11.6, 11.9, 11.10, 15.0–15.5, 15.7, and 15.8. Pet. 43–53, 55–61. We determine that Petitioner's showing for independent claims 11 and 15 is sufficient for purposes of institution.

4. Dependent Claims 12–14 and 16–20

Claims 12–14 depend from claim 11, and claims 16–20 depend from claim 15. Petitioner challenges these claims based on Smith, Kobylkin, and Gomez, adding Varadarajan or Mullen for some claims. Pet. 1, 57–58, 61–71. Patent Owner does not present arguments for dependent claims 12–14 and 16–20 separate from its arguments for independent claims 11 and 15.

IV. CONCLUSION

For the above reasons, we determine that Petitioner establishes a reasonable likelihood that it would prevail in showing that at least one of claims 1–20 of the '820 Patent is unpatentable. Accordingly, we institute an *inter partes* review of all challenged claims on all grounds asserted against those claims in the Petition. 37 C.F.R. §§ 42.107(e), 42.108(a); *see* Guidance on the Impact of SAS on AIA Trial Proceedings (April 26, 2018);[12] *see also SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

[12] Available at https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial.

V. ORDER

It is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–20 of the '820 Patent is instituted commencing on the entry date of this Decision; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of trial.

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Paper 11
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

CARDWARE INC.,
Patent Owner.

IPR2023-00314
Patent 10,628,820 B2

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

ROESEL, *Administrative Patent Judge.*

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

I. INTRODUCTION

A. Background and Summary

Samsung Electronics Co., Ltd. ("Petitioner") filed a Petition (Paper 2, "Pet.") seeking an *inter partes* review of claims 1–20 (the "challenged claims") of U.S. Patent No. 10,628,820 B2 (Ex. 1001, "the '820 Patent"). CardWare Inc. ("Patent Owner") filed a Preliminary Response. Paper 6 ("Prelim. Resp."). With prior authorization, Petitioner filed a Reply (Paper 9, "Prelim. Reply"), and Patent Owner filed a Sur-reply (Paper 10, "Prelim. Sur-reply").

Pursuant to our delegated authority, we may not institute an *inter partes* review "unless . . . the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a) (2018); 37 C.F.R. § 42.4(a) (2022). After considering the information presented in the Petition, the Preliminary Response, the Preliminary Reply, and Preliminary Sur-reply, we determine that Petitioner has shown a reasonable likelihood that it would prevail in showing that at least one of the challenged claims is unpatentable and that discretionary denial is not appropriate. Therefore, we grant institution of an *inter partes* review.

Our findings and conclusions below are based on the record developed thus far. This is not a final decision as to the patentability of any challenged claim. Any final decision will be based on the full record developed during trial.

B. Related Matters

The parties identify the following as a related matter: *CardWare Inc. v. Samsung Electronics Co., Ltd.*, No. 2:22-cv-00141 (E.D. Tex.) ("district court litigation"). Pet. 74; Paper 4, 1 (Patent Owner's mandatory notices).

Petitioner also identifies IPR2023-00196, IPR2023-00210, IPR2023-00211, IPR2023-00219, in which Petitioner challenges patents that are related to the '820 Patent and asserted by Patent Owner in the district court litigation. Pet. 74.

C. The '820 Patent (Ex. 1001)

The '820 Patent is titled, "Multi-functional electronic payment device" and discloses methods of using such a device to perform transactions, including transactions using a card reader and online transactions. Ex. 1001, codes (54), (57), 2:17–23, 12:49–13:19. According to the '820 Patent, existing types of credit cards have "security limitations" and are "susceptible to theft and/or compromise." *Id.* at 1:66–2:3. The '820 Patent addresses these concerns with a credit card device having various security features, including "the capability of producing a limited-duration credit card number for performing transactions using accounts of the card." *Id.* at 10:56–59.

D. Illustrative Claims

Petitioner challenges claims 1–20 of the '820 Patent. Pet. 1. Claims 1, 11, and 15 are independent and are reproduced below with the paragraph designations used in the Petition.

1. [1.0] A payment device comprising:

[1.1] a thin shaped body having no fixed payment numbers disposed thereon;

[1.2] a memory;

[1.3] a cryptographic processor coupled to the memory; and

[1.4] a reader interface, including at least one interface selected from a set comprising: a magnetic-stripe, a smart card reader interface, a mag-stripe inductor interface, an RF interface, an NFC interface, and a wireless interface, and

[1.5] wherein payment information for a transaction is operable to be conveyed via the reader interface and comprises limited-use payment information, and

[1.6] wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities.

11. [11.0] An online payment system, the system comprising:

[11.1] a thin payment device comprising no fixed payment numbers visible thereon; and

[11.2] a personal computing device, wherein the personal computing device comprises: a processor;

[11.3] a memory;

[11.4] a wireless interface;

[11.5] a display operable to provide a visual user-interface operable for performing online transactions; and

[11.6] a user-interface coupled to the processor, and

[11.7] wherein the wireless interface is operable to wirelessly obtain card device payment account information, and

[11.8] wherein the processor is operable to generate limited-use payment information based on the card device payment account information, and

[11.9] wherein the personal computing device is operable to generate complete payment information, including the limited-use payment information, and to convey said complete

payment information via at least one interface of a set comprising: said display; and the wireless interface, and

[11.10] wherein the limited-use payment information is configured to be used in place of a card issuer payment information.

15. [15.0] An online payment system comprising:

[15.1] a thin card-shaped payment card device that bears no fixed payment numbers on the card device; and

[15.2] a computing device operable for completing an online payment transaction and comprising: a display;

[15.3] a user-interface;

[15.4] a processor; and

[15.5] a memory for storing a payment card information accessible to the processor,

[15.6] wherein card issuer provided payment card information is wirelessly downloaded into the computing device, and

[15.7 wherein at least one of the set comprising: the computing device; and the card-shaped payment device, is configured to dynamically generate a limited-use payment information, upon the authorization of a valid computing device user, and

[15.8] wherein the payment information provided by the computing device is used in online transactions in place of a card issuers payment card information.

Ex. 1001, 19:58–20:7, 22:10–35, 23:39–59 (bracket designations added and paragraphs adjusted); *see* Pet. vi–xiii (Petitioner's claim listing).

E. Asserted Grounds and Evidence

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §[1]	Reference(s)/Basis
1, 2, 6, 10	103(a)	Mullen,[2] Kobylkin[3]
3–5, 7, 8	103(a)	Mullen, Kobylkin, Patel[4]
9	103(a)	Mullen, Kobylkin, Smith[5]
11, 12, 15–18, 20	103(a)	Smith, Kobylkin, Gomez[6]
13, 19	103(a)	Smith, Kobylkin, Gomez, Varadarajan[7]
14	103(a)	Smith, Kobylkin, Gomez, Varadarajan, Mullen

Petitioner submits the Declaration of Michael I. Shamos, Ph.D. (the "Shamos Declaration"), in support of the Petition. Ex. 1003.

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[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the '820 Patent claims the benefit of a provisional application filed before that date, we refer to the pre-AIA version of § 103. Ex. 1001, code (60).

[2] Ex. 1004, US 2008/0302876 A1, published December 11, 2008 ("Mullen").

[3] Ex. 1005, US 2013/0166441 A1, published June 27, 2013 ("Kobylkin").

[4] Ex. 1014, US 2012/0143754 A1, published June 7, 2012 ("Patel").

[5] Ex. 1006, US 2013/0232083 A1, published September 5, 2013 ("Smith").

[6] Ex. 1007, US 9,600,808 B1, issued March 21, 2017 ("Gomez").

[7] Ex. 1015, US 2011/0184867 A1, published July 8, 2011 ("Varadarajan").

II. DISCRETION UNDER 35 U.S.C. § 314(A)

A. Legal Standards

Patent Owner argues that we should exercise discretion to deny institution under 35 U.S.C. § 314(a) because the factors identified in *Apple, Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) ("*Fintiv*"), weigh in favor of denying institution. Prelim. Resp. 47–52; Prelim. Sur-reply. Petitioner argues we should not discretionarily deny institution under *Fintiv*. Pet. 71–73; Prelim. Reply.

The precedential decision in *Fintiv* identifies a non-exclusive list of factors parties may consider addressing where there is a related, parallel district court action to determine whether such action provides any basis for discretionary denial. *Fintiv*, 5–16. Those factors include:

> 1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
>
> 2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
>
> 3. investment in the parallel proceeding by the court and the parties;
>
> 4. overlap between issues raised in the petition and in the parallel proceeding;
>
> 5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
>
> 6. other circumstances that impact the Board's exercise of discretion, including the merits.

Id. at 5–6.

In evaluating the factors, we take a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review. *Id.* at 6. The Director has issued additional guidance on the application of *Fintiv*. *See* Katherine K. Vidal, *Interim Procedure for Discretionary*

Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (June 21, 2022)[8] ("*Fintiv* Memo"). Additionally, we are guided by the precedential decisions of the Director in *OpenSky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102, 49–50 (Oct. 4, 2022) (precedential) and *CommScope Techs. LLC v. Dali Wireless, Inc*, IPR2022-01242, Paper 23 (Feb. 27, 2023) (precedential) ("*CommScope*").

We are instructed to consider compelling merits under *Fintiv* factor six only after a determination that the first five *Fintiv* factors favor discretionary denial. *CommScope*, 4–5. Thus, we begin by considering the first five *Fintiv* factors.

B. Fintiv Factors

1. Factor 1 - Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted

"A district court stay of the litigation pending resolution of the PTAB trial allays concerns about inefficiency and duplication of efforts." *Fintiv*, 6. *Fintiv* indicated that, in previous Board decisions, the existence of a district court stay pending Board resolution of an *inter partes* review has weighed strongly against discretionary denial, while a denial of such a stay request sometimes weighs in favor of discretionary denial. *Id.* at 6–8.

Patent Owner notes that a stay was requested and not granted in the district court litigation, and asserts that this factor should be viewed as neutral. Prelim. Resp. 48; Ex. 2003.

Petitioner notes that the dismissal of the stay request was without prejudice, and that it maintains the right to move for a stay if we institute.

[8] Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf

Prelim. Reply 1, 2. Petitioner argues that the factor should be considered neutral. *Id.* at 2.

The court in the district court litigation noted in its denial of the stay request that it was following "the universal practice" in the district, to deny a stay based on post-grant review requests where institution decisions have not yet been issued, and provided no additional reasoning or indication of future action with respect to any potential renewal of the stay request. Ex. 2003. Because, "[i]n the absence of specific evidence, we will not attempt to predict" whether a district court would stay "based on a variety of circumstances and facts beyond our control and to which the Board is not privy," we find this factor to be neutral. *See Sand Revolution II, LLC v. Cont'l Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative) ("*Sand Revolution*").

2. Factor 2 - Proximity of the court's trial date to the Board's projected statutory deadline for a final written decision

The proximity factor in *Fintiv* asks us to evaluate our discretion in light of a trial date that has been set in a parallel litigation. *See Fintiv*, 3, 5 ("*NHK* applies to the situation where the district court has set a trial date to occur earlier than the Board's deadline to issue a final written decision in an instituted proceeding."; "When the patent owner raises an argument for discretionary denial under *NHK* due to an earlier trial date, the Board's decisions have balanced the following factors . . . .") (citing *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential)("*NHK*")). As noted above in the discussion of the first factor, *Fintiv* cites concern regarding "inefficiency and duplication of efforts." *Id.* at 6. In its analysis of the proximity factor, *Fintiv* echoes that concern in its guidance that "[i]f the court's trial date is at or around the

same time as the projected statutory deadline or even significantly after the projected statutory deadline, the decision whether to institute will likely implicate other factors discussed herein, such as the resources that have been invested in the parallel proceeding." *Id.* at 9. Similarly, in *NHK*, the Board expressed concern that a trial before the deadline for a final written decision addressing the same prior art and arguments would have undermined the Board's objectives of providing an effective and efficient alternative to district court litigation. *See NHK*, 20 (citing *General Plastic Indus. Co., Ltd. v. Cannon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16–17 (PTAB Sept. 6, 2017 (precedential))).

We are instructed that

> when analyzing the proximity of the court's trial date under factor two of *Fintiv*, when other relevant factors weigh against exercising discretion to deny institution or are neutral, the proximity to trial should not alone outweigh all of those other factors. Parties may present evidence regarding the most recent statistics on median time-to-trial for civil actions in the district court in which the parallel litigation resides for the PTAB's consideration. Where the parties rely on time-to-trial statistics, the PTAB will also consider additional supporting factors such as the number of cases before the judge in the parallel litigation and the speed and availability of other case dispositions.

Fintiv Memo, 8–9 (internal citations and footnote deleted).

Based on median time-to-trial data for the Eastern District of Texas, Petitioner asserts that "trial would be expected to occur in May, 2024." Pet. 71–72 (citing Ex. 1103, 35). According to Petitioner, a final written decision ("FWD") in this proceeding is anticipated in June, 2024. *Id.* Nevertheless, Petitioner argues that "[t]he Board should not deny institution due to the close proximity of the FWD and disposition date." *Id.*

Patent Owner contends that as the docket control order sets jury selection for February, 2024, the district court trial date precedes the anticipated final written decision deadline by five months. Prelim. Resp. 48 (citing Ex. 2001). Patent Owner additionally argues that, if the Board relies on median time-to-trial, then we should use specific time-to-trial data for the presiding judge, which would indicate an even earlier trial date than that scheduled in the docket control order. *Id.* at 49 (citing Ex. 2002, 1).

We "generally take courts' trial schedules at face value absent some strong evidence to the contrary," and here neither party presents strong evidence casting doubt on the trial date set in the district court's order. Because the trial in the district court litigation is scheduled to begin five months before our deadline to reach a decision, this factor weighs marginally in favor of discretionary denial. *Apple v. Fintiv*, IPR2020-00019, Paper 15, 13 (PTAB May 13, 2020) (informative).

3. Factor 3 - Investment in the parallel proceeding by the court and the parties

If, at the time of the institution decision, the district court has issued substantive orders related to the challenged patent, such as a claim construction order, this fact weighs in favor of denial. *See Fintiv*, 9–10. On the other hand, if the district court has not issued such orders, this fact weighs against discretionary denial. *Id.* at 10.

Petitioner argues that the bulk of investment in the district court litigation has yet to occur, and that no part of claim construction or document production had occurred at the time of the filing of the Petition. Pet. 72. Petitioner further argues that it was diligent in filing the Petition and that its diligence "heavily favors institution." Prelim. Reply 3.

Patent Owner argues that by the time of our decision, document production will be substantially complete and "the claim-construction process [will] be underway and completed shortly thereafter." Prelim. Resp. 50 (citing Ex. 2001, 3–4).

The docket control order shows that the claim construction hearing is not scheduled until August 1, 2023, and that substantial deadlines for the parties related to claim construction are still upcoming. Ex. 2001, 3. *Fintiv* also directs us to consider whether "the petitioner filed the petition expeditiously." *Fintiv*, 11. Although we are mindful of the investment of the parties to date, we find that, at this time, substantial work remains for the parties and no substantive orders related to the challenged patent have been issued by the district court. Additionally, on the record before us the filing of the Petition was expeditious. We determine this factor weighs against exercising discretion to deny institution.

4. Factor 4 - Overlap between issues raised in the petition and in the parallel proceeding

"[I]f the petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding, this fact has favored denial." *Fintiv*, 12. "Conversely, if the petition includes materially different grounds, arguments, and/or evidence than those presented in the district court, this fact has tended to weigh against exercising discretion to deny institution under *NHK*." *Id.* at 12–13. A stipulation as in *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential as to § II.A), if one is entered, would be highly relevant. "Consistent with *Sotera Wireless, Inc.*, the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a

parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB." *Fintiv* Memo 3 (footnote omitted).

Petitioner offers, in the Petition, a stipulation that, if IPR is instituted, "it will not pursue in the Related Litigation any invalidity grounds against the Challenged Claims of the '820 patent that are the same as those raised in this Petition." Pet. 72–73. It later offers an additional stipulation that "if this IPR is instituted, Petitioner will not pursue an invalidity defense in the E.D. Texas litigation with respect to the claims of the '820 Patent in the instituted IPR based on (i) any of the same grounds in the instituted IPR or (ii) any prior art reference that forms the basis of any ground in the instituted IPR." Prelim. Reply 1; Ex. 1110. Petitioner states that "this stipulation covers references that have the same (or substantially the same) disclosure but are not part of the grounds in the Petition." *Id.* Petitioner argues that this stipulation "leaves only meaningfully different prior art for use in E.D. Tex." Prelim. Reply 3.

Patent Owner argues that, in the new stipulation, Petitioner only restricts itself from pursuing "in district court the same grounds or the specific references in those grounds," but "leaves Petitioner free to pursue the very same arguments in district court under the guise of technically different references or combinations." Prelim. Sur-reply 1 (emphases omitted). Patent Owner argues that Petitioner's stipulation has "no practical effect" and, because Petitioner has not offered a *Sotera* stipulation, factor 4 favors denial. *Id.* at 2.

While not a *Sotera* stipulation, Petitioner's stipulation appears to be similar to that in *Sand Revolution*. *Sand Revolution*, 11–12 (finding that a stipulation not to pursue the same grounds in the parallel litigation

"mitigates to some degree the concerns of duplicative efforts"). We recognize that *Sand Revolution*-type stipulations are narrower in scope than *Sotera*-type stipulations. However, Petitioner's stipulation still reduces potential overlap with the district court litigation. In *Sand Revolution*, such a stipulation weighed marginally in favor of not exercising discretion. *Sand Revolution*, 12.

Additionally, we note that we have not been apprised by either party whether, in fact, the same art and arguments are anticipated to be the subject of the district court litigation. *See Fintiv*, 12.

We determine this factor weighs marginally against exercising discretion to deny institution.

5. Factor 5 - Whether the petitioner and the defendant in the parallel proceeding are the same party

If the petitioner is unrelated to the defendant in the parallel proceeding, that might weigh against discretionary denial. *See Fintiv*, 13–14.

The parties agree that Petitioner is the defendant in the related district court litigation. Pet. 74; Prelim. Resp. 52.

As with *Fintiv* factor 2, therefore, this factor weighs marginally in favor of exercising our discretion to deny the Petition.

C. Conclusion

We have considered the circumstances and facts before us in view of the first five *Fintiv* factors. Because our analysis is fact-driven, no single factor is determinative of our conclusion. Considering these five *Fintiv* factors, we determine that they do not favor a discretionary denial. As we do not find that the first five *Fintiv* factors favor discretionary denial, we

therefore do not make a determination regarding compelling merits under *Fintiv* factor 6, and our consideration ends with this conclusion. *CommScope*, 4–5.

III. REASONABLE LIKELIHOOD 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")); *see also* 37 C.F.R. § 42.104(b) (requiring a petition for *inter partes* review to identify how the challenged claim is to be construed and where each element of the claim is found in the prior art patents or printed publications relied upon).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved based on 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, i.e., secondary considerations. *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*, 550 U.S. at 418 (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")). Petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements," but "must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art ("POSITA") would have had "(1) a bachelor's degree in computer science, computer engineering, electrical engineering, or a related field, and (2) one to two years of experience working with payment processing and/or digital authentication systems, including familiarity with short-range wireless technologies." Pet. 4–5 (citing Ex. 1003 ¶¶ 42–47). According to Petitioner, "[a]dditional education could substitute for professional experience, or vice versa." *Id.* at 5.

For purposes of the Preliminary Response, Patent Owner does not dispute Petitioner's definition of a POSITA. Prelim. Resp. 21.

For purposes of this Decision, we apply Petitioner's definition of a POSITA, which is consistent with the scope and content of the '820 Patent and the asserted prior art.

C. Claim Construction

In an *inter partes* review, we apply the same claim construction standard as would be used by a district court to construe a claim in a civil action involving the validity or infringement of a patent. 37 C.F.R.

§ 42.100(b). Under that standard, claim terms are given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *Id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–19 (Fed. Cir. 2005) (en banc); *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365–66 (Fed. Cir. 2012). "The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy." *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (quoting *Vivid Techs., Inc. v. Am. Sci. Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

We address the meaning of several claim terms below and determine that no additional claim construction is needed for purposes of this Decision. Our claim constructions are not final, and we invite the parties to address claim construction in their post-institution submissions.

1. "no fixed payment numbers"

Claim element 1.1 recites "a thin shaped body having no fixed payment numbers disposed thereon." Claim element 11.1 recites "a thin payment device comprising no fixed payment numbers visible thereon." Claim element 15.1 recites "a thin card-shaped payment card device that bears no fixed payment numbers on the card device."

Petitioner contends that the limitations that recite "no fixed payment numbers" are directed to printed matter and are entitled to no patentable weight. Pet. 4. Patent Owner argues that "these limitations do not claim the content of any information" and, even if they did, "they are entitled to

patentable weight because they are functionally related to the claimed devices within the claimed system." Prelim. Resp. 22.

On this record, we agree with Petitioner that claim elements 1.1, 11.1, and 15.1 recite printed matter entitled to no patentable weight.

"[P]rinted matter encompasses any information claimed for its communicative content, and the doctrine prohibits patenting such printed matter unless it is 'functionally related' to its 'substrate,' which encompasses the structural elements of the claimed invention." *C R Bard Inc. v. AngioDynamics, Inc.*, 979 F.3d 1372, 1381 (Fed. Cir. 2020); *see also Praxair Distribution, Inc. v. Mallinckrodt Hosp. Prod. IP Ltd.*, 890 F.3d 1024, 1031 (Fed. Cir. 2018) ("Claim limitations directed to printed matter are not entitled to patentable weight unless the printed matter is functionally related to the substrate on which the printed matter is applied."); *In re Distefano*, 808 F.3d 845, 848 (Fed. Cir. 2015) ("[I]f a limitation claims (a) printed matter that (b) is not functionally or structurally related to the physical substrate holding the printed matter, it does not lend any patentable weight to the patentability analysis.").

In our view, claim elements 1.1, 11.1, and 15.1 recite printed matter entitled to no patentable weight claim because they require that a particular type of information—"fixed payment numbers"—be absent from the face of the thin shaped body, payment device, or card device. If they were affirmatively recited, "fixed payment numbers" would no doubt qualify as information claimed for its communicative content that is not functionally related to the substrate, as no reference to or functional use of fixed payment numbers is found in claims 1, 11, or 15. The negative limitation, that "no fixed payment numbers" are on the body or device, is just as much recitation of printed matter as the affirmative recitation would be. In both cases,

information is being claimed for its communicative content. Claim elements 1.1, 11.1, and 15.1 simply recite that a particular type of information—fixed payment numbers—is not included in the communication.

Patent Owner argues that claim elements 1.1, 11.1, and 15.1 are "functionally related to the claimed devices within the claimed system" because "the claimed 'no fixed payment numbers' enhances the security of the claimed systems . . . by removing the possibility that 'a malicious third party [would] record [such information] in order to later make fraudulent transactions on the account.'" Prelim. Resp. 22 (citing Ex. 1001, 9:55–62). We disagree. Our reviewing court instructs: "In evaluating the existence of a functional relationship, we have considered whether the printed matter merely informs people of the claimed information, or whether it instead interacts with the other elements of the claim to create a new functionality in a claimed device or to cause a specific action in a claimed process." *Bard*, 979 F.3d at 1381. Fixed payment numbers inform people of particular information, and claim elements 1.1, 11.1, and 15.1 recite that the matter printed on the card or device should not inform people of that particular information. The absence of fixed payment numbers does not interact with the other elements of the claim to create a new functionality in a claimed device or to cause a specific action in a claimed process.

The foregoing analysis applies equally to dependent claims 2, 12, and 16, which recite both affirmative and negative printed matter limitations.

2. "limited-use payment information"

Claim element 1.6 recites "wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities."

Patent Owner argues that claim 1 "is directed to a card device with a limited-use number, where the nature of the use-limitation is that it is usable only for card-present transactions 'at payment card reader facilities.'" Prelim. Resp. 31. Patent Owner argues that claim 1 is directed to in-person, card-present transactions, not online transactions as in claims 11 and 15, and "[t]he limited-use payment information of claim 1 is not usable for online transactions." *Id.* at 31, 34.

We disagree with Patent Owner's interpretation of "limited-use payment information" as excluding online transactions. Claims 11 and 15 are expressly directed to an "online payment system," while claim 1 is directed to a "payment device," without distinguishing between in-person and online transactions. Yet claims 1, 11, and 15 all recite the same term, "limited-use payment information." Patent Owner's argument that this term has a different meaning in claim 1 than in claims 11 and 15 violates "the principle that the same phrase in different claims of the same patent should have the same meaning." *In re Varma*, 816 F.3d 1352, 1363 (Fed. Cir. 2016). This principle "is a strong one, overcome only if 'it is clear' that the same phrase has different meanings in different claims." *Id.* (citing *Fin Control Sys. Pty, Ltd. v. OAM, Inc.*, 265 F.3d 1311, 1318 (Fed. Cir. 2001).

Patent Owner provides no clear showing to overcome the principle that "limited-use payment information" has the same meaning in each of claims 1, 11, and 15. The '820 Patent demonstrates that the nature of the use limitation relates to the number of transactions or period of time for which the payment information is valid. Ex. 1001, code (57) ("a limited-use credit card number, which is limited in scope of use to a predetermined number of authorized transactions"); *id.* at 2:28–32 (same). The Specification does not support Patent Owner's argument that "the nature of the use-limitation is

that it is usable only for card-present transactions 'at payment card reader facilities.'" Prelim. Resp. 31.

To support that argument, Patent Owner relies on claim 1's recitation of a payment device with a "reader interface" and claim 1.6's recitation that "the limited-use payment information is to be used . . . at payment card reader facilities." Prelim. Resp. 31–32. Patent Owner is mistaken, however, in characterizing online transactions as "card-not-present transactions" and asserting that "online payment systems do not convey payment information from the card via any reader interface, such as a magnetic-stripe, chip, or NFC contactless." Prelim. Resp. 32. Contrary to Patent Owner's argument, the '820 Patent teaches that online transactions are card-present transactions that may involve a card reader. Ex. 1001, 12:59–13:19, Figs. 5, 10 (describing and illustrating online transactions using a multi-function electronic device, i.e., a card device); *see also id.* at 18:30–31 ("[T]he credit card of the present invention could also be used to make online purchases."). According to claim 1, a card reader interface may be an RF interface or an NFC interface. The '820 Patent discloses that these types of interfaces may be used for connecting a card device to a personal computer for conducting an online transaction. *Id.* at 13:3–11, 18:31–35 ("[T]he card could use RFID or near field technology so that it can connect to a personal computer and be used to uniquely generate a credit card number for online purchases."). Accordingly, we do not adopt Patent Owner's construction that "limited-use payment information" in claim 1 is not usable for online transactions. Prelim. Resp. 34.

3. "card device payment account information"

Claim element 11.7 recites "wherein the wireless interface is operable to wirelessly obtain card device payment account information." Claim element 11.8 recites "wherein the processor is operable to generate limited-use payment information based on the card device payment account information."

Patent Owner argues that "[t]he plain and ordinary meaning of a card device payment account information is information that is associated with a particular device." Prelim. Resp. 37. According to Patent Owner, "[a]t a minimum, 'card device' should at least indicate an association of the payment account information with the particular 'card device.'" *Id.* at 38. We disagree. The phrase, "card device payment account information," appears in claim 11 and nowhere else in the '820 Patent. Claim 11 does not support Patent Owner's argument that "card device payment account information" must be associated with a particular card device. The term "card device" does not appear in claim 11 except as part of the phrase, "card device payment account information." To the extent Patent Owner equates a "card device" with "a thin payment device," there is no indication in claim 11 that "card device payment account information" is associated with the "thin payment device." Claim element 11.1 recites that the thin payment device has "no fixed payment numbers visible thereon," which negates at least one way that payment account information could be associated with a particular card device.

Patent Owner does not identify support in the Specification for its interpretation of "card device payment account information" as information associated with a particular device. Contrary to Patent Owner's argument, the Specification teaches that "account information . . . 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.)." Ex. 1001, 7:44–49. We see no indication in the '820 Patent that these types of account information are associated with a particular device.

D. Petitioner's Mullen-led Challenges

Petitioner challenges claims 1–10 based on Mullen and Kobylkin, adding Patel or Smith to the combination for some claims. Pet. 1, 6–37. Patent Owner opposes. Prelim. Resp. 23–36. We begin with an overview of Mullen and Kobylkin before turning to the disputed issues.

1. Mullen (Ex. 1004)

Mullen discloses a "dynamic credit card . . . in which a secure credit card number (e.g., a secret/hidden credit card number) is encoded based on a timing signal (e.g., an internal counter) to provide a dynamic credit card number." Ex. 1004, code (57). According to Mullen, the "dynamic number may be displayed to a user via a display (e.g., so that online purchases can be made) or written onto a magnetic stripe such that the number may be processed by traditional credit card merchants (e.g., swiped)." *Id.*

2. Kobylkin (Ex. 1005)

Kobylkin discloses an "instant disposable payment card" having a quick response ("QR") code, which can be scanned by the user to facilitate activation and/or funding of the payment card and/or creation of an account or activation of a pre-created account at a payment system provider. Ex. 1005, code (57). According to Kobylkin, the user "can then use the instant payment card to pay for purchases." *Id.*

3. Independent Claim 1

Petitioner challenges claim 1 based on Mullen and Kobylkin and relies on Mullen to teach most of the claim elements. Pet. 8–18.

a) Claim Element 1.1

Claim element 1.1 recites "a thin shaped body having no fixed payment numbers disposed thereon."

Petitioner contends that Mullen teaches claim element 1.1, alone or in combination with Kobylkin. Pet. 12–14.[9] Patent Owner does not dispute Petitioner contention that Mullen teaches a dynamic credit card having thin shaped body. Pet. 11; *see* Prelim. Resp. 24–30 (addressing claim element 1.1, without disputing that Mullen teaches a thin shaped body). As discussed above, we agree with Petitioner claim element 1.1's recitation of "no fixed payment numbers" is printed matter entitled to no patentable weight. We nevertheless address the parties' dispute about whether the cited art teaches that limitation.

Petitioner contends that Mullen's Figure 16 "shows an example dynamic credit card having no fixed payment numbers disposed thereon." Pet. 12–13 (citing Ex. 1004 ¶¶ 49, 50, Fig. 16). Patent Owner disputes that contention, arguing that "the full Figure 16 . . . plainly shows that the card number ("2424 242424, 24242") and the expiration date ("01/07") do not change." Prelim. Resp. 24–25. At this stage, we are not persuaded by Petitioner's contention for claim element 1.1 based on Mullen's Figure 16. According to the '820 Patent, a "fixed payment number" may include an expiration date. Ex. 1001, claim 2. Mullen's Figure 16 shows a credit card

[9] The next subsection addresses the parties' dispute about combining Mullen and Kobylkin.

bearing an expiration date, and Petitioner fails to show that the expiration date is not fixed. Ex. 1004, Fig. 16; *see id.* ¶ 49 (disclosing that "writings on a surface of the credit card" such as an expiration date "may be printed and/or pressed into a housing").

Next, Petitioner contends that, "[a]s another example," Mullen teaches a credit card number that is continually updated and encoded on a magnetic strip and not displayed to the user. Pet. 13 (citing Ex. 1004 ¶¶ 16, 70). Patent Owner disputes that contention, arguing that Mullen's dynamic credit card number "always" has "at least one *static* prefix number" that identifies "whether the remainder of the displayed payment information is static or dynamic." Prelim. Resp. 1–2 (citing Ex. 1004 ¶ 100).

For purposes of institution, we find that Petitioner makes a sufficient showing for claim element 1.1 based on Mullen's disclosure of a credit card number that is continually updated. Pet. 13 (citing Ex. 1004 ¶¶ 16, 70). Petitioner relies on Mullen paragraph 16, which discloses that "[a] dynamic credit card may also not include a display and the credit card number may be updated continually in real time." Ex. 1004 ¶ 16. Petitioner also relies on Mullen paragraph 70, which discloses "the dynamic information (e.g., the dynamic security code) may be displayed to a user" and the fixed information that identifies a user may be encoded on a magnetic stripe. *Id.* ¶ 70.

Although Patent Owner relies on Mullen's disclosure that a static or partially static number may be displayed on the dynamic credit card (Prelim. Resp. 1–2, 26 (citing Ex. 1004 ¶ 100, Fig. 12)), that is only one of several embodiments disclosed by Mullen. Mullen discloses other embodiments in which only dynamic payment numbers are displayed on the card. *Compare* Ex. 1004, Fig. 12, ¶ 100 ("A topology may be provided in display 1210 in

which a static or dynamic credit card number is provided."), *with id.* ¶ 92 ("FIG. 9 shows dynamic credit card 900 that may include display screen 931 . . . [which] may include, for example, dynamic credit card number 931, dynamic security code 932 . . ., dynamic expiration date 933, and number changing information 934."), *and* ¶¶ 95, 96 (FIG. 11 shows dynamic information topologies 1100. . . . Providing information 1121–1123 as dynamic information may allow 23 digits of dynamic information to be displayed.").

We have considered Patent Owner's argument that a continually updated card number would be "useless." Prelim. Resp. 27–28 (citing Ex. 1004 ¶¶ 16, 56). As discussed above, the cited paragraph 16 of Mullen supports Petitioner's contention. Mullen paragraph 56 addresses the speed at which the dynamic number changes and problems associated with increasing that speed. Ex. 1004 ¶ 56. On the present record, Mullen paragraph 56 does not appear to contradict Petitioner's contention for claim element 1.1.

b) Reason to Combine Mullen and Kobylkin

Citing Kobylkin's disclosure of a blank payment card, Petitioner contends that it would been obvious to modify Mullen's dynamic credit card to include "only selected, non-confidential information on its face" and "omit all fixed payment information from the front of the card." Pet. 8, 13–14 (citing Ex. 1003 ¶¶ 106–108, 115, 116; Ex. 1005 ¶ 17). According to Petitioner, there would be "less risk of fraud if confidential payment information, such as a static security code or other non-changing portion of the payment information, were not readily ascertainable simply by visually inspecting the face of the dynamic credit card." Pet 9 (citing Ex. 1004 ¶ 3;

Ex. 1005 ¶ 6). Patent Owner argues that "it makes no sense to modify [Mullen] with the disposable debit card of Kobylkin, which cannot be used for online transactions." Prelim. Resp. 2.

For purposes of institution, we find that Petitioner provides a sufficient rationale for combining Mullen and Kobylkin, as summarized above, and that Petitioner's rationale is sufficiently supported by the cited prior art and the Shamos Declaration. Pet. 8–9 (citing Ex. 1003 ¶¶ 106–108, 115, 116; Ex. 1004 ¶ 3; Ex. 1005 ¶¶ 6, 17). Petitioner relies on Mullen, which discloses "systems and methods that completely eliminate" credit card fraud involving unauthorized copying and use of credit card numbers that are glimpsed or digitally intercepted by a thief. Ex. 1004 ¶ 3. Petitioner also relies on Kobylkin, which addresses concerns about stolen payment cards and discloses a "disposable payment card [that] can be a substantially blank card" with "only a QR code or the like thereon." Ex. 1005 ¶¶ 6, 17.

Patent Owner argues that replacing (a) Mullen's capability to use a dynamic credit card for online purchases by displaying a number to the user with (b) Kobylkin's QR code-based approach would "reduce the functionality" of Mullen, which "is designed as a 'complete[]' fraud solution." Prelim. Resp. 28 (citing Ex. 1004 ¶¶ 4, 12, 20, 21).[10] Based on the present record, it appears that Patent Owner's argument misapprehends Petitioner's proposed combination, which does not appear to include modifying Mullen's dynamic credit card to include a QR code. *See* Pet. 8–9,

[10] Patent Owner mistakenly cites Mullen paragraph 4 instead of Mullen paragraph 3 when quoting Mullen's disclosure about "completely eliminat[ing]" credit card fraud. *Compare* Prelim. Resp. 28 (citing Ex. 1004 ¶ 4), *with* Ex. 1004 ¶ 3 ("It is therefore desirable to provide systems and methods that completely eliminate the possibility for such types of credit card fraud.").

13–14 (discussing the proposed combination of Mullen and Kobylkin, without mentioning a QR code).

Even if Petitioner's proposed combination included replacing Mullen's display with Kobylkin's QR code, we do not, on the present record, view the combination as reducing Mullen's functionality. Mullen discloses a number of alternative embodiments, at least one of which is a dynamic credit card that does not include a display. Ex. 1004 ¶ 16; *see* Pet. 13 (relying on this embodiment of Mullen). Although Mullen discloses that a dynamic credit card number may be displayed to a user and used for online purchases, Mullen does not require that every embodiment have that functionality. Ex. 1004, code (57) (disclosing, in the alternative, that the dynamic credit card number may be "written onto a magnetic stripe such that the number may be processed by traditional credit card merchants (e.g., swiped)."). Moreover, Kobylkin suggests that a payment card with a QR code may be used at an online store. Ex. 1005 ¶ 131 ("[T]he term 'store' can include any business or place of business. The store can be a brick and mortar store or an online store.").

Patent Owner additionally argues that a POSITA would not have expected Petitioner's Mullen-Kobylkin combination to present less risk of fraud because, according to Patent Owner, "[a] fixed number encoded into a QR graphical encoding does not enhance security, defend privacy, nor protect against duplication or theft." Prelim. Resp. 29. At this stage, Patent Owner provides no expert testimony or other evidence to support its argument about the risks associated with QR codes or whether replacing a human-readable number with a QR code would reduce the risk of fraud. *See Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1284 (Fed. Cir. 2017) (it was reasonable for the Board to accept expert testimony over bare

attorney argument); *Gemtron Corp. v. Saint-Gobain Corp.*, 572 F.3d 1371, 1380 (Fed. Cir. 2009) ("unsworn attorney argument . . . is not evidence and cannot rebut" record evidence).

Even if we accepted Patent Owner's unsupported attorney argument about QR codes, it would not preclude a determination of obviousness. Petitioner is not required to show that its proposed combination of Mullen and Kobylkin avoids all risks of credit card fraud. *See Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380–81 (Fed. Cir. 2023) ("[C]ontrary to the Board's suggestion, [petitioner] never had to show that [the proposed substitution] was an 'improvement' in a categorical sense."). It would be enough for Petitioner to show that Kobylkin's blank card with a QR code would have been a "suitable option" to replace fixed payment information on the front of Mullen's card, that credit card fraud was a "known problem . . . in the art," that Kobylkin's blank card with a QR code "helped address that issue," and that combining the teachings of Mullen and Kobylkin "wasn't beyond the skill of an ordinary artisan." *Id.* "Nothing more is required to show a motivation to combine under *KSR*." *Id.*

At this juncture, we make no determination about whether Petitioner meets this standard. We merely determine that Petitioner has articulated a sufficient rationale for combining the references, and it is reasonably likely that Petitioner's position will prevail.

c) Claim Element 1.6

Claim element 1.6 recites "wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities."

Petitioner contends that Mullen discloses claim element 1.6. Pet. 17–18. Petitioner asserts that Mullen's dynamic credit card number ("DCCN") is the recited "limited-use payment information" and that Mullen discloses that the DCCN is "utilized to represent a credit card number" in order to provide "increased security." *Id.* (citing Ex. 1003 ¶¶ 129–131; Ex. 1004 ¶¶ 24, 68, 90). Patent Owner argues that "Mullen does not disclose that use of a DCCN is to be limited to use at payment card facilities, as required by limitation 1(6)" and "[t]o the contrary, [Mullen] repeatedly recites that the same DCCN is used for transactions at payment card reader facilities *and* for online transactions." Prelim. Resp. 35.

For purposes of institution, we find that Petitioner makes a sufficient showing for claim element 1.6 based on Mullen's disclosure of a DCCN. Pet. 17–18 (citing Ex. 1003 ¶¶ 129–131; Ex. 1004 ¶¶ 24, 68, 90). Petitioner relies on Mullen's disclosure that "[a] dynamic credit card may allow for less digits to be utilized to represent a credit card number as a result of the increased security." Ex. 1004 ¶ 90; *see also id.* ¶¶ 12, 13, 19–24, 60–64, 68, 69 (describing transmission of a DCCN to a credit card processing/ authorization facility, which decodes the DCCN to obtain a secure credit card number).

Patent Owner's arguments are unavailing for two reasons. First, Patent Owner relies on a construction for "limited-use payment information" as excluding online transactions, which we do not adopt for the reasons discussed in Section III.C. above. Second, Patent Owner's arguments rest on the incorrect assertion that "all the embodiments [of Mullen] include a display for the express purpose of facilitating unlimited use, including for online transactions." Prelim. Resp. 35 (citing Ex. 1004, code (57), ¶¶ 65, 82, 112). As discussed above, Mullen does not require that every embodiment

display a dynamic credit card number usable for online purchases. Mullen discloses at least one embodiment that does not include a display. Ex. 1004, code (57); ¶ 16; *see* Pet. 13 (relying Mullen paragraph 16).

d) Remaining Claim Elements

At this stage, Patent Owner does not dispute Petitioner's contention that the combination of Mullen and Kobylkin teaches or suggests claim elements 1.0 and 1.2–1.5. Pet. 10–11, 14–17. We determine that Petitioner's showing for independent claim 1 is sufficient for purposes of institution.

4. Dependent Claims 2–10

Claims 2–10 depend from claim 1. Petitioner challenges these claims based on Mullen and Kobylkin, adding Patel or Smith for some claims. Pet. 1, 18–37. Patent Owner does not present arguments for dependent claims 2–10 separate from its arguments for independent claim 1.

E. Petitioner's Smith-led Challenges

Petitioner challenges claims 11–20 based on Smith, Kobylkin, and Gomez, adding Varadarajan or Mullen to the combination for some claims. Pet. 1, 37–71. Patent Owner opposes. Prelim. Resp. 36–45. We begin with an overview of Smith and Gomez before turning to the disputed issues. An overview of Kobylkin is provided in Section III.D.2 above.

1. Smith (Ex. 1006)

Smith discloses using a mobile device to conduct a contactless payment transaction. Ex. 1006 ¶¶ 2–6. Smith discloses processing a financial transaction by mapping a mobile cloud account to a payment account. *Id.* at code (57), ¶¶ 2, 6–8, 15, 32, Fig. 1. According to Smith, a mobile device, such as a smart phone, stores mobile cloud account data,

including a mobile cloud account number ("MCA") that is associated with a real account number ("RCA"). *Id.* ¶¶ 33, 34. The MCA enables the user to conduct a financial transaction without storing the RCA on the mobile device, thereby reducing the potential for fraud. *Id.* ¶¶ 32, 34.

2. Gomez (Ex. 1007)

Gomez discloses a secure payment card that generates an authentication cryptogram, which is unique for each attempted use of the payment card to make a transaction and which expires within a short period of time thereafter. Ex. 1007, codes (54), (57), 1:58–63, 5:13–18, 5:48–57, Figs. 2, 9, 10.

3. Independent Claims 11 and 15

Claims 11 and 15 are directed to an online payment system. Petitioner challenges these claims based on Smith, Kobylkin, and Gomez. Pet. 38–61. Petitioner contends that it would have been obvious (i) to configure Smith's mobile device to be used in activating and/or funding Kobylkin's disposable payment card; (ii) to include only selected, non-confidential information on the face of the card, as described in Kobylkin; and (iii) to implement a user credential check prior to Smith's mobile device generating a payment cryptogram, based on the teachings of Gomez. Pet. 38–43 (citing Ex. 1003 ¶¶ 230–237).

a) Claim Elements 11.7 and 11.8

Claim element 11.7 recites "wherein the wireless interface is operable to wirelessly obtain card device payment account information." Claim element 11.8 recites "wherein the processor is operable to generate limited-use payment information based on the card device payment account information."

Petitioner contends that Smith discloses or suggests claim elements 11.7 and 11.8. Pet. 53–55. Addressing claim element 11.7, Petitioner asserts that "Smith describes that the mobile device wirelessly obtains 'mobile cloud account data' (i.e., card device payment account information) when the 'mobile cardlet' including the mobile cloud account data is provisioned 'over-the-air (OTA)' (i.e., wirelessly) to the mobile device." Pet. 53 (citing Ex. 1003 ¶¶ 264–268; Ex. 1006 ¶¶ 44, 45, 50). Addressing claim element 11.8, Petitioner asserts that "Smith describes 'generating . . . a payment cryptogram' (i.e., limited-use payment information) based on at least a portion of the mobile cloud account data 802" (i.e., the card device payment account information." Pet. 54 (citing Ex. 1003 ¶¶ 269–272; Ex. 1006 ¶ 103).

Patent Owner disputes Petitioner's contention that Smith's mobile cloud account data is "card device payment account information," as recited in claim elements 11.7 and 11.8. Prelim. Resp. 37, 39–41. According to Patent Owner, "Smith never once states that the 'mobile cloud account data' is associated with the device that receives it as required by claim 11." *Id.*

For purposes of institution, we find that Petitioner makes a sufficient showing for claim element 11.7. Pet. 53–54 (citing Ex. 1003 ¶¶ 264–268; Ex. 1006 ¶¶ 44–50, 58, 59). Petitioner relies on Smith's disclosure that a mobile cardlet may be provisioned over-the-air to a secure element of a mobile device, where the mobile cardlet stores mobile cloud account data. Ex. 1006 ¶¶ 44, 45. We also find that Petitioner makes a sufficient showing for claim element 11.8. Pet. 54–55 (citing Ex. 1003 ¶¶ 269–272; Ex. 1006 ¶¶ 67, 99, 103, Fig. 12; Ex. 1013[11] ¶¶ 7, 21, 22, 29–31). Petitioner relies on

[11] US 2005/0043997, published February 24, 2005 ("Sahota").

Smith's disclosure of "generating . . . a payment cryptogram based on at least a portion of the mobile cloud account data." Ex. 1006 ¶ 103.

Patent Owner's preliminary response regarding claim elements 11.7 and 11.8 is premised on the argument that "[t]he plain and ordinary meaning of a card device payment account information is information that is associated with a particular device." Prelim. Resp. 37. For the reasons discussed above, we do not adopt Patent Owner's proposed construction.

Nevertheless, we determine that Petitioner's showing is sufficient even under Patent Owner's construction. At this stage, Patent Owner does not dispute Petitioner's contention that, according to Smith, mobile cloud account data is wirelessly provisioned to a mobile device. Pet. 53–54; Prelim. Resp. 39–40; *see also id.* at 43 (In Smith, "the mobile cloud account data is generated and provided to a mobile device."). Patent Owner argues that Smith's "mobile cloud account data" is not associated with the mobile device that receives it. *Id.* But Patent Owner acknowledges that "mobile cloud account data" includes a "mobile account number (MCA)" and that Smith's "master key identifier" is "unique" to the mobile device. *Id.* (citing Ex. 1006 ¶¶ 7, 9, 43, 49). Patent Owner's argument overlooks Smith's teaching of "a mapping database . . . wherein each mapping record includes at least a master key identifier, a mobile cloud account number (MCA), and a real card account number (RCA)." Ex. 1006 ¶ 8. In our preliminary view, this teaching shows an association between at least one component of Smith's mobile cloud account data—the mobile account number (MCA)—and a master key identifier that is unique to the mobile device.

b) Reason to Combine Smith with Kobylkin and Gomez

Petitioner contends that a POSITA would have been motivated to configure Smith's mobile device to be used in activating and/or funding Kobylkin's disposable payment card "so that the user could make beneficial and convenient use of disposable payment cards." Pet. 39. Petitioner further contends:

> Kobylkin's activation and funding operations on the same mobile device used for other purposes such as making contactless payment transactions in Smith's system, especially since using the same device for multiple tasks would have increased convenience to the user by not requiring the user to access different devices for Smith's payment transactions and Kobylkin's funding/activation of disposable cards.

Pet. 40 (citing Ex. 1003 ¶ 233).

Patent Owner argues that Petitioner does not "explain how or why a POSITA would activate or fund Kobylkin's instant disposable payment card (i.e., a physical card) in the context of the online (i.e., card-not-present) transactions claimed in claims 11 and 15." Prelim. Resp. 41 (citing Ex. 1005, code (57), ¶ 3).

For purposes of institution, we find that Petitioner provides a sufficient rationale for combining Smith and Kobylkin, as summarized above, and that Petitioner's rationale is sufficiently supported by the cited prior art and the Shamos Declaration. Pet. 39–41 (citing Ex. 1003 ¶¶ 230–234; Ex. 1005 ¶¶ 31, 50, 52; Ex. 1006 ¶¶ 33, 44). Petitioner relies on Kobylkin, which discloses that disposable payment cards are "easily made" and "have no value to anyone unless and when the user funds the . . . disposable payment cards;" that funding the disposable payment cards "can be easily accomplished anywhere by the user scanning the QR code with a

user smart phone;" and the disposable payment cards "provide a safe way for the user to make payments, while limiting exposure that a credit or debit card can have." Ex. 1005 ¶ 52. Petitioner also relies on Smith's reference to "NFC-capable mobile devices." Ex. 1006 ¶¶ 3, 4.

Patent Owner's argument rests on a mistaken interpretation of claims 11 and 15 as involving "card-not-present" transactions. Prelim. Resp. 41–42. Claim 11 recites "a thin payment device,' i.e., a card, and further recites that a personal computing device obtains "card device payment account information" and uses it "to generate complete payment information, including the limited-use payment information" which is conveyed via an interface. Claim 15 requires "a thin card-shaped payment card device" and "card issuer provided payment card information is wirelessly downloaded into the computing device." These recitations demonstrate that the "online payment system" of claims 11 and 15 involves card-present transactions.

Petitioner contends that "a POSITA would have been motivated . . . to implement a user credential check prior to Smith's mobile device generating a payment cryptogram, based on the teachings of Gomez." Pet. 41 (citing Ex. 1003 ¶ 236). Petitioner further contends:

> Implementing Gomez's credential checking in Smith's mobile device would further Smith's aim of "reducing the potential for fraud" by preventing the use of a stolen mobile device to initiate fraudulent transactions, such as by the mobile device verifying a user's fingerprint prior to initiating a payment transaction, as taught by Gomez.

Pet. 42 (citing Ex. 1003 ¶ 236; Ex. 1006 ¶¶ 34, 45; Ex. 1007, 5:14–18).

Patent Owner argues that Smith "already includes security measures to prevent fraudulent access to the functions of the mobile device" and that Gomez discloses a less secure payment card. Prelim. Resp. 42–43.

For purposes of institution, we find that Petitioner provides a sufficient rationale for combining Gomez with Smith and Kobylkin, as summarized above, and that Petitioner's rationale is sufficiently supported by the cited prior art and the Shamos Declaration. Pet. 41–43 (citing Ex. 1003 ¶¶ 236, 237; Ex. 1006 ¶¶ 33, 34, 45; Ex. 1007, 5:14–18, 10:34–42). Petitioner relies on Smith, which indicates that "reducing the potential for fraud" is one aim of the disclosed system. Ex. 1006 ¶ 34. Petitioner also relies on Gomez, which discloses a payment card that "generates an authentication cryptogram for each attempted transaction only after the cardholder successfully presents a credential, such as a fingerprint or PIN number, into the payment card." Ex. 1007, 5:14–18.

Patent Owner's counterargument raises factual issues as to the motivations of a POSITA, but does not preclude a determination of obviousness. *See Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1331 (Fed. Cir. 2019) ("Whether a skilled artisan would have been motivated to combine prior art references is . . . a question of fact."); *see also Intel*, 61 F.4th at 1380–81 (holding that the Board improperly rejected *KSR*'s known-technique rationale when it reasoned that Kabemoto "already addresses" the prior art problem and that it "fail[ed] to see why" a POSITA would regard Bauman's technique as an obvious improvement to Kabemoto).

c) Claim Element 15.6

Claim element 15.6 recites "wherein card issuer provided payment card information is wirelessly downloaded into the computing device."

For claim element 15.6, the parties dispute whether Smith's mobile cloud account data is "card issuer provided payment card information." *Compare* Pet. 59 (citing Ex. 1003 ¶¶ 290–292; Ex. 1006 ¶¶ 37, 44, Figs. 3, 4), *with* Prelim. Resp. 43–44 (arguing that Smith's mobile cloud account data "is generated and provided to a mobile device by a mobile cloud service provider, not the card issuer"). We find that Petitioner's contention is sufficient for purposes of institution. Petitioner relies on Smith's disclosure that "the service provider 110 . . . may be operated by or on behalf of the issuer 112." Ex. 1006 ¶ 37.

The parties also dispute whether "Kobylkin describes the mobile device wirelessly downloading the card number of a disposable payment card via an NFC channel when a user uses his or her device to activate or fund the disposable payment card." *Compare* Pet. 59 (citing Ex. 1005 ¶¶ 31, 50, 70, 71), *with* Prelim. Resp. 45 (arguing that Kobylkin's mobile device is merely a "transient conduit" for the card account number, which is not downloaded or saved on the device, citing Ex. 1005 ¶ 31). On the current record, it is unclear whether Kobylkin discloses or suggests downloading a card number to the mobile device. We do not need to resolve this issue because we determine that Petitioner provides a sufficient contention for claim element 15.6 based on Smith.

d) Remaining Claim Elements

At this stage, Patent Owner does not dispute Petitioner's contention that the combination of Smith, Kobylkin, and Gomez teaches or suggests the

claim elements 11.0–11.6, 11.9, 11.10, 15.0–15.5, 15.7, and 15.8. Pet. 43–53, 55–61. We determine that Petitioner's showing for independent claims 11 and 15 is sufficient for purposes of institution.

4. Dependent Claims 12–14 and 16–20

Claims 12–14 depend from claim 11, and claims 16–20 depend from claim 15. Petitioner challenges these claims based on Smith, Kobylkin, and Gomez, adding Varadarajan or Mullen for some claims. Pet. 1, 57–58, 61–71. Patent Owner does not present arguments for dependent claims 12–14 and 16–20 separate from its arguments for independent claims 11 and 15.

IV. CONCLUSION

For the above reasons, we determine that Petitioner establishes a reasonable likelihood that it would prevail in showing that at least one of claims 1–20 of the '820 Patent is unpatentable. Accordingly, we institute an *inter partes* review of all challenged claims on all grounds asserted against those claims in the Petition. 37 C.F.R. §§ 42.107(e), 42.108(a); *see* Guidance on the Impact of SAS on AIA Trial Proceedings (April 26, 2018);[12] *see also SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

[12] Available at https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial.

V. ORDER

It is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–20 of the '820 Patent is instituted commencing on the entry date of this Decision; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of trial.

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Paper No. 18
Entered: November 21, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

CARDWARE INC.,
Patent Owner.

IPR2023-00196 (Patent 10,810,579 B2)
IPR2023-00211 (Patent 10,339,520 B2)
IPR2023-00314 (Patent 10,628,820 B2)
PGR2023-00012 (Patent 11,328,286 B2)
PGR2023-00013 (Patent 11,328,286 B2)[1]

Before ELIZABETH M. ROESEL, SHARON FENICK, and IFTIKHAR AHMED, *Administrative Patent Judges*.

FENICK, *Administrative Patent Judge*.

TERMINATION
Due to Settlement After Institution of Trial and
Granting-in-Part Joint Motion to File Settlement Agreement
as Business Confidential Information
35 U.S.C. § 317; 37 U.S.C. § 327; 37 C.F.R. § 42.7

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[1] This Order addresses issues that are the same in each of the identified proceedings. We exercise our discretion to issue one Order to be filed in each proceeding. The parties are not authorized to use this style heading in subsequent papers.

I. INTRODUCTION

With the Board's authorization, Petitioner and Patent Owner (collectively, "the Parties") filed a joint motion to terminate in each of the above-captioned proceedings. Paper 21 ("Joint Motion").[2] Along with the Joint Motion, the Parties filed a copy of a settlement and license agreement (Ex. 2004, "Settlement Agreement") and a joint request that the Settlement Agreement be treated as business confidential information and be kept separate from the files of the patents involved in the above-captioned proceedings. Paper 22 ("Joint Request").

II. DISCUSSION

In the Joint Motion, the Parties represent that the Settlement Agreement resolves their disputes involving the patents at issue in the above-captioned proceedings. Joint Motion 1–2. The Parties also represent that "there are no other collateral agreements or understandings, oral or written, between the parties made in connection with, or in contemplation of, the termination of the present proceeding, and Ex. 2004 represents a true and accurate copy of the agreement." *Id.* at 1.

We instituted trial in each of the above-captioned *inter partes* review and post-grant review proceedings, but we have not yet decided the merits of the proceedings, and final written decisions have not been entered. Notwithstanding that the proceedings have moved beyond the preliminary

[2] The relevant papers and exhibits filed in the above-captioned proceedings are substantively the same. We cite to the record in IPR2023-00196, unless otherwise indicated.

stage, the Parties have shown adequately that termination of the proceedings is appropriate. Under these circumstances, we determine that good cause exists to terminate the proceedings.

In the Joint Request, the Parties request that the Settlement Agreement be treated as business confidential information and be kept separate from the files of the patents involved in the above-captioned proceedings. Joint Request 1.

We grant this much of the Joint Request. After reviewing the Settlement Agreement between Petitioner and Patent Owner, we find that the Settlement Agreement contains confidential business information regarding the terms of settlement. We determine that good cause exists to treat the Settlement Agreement as business confidential information pursuant to 37 C.F.R. § 42.74(c).

The Parties further

> request that the Board order that in the event a person or entity makes a written request, as stated in 37 C.F.R. § 42.74(c)(1)-(2), for access to the settlement agreement, that any such written request be served upon the parties on the day the written request is provided to the Board.

Id. We deny this portion of the Joint Request, which is not supported by the statute or the rule and not consistent with the Board's practice.

This Order does not constitute a final written decision pursuant to 35 U.S.C. § 318(a) or § 328(a).

III. ORDER

Accordingly, it is:

ORDERED that the Joint Motions to terminate (IPR2023-00196, Paper 21; IPR2023-00211, Paper 22; IPR2023-00314, Paper 16; PGR2023-00012, Paper 17; PGR2023-00013, Paper 17) are *granted*, and IPR2023-00196, IPR2023-00211, IPR2023-00314, PGR2023-00012, and PGR2023-00013 are *terminated*; and

FURTHER ORDERED that the Joint Requests to treat the Settlement Agreement as business confidential information (IPR2023-00196, Paper 22; IPR2023-00211, Paper 23; IPR2023-00314, Paper 17; PGR2023-00012, Paper 18; PGR2023-00013, Paper 18) are *granted-in-part*, in the manner described above, and the Settlement Agreement (IPR2023-00196, Ex. 2004; IPR2023-00211, Ex. 2004; IPR2023-00314, Ex. 2004; PGR2023-00012, Ex. 2038; PGR2023-00013, Ex. 2036) shall be kept separate from the files of U.S. Patent Nos. 10,810,579 B2, 10,339,520 B2, 10,628,820 B2, 11,328,286 B2, and 11,328,286 B2, and made available only to Federal Government agencies on written request, or to any person on a showing of good cause, pursuant to 37 C.F.R. § 42.74(c).

IPR2023-00196 (Patent 10,810,579 B2)
IPR2023-00211 (Patent 10,339,520 B2)
IPR2023-00314 (Patent 10,628,820 B2)
PGR2023-00012 (Patent 11,328,286 B2)
PGR2023-00013 (Patent 11,328,286 B2)

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ACKNOWLEDGEMENT OF LOSS OF ENTITLEMENT TO ENTITY STATUS DISCOUNT

APPLICATION #	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET #	REQUEST ID
16/025,829	07/02/2018	David WYATT		267393

The entity status change request below filed through Patent Center on 08/29/2024 has been accepted.

Certifications

APPLICANT CHANGING TO REGULAR UNDISCOUNTED FEE STATUS

Signature

I certify, in accordance with 37 CFR 1.4(d)(4), that I am one of the signatories making the entity status change.

Signature	Name	Registration #
/Anthony C. Murabito/	Anthony Murabito	35295