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P.O. Box 1450
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www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/216,096	07/19/2022	11392818	012107	8024

46287 7590 06/29/2022
AVEK IP, LLC
12980 Metcalf Ave., Suite 180
Overland Park, KS 66213

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

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

Fielding B. Staton, Liberty, MO;
David Strumpf, Columbia, MO;

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

Newtonoid Technologies, L.L.C., Liberty, MO;

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.

IR103 (Rev. 10/09)

Document Description: Issue Fee Payment (PTO-85B)

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
17216096	29-Mar-2021	Fielding B. Staton	012107	8024

TITLE OF INVENTION :

GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
Small	Utility under 35 USC 111(a)	2876	375000	
Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
\$600	\$0	\$600	13-Jul-2022	\$0

1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

Current Correspondence Address:	Current Indicated Fee Address :
46287 AVEK IP, LLC 12980 Metcalf Ave., Suite 180 Overland Park KS 66213 UNITED STATES 913-303-3840 ~~Docketing@Avant.Law~~	
☐ Change of correspondence address requested, system generated AIA/122-EFS form attached	☐ Fee Address indication requested, system generated SB/47-EFS form attached

2.Entity Status**Change in Entity Status**

Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.

Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.



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 to be a notification of loss of entitlement to micro entity status.



Applicant changing to regular undiscounted fee status.

Note: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.



WEB IFEE 1.0

Document Description: Issue Fee Payment (PTO-85B)

3.The Following Fee(s) Are Submitted:☒ Issue Fee

I authorize USPTO to apply my previously paid issue fee to the current fees due

☐ Publication Fee

The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____

☐ Advance Order - # of copies _____If **in addition to** the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency, or credit any overpayment, to Deposit Account Number 603423.**The issue fee must be submitted with this form. If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.****4.Firm and/or Attorney Names To Be Printed****NOTE: If no name is listed, no name will be printed**

For printing on the patent front page, list to be displayed as entered

1. AVEK IP, LLC

2.

3.

5.Assignee Name(s) and Residence Data To Be Printed

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

Name	City	State	Country	Category
Newtonoid Technologies, L.L.C.	Liberty	MISSOURI	UNITED STATES	corporation

6.Signature

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 has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

Signature	/A. Justin Poplin/	Date	06-14-2022
Name	A. Justin Poplin	Registration Number	53476

WEB IFEE 1.0

Electronic Patent Application Fee Transmittal				
Application Number:		17216096		
Filing Date:		29-Mar-2021		
Title of Invention:		GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME		
First Named Inventor/Applicant Name:		Fielding B. Staton		
Filer:		Allen Justin Poplin/Melissa Turpen		
Attorney Docket Number:		012107		
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 APPL ISSUE FEE	2501	1	600	600
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				600

Electronic Acknowledgement Receipt

EFS ID:	45953032
Application Number:	17216096
International Application Number:	
Confirmation Number:	8024
Title of Invention:	GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME
First Named Inventor/Applicant Name:	Fielding B. Staton
Customer Number:	46287
Filer:	Allen Justin Poplin/Melissa Turpen
Filer Authorized By:	Allen Justin Poplin
Attorney Docket Number:	012107
Receipt Date:	14-JUN-2022
Filing Date:	29-MAR-2021
Time Stamp:	15:34:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$600
RAM confirmation Number	E20226DF34344046
Deposit Account	603423
Authorized User	Melissa Turpen
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.20 (Post Issuance fees) 37 CFR 1.21 (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)	Web85b.pdf	62802	no	2
			c3c2769965a02efb7cf3f337507f187dbf03c033		

Warnings:**Information:**

2	Fee Worksheet (SB06)	fee-info.pdf	40146	no	2
			bac062bcdc176403db43dd1797df98fbae41b851		

Warnings:**Information:**

Total Files Size (in bytes):	102948
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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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NOTICE OF ALLOWANCE AND FEE(S) DUE

46287 7590 04/13/2022
AVEK IP, LLC
12980 Metcalf Ave., Suite 180
Overland Park, KS 66213

EXAMINER

KIM, AHSHIK

ART UNIT

PAPER NUMBER

2876

DATE MAILED: 04/13/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/216,096	03/29/2021	Fielding B. Staton	012107	8024

TITLE OF INVENTION: GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	07/13/2022

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. 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.

PART B - FEE(S) TRANSMITTAL

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

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

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

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

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

46287 7590 04/13/2022
AVEK IP, LLC
12980 Metcalf Ave., Suite 180
Overland Park, KS 66213

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

Certificate of Mailing or Transmission

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

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/216,096	03/29/2021	Fielding B. Staton	012107	8024

TITLE OF INVENTION: GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(\$) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	07/13/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
KIM, AHSHIK	2876	235-375000

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/AIA/122 or PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 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. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/216,096	03/29/2021	Fielding B. Staton	012107	8024
46287	7590	04/13/2022	EXAMINER	
AVEK IP, LLC			KIM, AHSHIK	
12980 Metcalf Ave., Suite 180			ART UNIT	
Overland Park, KS 66213			PAPER NUMBER	

2876

DATE MAILED: 04/13/2022

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

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

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

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

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

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

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 17/216,096	Applicant(s) Staton et al.	
	Examiner AHSHIK KIM	Art Unit 2876	AIA (FITF) Status Yes

-- 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 Amendment & TD filed on 1/20/22.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

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

3. ☒ The allowed claim(s) is/are 1-14 and 16-21. 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)	5. ☐ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/AHSHIK KIM/ Primary Examiner, Art Unit 2876	
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DETAILED ACTION

Amendment

1. Receipt is acknowledged of the amendment filed on January 20, 2022. Currently claims
5 1-14 and 16-21 remain in the examination.

Terminal Disclaimer

2. Receipt is acknowledged of the terminal disclaimer filed on January 20, 2022. The
terminal disclaimer is approved and entered.
10

Allowable Subject Matter

3. Claims 1-14 and 16-21 are allowed.
4. The following is an examiner's statement of reasons for allowance: Claims are directed at
a user instrument for engaging in a transaction comprising a graphically encoded icon, which
15 comprise a static portion and a stimuli-responsive portion which transforms from a first state to a
second state, which results in a second machine-readable indicia that is used to permit or deny
the user to engage in a transaction. In the previous Office Action some claims were rejected
under 35 USC 102 rejection, and some were rejected under the obviousness-type double
patenting rejection. Applicant filed a terminal disclaimer which overcomes the obviousness-type
20 double patenting rejection, and some independent claims were amended to include the
limitations recited in the dependent claims. Therefore, all pending claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the
payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5 Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Ahshik Kim* whose telephone number is (571)272-2393. The examiner can normally be reached between the hours of 8:00 AM to 5:00 PM Monday thru Friday. Examiner's fax phone number is (571)273-2393.

10 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee, can be reached on (571)272-2398. The fax phone number for this Group is (571)273-8300.

15 Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [ahshik.kim@uspto.gov].

20 *PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.*

25 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
30 information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

35 /AHSHIK KIM/
Primary Examiner, Art Unit 2876
March 31, 2022

<i>Index of Claims</i> 	Application/Control No. 17/216,096	Applicant(s)/Patent Under Reexamination Staton et al.
	Examiner AHSHIK KIM	Art Unit 2876

✓	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	10/21/2021	03/31/2022							
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	3	✓	=							
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	19	✓	=							
	20	✓	=							
	21		=							

<i>Search Notes</i> 	Application/Control No. 17/216,096	Applicant(s)/Patent Under Reexamination Staton et al.
	Examiner AHSNIK KIM	Art Unit 2876

CPC - Searched*		
Symbol	Date	Examiner
G06K 19/18	10/20/2021	ak
G06K 7/1452	10/20/2021	ak
G06K 19/06037	10/20/2021	ak
G06Q 20/382	10/20/2021	ak

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
235	375	10/20/2021	ak

* 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
See attached EAST search history	10/20/2021	ak
Reviewed parent cases	10/20/2021	ak
Updated Search	03/31/2022	ak

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<i>Search Notes</i> 	Application/Control No. 17/216,096	Applicant(s)/Patent Under Reexamination Staton et al.
	Examiner AHSHIK KIM	Art Unit 2876

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
Same as above (see Searched)		03/31/2022	ak

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Issue Classification 	Application/Control No. 17/216,096	Applicant(s)/Patent Under Reexamination Staton et al.
	Examiner AHSHIK KIM	Art Unit 2876

CPC						
Symbol					Type	Version
G06K	/	19	/	18	F	2013-01-01
G06Q	/	20	/	382	I	2013-01-01
G06K	/	19	/	06037	I	2013-01-01
G06K	/	7	/	1452	I	2013-01-01

CPC Combination Sets					
Symbol				Type	Set
	/		/		

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/AHSHIK KIM/ Primary Examiner, Art Unit 2876	31 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	4A

U.S. Patent and Trademark Office

Part of Paper No.: 20220331

Issue Classification 	Application/Control No. 17/216,096	Applicant(s)/Patent Under Reexamination Staton et al.
	Examiner AHSHIK KIM	Art Unit 2876

INTERNATIONAL CLASSIFICATION		
CLAIMED		
G06F	17	00
NON-CLAIMED		

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
235	375

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/AHSHIK KIM/ Primary Examiner, Art Unit 2876	31 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	4A

U.S. Patent and Trademark Office

Part of Paper No.: 20220331

Issue Classification 	Application/Control No. 17/216,096	Applicant(s)/Patent Under Reexamination Staton et al.
	Examiner AHSHIK KIM	Art Unit 2876

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
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NONE	Total Claims Allowed:	
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(Primary Examiner)	(Date)	
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		O.G. Print Figure
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		4A

U.S. Patent and Trademark Office

Part of Paper No.: 20220331

PE2E SEARCH - Search History (Prior Art)

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Page 1 of 7
AK

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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	17216096	
Filing Date	29-Mar-2021	
First Named Inventor	Fielding Staton	
Attorney Docket Number	012107	
Title of Invention	GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME	
☒ 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	
Newtonoid Technologies, L.L.C.	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) 10460222 10963773 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 53476

☐ 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

/A. Justin Poplin/

Name

A. Justin Poplin

*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:		17216096		
Filing Date:		29-Mar-2021		
Title of Invention:		GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME		
First Named Inventor/Applicant Name:		Fielding B. Staton		
Filer:		Allen Justin Poplin/Melissa Turpen		
Attorney Docket Number:		012107		
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	170	170
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 (\$)				170

Doc Code: DISQ.E.FILE

Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 17216096

Filing Date: 29-Mar-2021

Applicant/Patent under Reexamination: Staton

Electronic Terminal Disclaimer filed on January 20, 2022

☒ 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:	44794739
Application Number:	17216096
International Application Number:	
Confirmation Number:	8024
Title of Invention:	GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME
First Named Inventor/Applicant Name:	Fielding B. Staton
Customer Number:	46287
Filer:	Allen Justin Poplin/Melissa Turpen
Filer Authorized By:	Allen Justin Poplin
Attorney Docket Number:	012107
Receipt Date:	20-JAN-2022
Filing Date:	29-MAR-2021
Time Stamp:	17:07:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$170
RAM confirmation Number	E20221JH07403816
Deposit Account	603423
Authorized User	Melissa Turpen
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 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	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	41240	no	2
			3792ae8e27c74c55ff7eee347dedcce9a7f4b193		

Warnings:**Information:**

2	Fee Worksheet (SB06)	fee-info.pdf	37937	no	2
			9e7374c847ac516573dd616241622188a3dfa653b		

Warnings:**Information:**

Total Files Size (in bytes):	79177
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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

Applicant	Newtonoid Technologies, L.L.C.	Examiner	Ahshik Kim
Serial No.	17/216,096	Art Unit	2876
Filed	March 29, 2021	Confirmation No.	8024
For	GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME		

Filed electronically

RESPONSE TO OFFICE ACTION

In response to the Non-Final Office Action dated 10/26/2021, please amend the above-identified application as follows:

	Page
Claims	2
Remarks	6

I. CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Original) A user instrument for engaging in a transaction, comprising:
 - a graphically encoded icon, comprising:
 - a static portion;
 - an intrinsic portion comprising an area of stimuli-responsive material defining a first machine-readable indicia;
 - wherein:
 - at least a portion of the stimuli-responsive material transforms from a first state to a second state in response to a trigger;
 - the transformation from the first state to the second state of the portion of the stimuli-response material results in a second machine-readable indicia;
 - and
 - the second machine-readable indicia comprises information to permit or deny the user to engage in a transaction via the user instrument.
2. (Original) The user instrument of claim 1, wherein:
 - the user instrument is a credit card;
 - the trigger is a transaction using the credit card; and
 - the second machine-readable indicia comprises information relating to the transaction using the credit card.
3. (Original) The user instrument of claim 1, wherein:
 - the user instrument is a security badge;
 - the trigger is a signal operable to transform the stimuli-responsive material from the first state to the second state; and
 - the second machine-readable indicia comprises information that allows or denies the user entry into a restricted location.
4. (Original) The user instrument of claim 1, wherein the user instrument is a label.

5. (Original) The user instrument of claim 1, further comprising a second area of stimuli-responsive material configured to transform in response to a trigger, wherein the transformation of the stimuli-responsive material of the second area results in human readable indicia.

6. (Original) The user instrument of claim 5, wherein the second area of stimuli-responsive material forms a part of the graphically encoded icon.

7. (Original) The user instrument of claim 1, wherein the machine-readable indicia is non-human readable.

8. (Currently amended) A graphically encoded icon, comprising:

a label attached to an object, the label comprising a static portion and an intrinsic portion;

wherein:

the static portion comprises machine-readable indicia;

the intrinsic portion comprises an area of stimuli-responsive material; ~~and~~ the stimuli-responsive material is configured to change from a first state to a second state in response to a trigger, the change in state being based on an attribute about the object; and

the transformation of the stimuli-responsive material is a change in the transparency of the stimuli-responsive material.

9. (Original) The graphically encoded icon of claim 8, wherein the change in state of the stimuli-responsive material results in machine-readable indicia.

10. (Original) The graphically encoded icon of claim 9, wherein the machine-readable indicia of the stimuli-responsive material is non-human readable.

11. (Original) The graphically encoded icon of claim 10, wherein the machine-readable indicia of the static portion is non-human readable.

12. (Original) The graphically encoded icon of claim 8, wherein the trigger is a change in temperature, and wherein the trigger occurs when the change in temperature is above or below a predetermined threshold.

13. (Original) The graphically encoded icon of claim 8, wherein the trigger occurs automatically based on a predetermined condition about the attribute of the object.

14. (Currently amended) ~~The~~ A graphically encoded icon ~~of claim 8, wherein~~ comprising:
a label attached to an object, the label comprising a static portion and an intrinsic
portion;
wherein:
the static portion comprises machine-readable indicia;
the intrinsic portion comprises an area of stimuli-responsive material; and
the stimuli-responsive material is configured to change from a first state to
a second state in response to a trigger, the change in state being
based on an attribute about the object; and
the transformation of the stimuli-responsive material is a change in the
reflection of the stimuli-responsive material.

15. (Cancelled)

16. (Original) An article, comprising:
a user instrument associated with a user, the user instrument comprising a graphically
encoded icon, the graphically-encoded icon comprising an area of stimuli-
responsive material defining a machine-readable indicia;
wherein:
the stimuli-responsive material is configured to change from a first state to a
second state in response to a trigger; and

after the change of the stimuli-responsive material from the first state to the second state, the machine-readable indicia comprises information to permit or deny a user to engage in a transaction using the user instrument.

17. (Original) The article of claim 16, wherein the user instrument is selected from the list consisting of: a label, a credit card, and a badge.

18. (Original) The article of claim 16, wherein the machine-readable indicia is non-human readable.

19. (Original) The article of claim 16, wherein the trigger occurs automatically based upon a predetermined condition.

20. (Original) The article of claim 16, wherein the graphically encoded icon is configured as a QR code.

21. (New) The graphically encoded icon of claim 14, wherein the trigger occurs automatically based on a predetermined condition about the attribute of the object.

II. REMARKS

II.A. Status of the Claims

Claims 1-20 are pending in this application. Claims 8-13 stand rejected under 35 U.S.C. § 102(a)(1) as being anticipated by David et al. (US 2017/0169738). Claims 1-7, 16-18, and 20 stand rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 10,963,773. Claims 8, 9, and 12-15 stand rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 2, 6, and 13-15 of U.S. Patent No. 10,460,222. Claim 19 stands rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. 10,963,773 in view of claim 9 of U.S. Patent No. 10,460,222.

Claims 8 and 14 are amended herein. Claim 15 is cancelled. Claim 21 is newly presented. Support for the amendments can be found in the specification and claims as filed. Reconsideration of the claims in view of the amendments and arguments presented herein is respectfully requested.

II.B. § 102 Rejections

Solely for the purpose of expediting prosecution, and without admitting to propriety of the rejections, claim 8 is amended to incorporate the limitations of allowable claim 15. Claim 15 is accordingly cancelled.

Claim 14 is rewritten in independent form incorporating all of the limitations of original claim 8. Claim 14 is therefore believed to be allowable.

Withdrawal of the rejections is respectfully requested.

II.C. Non-statutory double patenting

Solely for the purpose of expediting prosecution, and without admitting to the propriety of the rejections, terminal disclaimers are being submitted herewith to overcome the rejections. Withdrawal of the rejections is respectfully requested.

II.D. Conclusion

In view of the remarks set forth above, Applicant respectfully requests a Notice of Allowance. Should any issue remain, the examiner is encouraged to telephone the undersigned

attorney.

The response is timely filed with any required fees. If any additional fees are deemed necessary in connection with this application, please charge Deposit Account No. 603423 with reference to attorney docket number 012107.

Respectfully submitted,
AVEK IP, LLC

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Attorney for Applicant



ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
17/216,096

RECEIPT DATE / TIME
01/20/2022 05:54:06 PM ET

ATTORNEY DOCKET #
012107

Title of Invention

GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 8024

FILED BY Melissa Turpen

PATENT CENTER # 60496170

FILING DATE 03/29/2021

CUSTOMER # 46287

FIRST NAMED
INVENTOR Fielding B. Staton

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Allen Poplin

Documents

TOTAL DOCUMENTS: 3

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
012107_Response to NFOA_File.pdf		7	-	106 KB
012107_Response to NFOA_File-A....pdf	(1-1)	1	Amendment/Req. Reconsideration-After Non- Final Reject	74 KB
012107_Response to NFOA_File-CLM.pdf	(2-5)	4	Claims	84 KB
012107_Response to NFOA_File-REM.pdf	(6-7)	2	Applicant Arguments/Remarks Made in an Amendment	84 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
012107_Response to NFOA_File.pdf	46E50BC5C59B5DD17D1A8DC7A4877BF2AB0354A9884AE845 A341197CDD50C889625E653DAA6BAF740C7D4D9067CF9106D 2DB4C580351C45A807626B67BA4AC29
012107_Response to NFOA_File-A....pdf	FAAAB8FA54972203F6996A5ACE99BBBD3654B93FE6BE0CB2 645BA59FA4CCC6B188B68059AA94D76A65AAEB85794E6DC6 CB92211D2BC7A1FD733DEED326F91948
012107_Response to NFOA_File-CLM.pdf	F097FCFF39B5B8C20842ADA8C9B2CF68D5C1DA4D105CE760 F4624F7669DB0513DA50F66F3CAF738C31220F59B1ED5FFB0 CE989B9136C36FE0FADC7F88F4F1755
012107_Response to NFOA_File-REM.pdf	1CEB52021F0FB68CDFC88DBEAFB4BB7D8630EE9807A3EE03 3ABFD0CC89FA5BA479D98A75772C41B7F219641C62736CC1C D7A6E5E1AA9FCD68B88FCCB044BE795

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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 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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 17/216,096		Filing Date 03/29/2021		☐ To be Mailed		
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO										
APPLICATION AS FILED - PART I										
		(Column 1)			(Column 2)					
FOR		NUMBER FILED			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), (l), or (m))		N/A			N/A			N/A		
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A			N/A			N/A		
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*			x \$50 =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*			x \$240 =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).								
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL				
APPLICATION AS AMENDED - PART II										
		(Column 1)			(Column 2)			(Column 3)		
AMENDMENT	01/20/2022	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))	* 4	Minus	*** 3	= 1			x \$240 =	240	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
								TOTAL ADD'L FEE	240	
		(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".								/AMANDA N FORD/		
*** 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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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/216,096	03/29/2021	Fielding B. Staton	012107	8024
46287	7590	10/26/2021	EXAMINER	
Avant Law Group, LLC 12980 Metcalf Ave., Suite 180 Overland Park, KS 66213			KIM, AHSHIK	
			ART UNIT	PAPER NUMBER
			2876	
			NOTIFICATION DATE	DELIVERY MODE
			10/26/2021	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):

Docketing@Avant.Law
eofficeaction@appcoll.com

DETAILED ACTION

1. This is the first action on the merits relating to U.S. Application Serial No. 17/216,096 filed on March 29, 2021. Currently claims 1-20 remain in the examination.

5

Notice of Pre-AIA or AIA Status

2. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

10 3. Applicant's disclosure of related application information is acknowledged.

Claim Rejections - 35 USC § 102

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

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

20 A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

25 6. Claims 8-13 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by US 2017/0169738 A1 to David et al. (hereinafter "David").

Regarding claim 8, David teaches a graphically encoded icon 102 comprising a label 100 (see figure 1 and 2) which can be used on goods (see paragraph 0016) comprising a static portion 102 (see paragraph 0016); and the static portion can have barcode or QR code which can be read by the reader (see paragraph 0027); and an intrinsic portion 102 (see figure 2 and paragraph 5 0018) which is a stimuli-responsive material, and when a temperature condition is reached (an attribute), the triggering occurs, and the warning label including X mark as shown in figure 2 appears – a second state. First state is warning is not visible or normal state.

Regarding claim 9, the software (see paragraph 0027) is configured to read image data including machine-readable code. The warning message underneath the X mark may be read by 10 the image recognition software.

Regarding claim 10, the “X” mark as shown in figure 2 may be interpreted as non-human readable since it does not have a clear meaning although one can know what to do seeing the sign.

Regarding claim 11, the barcode or QR code (see paragraph 0027) is non-human 15 readable.

Regarding claims 12 and 13, the triggering mechanism a change in temperature (see paragraphs 0012 and 0019) which occurs automatically.

Double Patenting

20 7. 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 § 2146 *et seq.* 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.

8. Claims 1-7, 16-18 and 20 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 10,963,773 B2 to Stanton et al.

(hereinafter “773 patent”). Although the claims at issue are not identical, they are not patentably distinct from each other as the following claims comparison would show.

	Instant Application		773 patent
Claim 1	A user instrument for engaging in a transaction, comprising: a graphically encoded icon, comprising: a static portion; an intrinsic portion comprising an area of stimuli-responsive material defining a first machine-readable indicia; wherein: at least a portion of the stimuli-responsive material transforms from a first state to a second state in response to a trigger; the transformation from the first state to the second state of the portion of the stimuli-response material results in a second machine-readable indicia; and the second machine-readable indicia comprises information to permit or deny the user to engage in a transaction via the user instrument.	Claim 1	<u>A user instrument for engaging in a transaction, comprising:</u> <u>a graphically encoded icon, comprising:</u> <u>a static portion;</u> <u>an intrinsic portion comprising an area of stimuli-responsive material defining a first machine-readable indicia; wherein:</u> <u>at least a portion of the stimuli-responsive material transforms from a first state to a second state in response to a trigger;</u> <u>the transformation from the first state to the second state of the portion of the stimuli-response material results in a second machine-readable indicia;</u> the transformation of the stimuli-responsive material from the first state to the second state is semi-irreversible; and <u>the second machine-readable indicia comprises information to permit or deny the user to engage in a transaction via the user instrument.</u>
Claim 2	The user instrument of claim 1, wherein: the user instrument is a credit card; the trigger is a transaction using the credit card; and the second machine-readable indicia comprises information relating to the transaction using the credit card.	Claim 2	The user instrument of claim 1, wherein: the user instrument is a credit card; the trigger is a transaction using the credit card; and second machine-readable indicia comprises information relating to the transaction using the credit card.

Claim 3	The user instrument of claim 1, wherein: the user instrument is a security badge; the trigger is a signal operable to transform the stimuli-responsive material from the first state to the second state; and the second machine-readable indicia comprises information that allows or denies the user entry into a restricted location.	Claim 3	The user instrument of claim 1, wherein: the user instrument is a security badge; the trigger is a signal operable to transform the stimuli-responsive material from the first state to the second state; and the second machine-readable indicia comprises information that allows or denies the user entry into a restricted location.
Claim 4	The user instrument of claim 1, wherein the user instrument is a label.	Claim 4	The user instrument of claim 1, wherein the user instrument is a label.
Claim 5	The user instrument of claim 1, further comprising a second area of stimuli-responsive material configured to transform in response to a trigger, wherein the transformation of the stimuli-responsive material of the second area results in human readable indicia.	Claim 5	The user instrument of claim 1, further comprising a second area of stimuli-responsive material configured to transform in response to a trigger, wherein the transformation of the stimuli-responsive material of the second area results in human readable indicia.
Claim 6	The user instrument of claim 5, wherein the second area of stimuli-responsive material forms a part of the graphically encoded icon.	Claim 6	The user instrument of claim 5, wherein the second area of stimuli-responsive material forms a part of the graphically encoded icon.
Claim 7	The user instrument of claim 1, wherein the machine-readable indicia is non-human readable.		See claim 1 above.
Claim 16	An article, comprising: a user instrument associated with a user, the user instrument comprising a graphically encoded icon, the graphically-encoded icon comprising an area of stimuli-responsive material defining a machine-readable indicia; wherein: the stimuli-responsive material is configured to change from a		See claim 1 above.

	first state to a second state in response to a trigger; and after the change of the stimuli-responsive material from the first state to the second state, the machine-readable indicia comprises information to permit or deny a user to engage in a transaction using the user instrument.		
Claim 17	The article of claim 16, wherein the user instrument is selected from the list consisting of: a label, a credit card, and a badge.		See claim 2
Claim 18	The article of claim 16, wherein the machine-readable indicia is non-human readable		See claim 1 above.
Claim 20	The article of claim 16, wherein the graphically encoded icon is configured as a QR code.		See claim 1 above.

As shown in claim 1 comparison above, the underlined section of claim 1 of 773 patent clearly limit the same limitation of claim 1 of the instant application. Since they are limited to the same subject matter, the scope of claim 1 of the instant application is broader than that of 773 patent. Some dependent claims of the instant application are identical to corresponding claims of 773 patent in verbatim manner.

Regarding claims 18 and 19, the machine-readable code (1D or 2D barcode or QR code) is generally meaningless to human. QR code is an embodiment of machine-readable code.

9. Claims 8, 9, and 12-15 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 2, 6, and 13-15 of U.S. Patent No. 10,460,222 B2 to Stanton et al. (hereinafter “222 patent”). Although the claims at issue are not identical, they are not patentably distinct from each other as the following claims comparison would show.

	Instant Application		222 patent
Claim 8	A graphically encoded icon, comprising: a label attached to an object, the label comprising a static portion and an intrinsic portion; wherein: the static portion comprises machine-readable indicia; the intrinsic portion comprises an area of stimuli-responsive material; and the stimuli-responsive material is configured to change from a first state to a second state in response to a trigger, the change in state being based on an attribute about the object.	Claim 1	<u>A graphically encoded icon, comprising:</u> <u>a label attached to an object,</u> <u>the label comprising a static portion and an intrinsic portion; wherein: the static portion comprises static machine-readable indicia;</u> <u>the intrinsic portion comprises a first area comprising a stimuli-responsive material, and a second area comprising stimuli-responsive material; the stimuli-responsive material is configured to change from a first state to a second state in response to a trigger, the change in state being based on an attribute about the object;</u> the change in state of the stimuli-responsive material in the first area is semi-irreversible; and the change of state of the stimuli-responsive material in the second area is reversible.
Claim 9	The graphically encoded icon of claim 8, wherein the change in state of the stimuli-responsive material results in machine-readable indicia.	Claim 2	The graphically encoded icon of claim 1, wherein the change in state of the stimuli-responsive material of at least one of the first area and the second area results in machine-readable indicia.
Claim 12	The graphically encoded icon of claim 8, wherein the trigger is a change in temperature, and wherein the trigger occurs when the change in temperature is above or below a predetermined threshold.	Claim 6	The graphically encoded icon of claim 1, wherein the trigger is a change in temperature, wherein the trigger occurs when the change in temperature is above a predetermined threshold.
Claim 13	The graphically encoded icon of claim 8, wherein the trigger occurs automatically based on a predetermined condition about the attribute of the object.	Claim 13	A graphically encoded icon, comprising: a label attached to an object, the label comprising a static portion and an intrinsic portion; wherein: the static portion comprises static machine-readable indicia; the intrinsic portion comprises a first area comprising stimuli-responsive material and a second area comprising stimuli-responsive material,

			the stimuli-responsive material <u>being configured to change from a first state to a second state in response to a trigger</u> , the change in state being based on an attribute about the object; the change in state of the stimuli-responsive material in the first area results in machine-readable indicia; and the change in state of the stimuli-responsive material in the second area results in human readable indicia.
Claim 14	The graphically encoded icon of claim 8, wherein the transformation of the stimuli- responsive material is a change in reflection of the stimuli-responsive material.	Claim 14	The graphically encoded icon of claim 13, wherein the change in state of the stimuli-responsive material of at least one of the first area and the second area is a change in reflection of the stimuli-responsive material.
Claim 15	The graphically encoded icon of claim 8, wherein the transformation of the stimuli- responsive material is a change in the transparency of the stimuli-responsive material.	Claim 15	The graphically encoded icon of claim 13, wherein the change of the stimuli-responsive material of at least one of the first area and the second area is state is a change in the transparency of the stimuli-responsive material.

As shown in the above claims comparison, both the instant application and 222 patent are limited to the same subject matter, and the scope of claim 1 of the instant application is broader (see non-underlined section of claim 1 of 222 patent, which is an additional limitation). Some
5 dependent claims of the instant apparition are identical to the corresponding claims of 222 patent.

10. Claims 19 is rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. U.S. Patent No. 10,963, 773 B2 to Stanton et al.
10 (hereinafter “773 patent”) in view of claim 9 of U.S. Patent No. 10,460,222 B2 to Stanton et al. (hereinafter “222 patent”).

Regarding claim 19, it appears to be a combination of claim 1 of 777 patent and claim 9 of 222 patent.

Conclusion

5 The pertinent prior arts made of record but not relied are listed in the attached form PTO-892. These are considered pertinent to Applicant's disclosure. Applicant is respectfully suggested to carefully review these references.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Ahshik Kim* whose telephone number is (571)272-2393. The
10 examiner can normally be reached between the hours of 8:00 AM to 5:00 PM Monday thru Friday. Examiner's fax phone number is (571)273-2393.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee, can be reached on (571)272-2398. The fax phone number for this
15 Group is (571)273-8300.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [ahshik.kim@uspto.gov].
20

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35

/AHSHIK KIM/
Primary Examiner, Art Unit 2876

October 20, 2021

<i>Notice of References Cited</i>	Application/Control No. 17/216,096		Applicant(s)/Patent Under Reexamination Staton et al.	
	Examiner AHSHIK KIM		Art Unit 2876	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-10460222-B2	10-2019	Staton; Fielding B.	G06K19/06037	1/1
*	B	US-10963773-B2	03-2021	Staton; Fielding B.	G06K7/1452	1/1
*	C	US-20170169738-A1	06-2017	David; Milnes P.	G09F3/0291	1/1
	D					
	E					
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
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NON-PATENT DOCUMENTS

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

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

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20211020

<i>Search Notes</i> 	Application/Control No. 17/216,096	Applicant(s)/Patent Under Reexamination Staton et al.
	Examiner AHSNIK KIM	Art Unit 2876

CPC - Searched*		
Symbol	Date	Examiner
G06K 19/18	10/20/2021	ak
G06K 7/1452	10/20/2021	ak
G06K 19/06037	10/20/2021	ak
G06Q 20/382	10/20/2021	ak

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
235	375	10/20/2021	ak

* 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
See attached EAST search history	10/20/2021	ak
Reviewed parent cases	10/20/2021	ak

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

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<i>Index of Claims</i> 	Application/Control No. 17/216,096	Applicant(s)/Patent Under Reexamination Staton et al.
	Examiner AHSHIK KIM	Art Unit 2876

✓	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	10/21/2021								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
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	14	✓								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-16)

Approved for use through 11/30/2020. 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			
	Filing Date		2021-03-29	
	First Named Inventor	Fielding B. STATON		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		012107	

U.S. PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code†	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	5053339	A	1991-10-01	Patel	
	2	6544925	B1	2003-04-08	Prusik et al.	
	3	8955744	B2	2015-02-17	Granucci et al.	
If you wish to add additional U.S. Patent citation information please click the Add button.						
U.S. PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code†	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20060095369	A1	2006-05-04	Hofl	
	2	20060278698	A1	2006-12-14	Lovett	
	3	20080043804	A1	2008-02-21	Goldsmith et al.	

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
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Application Number		
Filing Date		2021-03-29
First Named Inventor	Fielding B. STATON	
Art Unit		
Examiner Name		
Attorney Docket Number	012107	

4	20090139907	A1	2009-06-04	Hollingsworth et al.	
5	20130048736	A1	2013-02-28	Wien	
6	20150310771	A1	2015-10-29	Atkinson et al.	
7	20170229000	A1	2017-08-10	LAW	

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NON-PATENT LITERATURE DOCUMENTS

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Examiner Signature	/AHSHIK KIM/	Date Considered	10/21/2021
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Application Number	
Filing Date	2021-03-29
First Named Inventor	Fielding B. STATON
Art Unit	
Examiner Name	
Attorney Docket Number	012107

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Application Number		
Filing Date		2021-03-29
First Named Inventor	Fielding B. STATON	
Art Unit		
Examiner Name		
Attorney Docket Number		012107

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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☐ 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	/Anna M. Quinn/	Date (YYYY-MM-DD)	2021-03-29
Name/Print	Anna M. Quinn	Registration Number	72744

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Filing Date		2021-03-29
First Named Inventor	Fielding B. STATON	
Art Unit		
Examiner Name		
Attorney Docket Number		012107

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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.
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EFS Web 2.1.18

Bibliographic Data

Application No: 17/216,096

Foreign Priority claimed: ☐ Yes ☒ No

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

Verified and Acknowledged:

/AHSHIK KIM/

Examiner's Signature

Initials

Title:

GRAPHICALLY ENCODED ICONS HAVING INTRINSIC
ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND
METHODS FOR USING SAME

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
03/29/2021	235	2876	012107
RULE			

APPLICANTS

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David Strumpf, Columbia, MO, UNITED STATES

CONTINUING DATA

This application is a CON of 16667552 10/29/2019 PAT 10963773

16667552 is a CIP of 16198522 11/21/2018 PAT 10460222

16198522 has PRO of 62640142 03/08/2018

16198522 has PRO of 62590117 11/22/2017

FOREIGN APPLICATIONS

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12980 Metcalf Ave., Suite 180
Overland Park, KS 66213
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	16/198522	USPAT	OR	OFF	2021/10/21 11:30
L2	10	("20060095369" "20060278898" "20080043804" "20090139907" "20130048736" "20150310771" "20170229000" "5053339" "6544925" "8955744").PN.	US-PGPUB; USPAT	OR	OFF	2021/10/21 12:10
S1	0	16/198522	US-PGPUB; USPAT	OR	OFF	2019/03/19 10:49
S2	726	"expir"\$4 with "chang"\$4 with "color"	US-PGPUB; USPAT	OR	ON	2019/03/19 11:16
S3	269	S2 and ("barcode" or "bar code")	US-PGPUB; USPAT	OR	ON	2019/03/19 11:17
S4	1	15/856203	US-PGPUB; USPAT	OR	ON	2019/03/19 11:32
S5	1	13/219663	USPAT	OR	OFF	2019/03/19 11:33
S6	30	("20030235119" "20080043804" "20090301382" "20100012018" "20100149929" "20100209521" "20100263244" "20110174887" "3042264" "3983389" "4086477" "4272675" "4354101" "4414468" "4421978" "5124538" "5262626" "5442164" "5457308" "5495097" "5548107" "5667303" "5821519" "5930206" "6544925" "6723285" "7057495" "7416122" "7808861").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2019/03/19 11:33
S7	1	"temperatue"\$4 with "chang"\$4 with "color"	US-PGPUB; USPAT	OR	ON	2019/03/19 12:25
S8	35,632	"temperature"\$4 with "chang"\$4 with "color"	US-PGPUB; USPAT	OR	ON	2019/03/19 12:25
S9	2,592	S8 and ("barcode" or "bar code")	US-PGPUB; USPAT	OR	ON	2019/03/19 12:25

S10	0	S9 and "resers"\$7	US-PGPUB; USPAT	OR	ON	2019/03/19 13:02
S11	1,446	S9 and "revers"\$7	US-PGPUB; USPAT	OR	ON	2019/03/19 13:02
S12	1	S9 and ("quasi"\$2 adj1 "revers"\$7)	US-PGPUB; USPAT	OR	ON	2019/03/19 13:03
S13	1	15/501884	US-PGPUB; USPAT	OR	ON	2019/03/19 14:48
S14	128	("6544925").URPN.	USPAT	OR	OFF	2019/03/19 17:57
S15	35,632	"temperature"\$4 with "chang"\$4 with "color"	US-PGPUB; USPAT	OR	ON	2019/03/19 20:31
S16	2,592	S15 and ("barcode" or "bar code")	US-PGPUB; USPAT	OR	ON	2019/03/19 20:31
S17	8	S16 and ("department" adj2 "transportation")	US-PGPUB; USPAT	OR	ON	2019/03/19 20:31
S18	304	"hazardous" with "material" with ("department" adj2 "transportation")	US-PGPUB; USPAT	OR	ON	2019/03/19 20:33
S19	41	S18 and ("RFID" or ("barcode" or "bar code"))	US-PGPUB; USPAT	OR	ON	2019/03/19 20:34
S20	1	16/667552	US-PGPUB; USPAT	OR	OFF	2020/06/27 19:47
S21	1,874	"dynamic" with ("barcode" or "bar code")	US-PGPUB; USPAT	OR	OFF	2020/06/27 19:56
S22	4,638	"dynamic" with ("barcode" or "bar code")	US-PGPUB; USPAT	OR	ON	2020/06/27 19:56
S23	1,573	S22 and "RFID"	US-PGPUB; USPAT	OR	ON	2020/06/27 19:56
S24	7	("20080043804" "20090139907" "20130048736" "20150310771" "20170229000" "5053339" "6544925").PN.	US-PGPUB; USPAT	OR	OFF	2020/06/27 19:57

S25	19	("2008/0043804").URPN.	USPAT	OR	OFF	2020/06/27 19:58
S26	152	("4057029" "5053339" "5085802" "5254473").PN. OR ("6544925").URPN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/06/27 20:00
S27	34	"card".ti. and "balance".ti.	US- PGPUB; USPAT	OR	OFF	2020/06/27 20:03
S28	1	14/788898	US- PGPUB; USPAT	OR	OFF	2020/06/27 20:04
S29	2	13/632682	US- PGPUB; USPAT	OR	OFF	2020/06/27 20:05
S30	114	("20010003445" "20010013542" "20040064406" "20040225776" "20050065884" "20080029607" "20080035738" "20080054068" "20080054079" "20080054081" "20080065555" "20080099556" "20080302869" "20080302876" "20090048934" "20090078777" "20090081990" "20090134218" "20090159663" "20090159667" "20090159668" "20090159669" "20090159670" "20090159671" "20090159672" "20090159673" "20090159680" "20090159681" "20090159682" "20090159688" "20090159689" "20090159690" "20090159696" "20090159697" "20090159698" "20090159699" "20090159700" "20090159701" "20090159702" "20090159703" "20090159704" "20090159705" "20090159706" "20090159707" "20090159708" "20090159709" "20090159710" "20090159711" "20090159712" "20090159713" "20090160617" "20090308921" "20090314840" "20110272465" "20110272466" "20110272467" "20110272471" "20110272472" "20110272473" "20110272474" "20110272475" "20110272476" "20110272477" "20110272478" "20110272479" "20110272480" "20110272481" "20110272482" "20110272483" "20110272484" "20110276380" "20110276381"	US- PGPUB; USPAT; USOCR	OR	OFF	2020/06/27 20:06

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S31	672	("credit" adj1 "card") with "display"\$4 with ("barcode" or "bar code")	US- PGPUB; USPAT; USOCR	OR	OFF	2020/06/27 20:08
S32	43	("credit" adj1 "card") with "dynamic"\$4 with ("barcode" or "bar code")	US- PGPUB; USPAT; USOCR	OR	OFF	2020/06/27 20:14
S33	53	("credit" adj1 "card") with "dynamic"\$4 with ("barcode" or "bar code")	US- PGPUB; USPAT; USOCR	OR	ON	2020/06/27 20:14
S34	114	("20010003445" "20010013542" "20040064406" "20040225776" "20050065884" "20080029607" "20080035738" "20080054068" "20080054079" "20080054081" "20080065555" "20080099556" "20080302869" "20080302876" "20090048934" "20090078777" "20090081990" "20090134218" "20090159663" "20090159667" "20090159668" "20090159669" "20090159670" "20090159671" "20090159672" "20090159673" "20090159680" "20090159681" "20090159682" "20090159688" "20090159689" "20090159690" "20090159696" "20090159697" "20090159698" "20090159699" "20090159700" "20090159701" "20090159702" "20090159703" "20090159704" "20090159705" "20090159706" "20090159707" "20090159708" "20090159709" "20090159710" "20090159711"	US- PGPUB; USPAT; USOCR	OR	OFF	2020/06/27 20:23

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S35	749	("4614861").URPN.	USPAT	OR	OFF	2020/06/27 20:26
S36	224	("5359183").URPN.	USPAT	OR	OFF	2020/06/27 20:29
S37	23	("20020116330" "20020128034" "20050070334" "4837422" "5015830" "5272319" "5315636" "5359183" "5412192" "5679939" "5748737" "5770849" "5777903" "5955961" "6068183" "6360954" "6418326" "6592044" "6601771" "6753999" "6758404" "6799721" "7306143").PN.	US- PGPUB; USPAT; USOCR	OR	OFF	2020/06/28 08:21
S38	672	("credit" adj1 "card") with "display"\$4 with ("barcode" or "bar code")	US- PGPUB; USPAT; USOCR	OR	OFF	2020/06/28 10:33
S39	796	("credit" adj1 "card") with "display"\$4 with ("barcode" or "bar code")	US- PGPUB; USPAT; USOCR	OR	ON	2020/06/28 10:34
S40	4	16/198522	US- PGPUB; USPAT	OR	OFF	2020/11/27 12:37

S41	408	g06k19/18.cpc.	US-PGPUB; USPAT	OR	OFF	2020/11/27 13:18
S46	427	g06k19/18.cpc.	US-PGPUB; USPAT	OR	OFF	2021/10/20 18:15
S47	219	g06k7/1452.cpc.	US-PGPUB; USPAT	OR	OFF	2021/10/20 18:16
S48	6,524	g06k19/06037.cpc.	US-PGPUB; USPAT	OR	OFF	2021/10/20 18:16
S49	7,687	g06q20/382.cpc.	US-PGPUB; USPAT	OR	OFF	2021/10/20 18:16
S50	1,589	(S48 or S49) and ("transaction" adj2 "card")	US-PGPUB; USPAT	OR	OFF	2021/10/20 18:17
S51	2	16/198522	USPAT	OR	OFF	2021/10/20 18:20

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S42	408	g06k19/18.cpc.	US-PGPUB; USPAT	OR	ON	2020/11/27 13:19
S43	203	g06k7/1452.cpc.	US-PGPUB; USPAT	OR	ON	2020/11/27 13:19
S44	5,906	g06k19/06037.cpc.	US-PGPUB; USPAT	OR	ON	2020/11/27 13:20
S45	864	S44 and "RFID"	US-PGPUB; USPAT	OR	ON	2020/11/27 13:20

10/21/2021 12:16:08 PM

C:\Users\akim2\Documents\EAST\Workspaces\16198522.wsp



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/216,096	03/29/2021	Fielding B. Staton	012107

CONFIRMATION NO. 8024

46287

Avant Law Group, LLC
12980 Metcalf Ave., Suite 180
Overland Park, KS 66213

PUBLICATION NOTICE



Title:GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME

Publication No.US-2021-0216844-A1

Publication Date:07/15/2021

NOTICE OF PUBLICATION OF APPLICATION

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

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

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

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

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

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 17/216,096			
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	80		N/A			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	350		N/A			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 240 =	0.00					
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00					
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00					
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	830		TOTAL			
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	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))					OR			
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR			
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE			
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	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))					OR			
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR			
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.									



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
17/216,096	03/29/2021	2143	830	012107	20	3

CONFIRMATION NO. 8024

FILING RECEIPT



CC000000124654635

46287
Avant Law Group, LLC
12980 Metcalf Ave., Suite 180
Overland Park, KS 66213

Date Mailed: 04/07/2021

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

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

Inventor(s)

Fielding B. Staton, Liberty, MO;
David Strumpf, Columbia, MO;

Applicant(s)

Newtonoid Technologies, L.L.C., Liberty, MO;

Power of Attorney: The patent practitioners associated with Customer Number 46287

Domestic Priority data as claimed by applicant

This application is a CON of 16/667,552 10/29/2019 PAT 10963773
which is a CIP of 16/198,522 11/21/2018 PAT 10460222
which claims benefit of 62/640,142 03/08/2018
and claims benefit of 62/590,117 11/22/2017

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: 04/06/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/216,096**

Projected Publication Date: 07/15/2021

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME

Preliminary Class

715

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.

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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

page 2 of 4

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 37, Code of Federal Regulations, 5.11 & 5.15

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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:

☒ Practitioners associated with Customer Number: 46287

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).

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OR

☐ Firm or individual name		
Address		
City	State	Zip
Country		
Telephone	Email	

Assignee name and address: Newtonia Technologies, L.L.C.
1113 Aspen Drive
Liberty, Missouri 64068

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Signature	Date
Name Fielding B. Staton	Telephone
Title 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 1480, Alexandria, VA 22313-1480. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1480, Alexandria, VA 22313-1480.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		2021-03-29
	First Named Inventor	Fielding B. STATON	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		012107

U.S. PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code†	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	5053339	A	1991-10-01	Patel	
	2	6544925	B1	2003-04-08	Prusik et al.	
	3	8955744	B2	2015-02-17	Granucci et al.	

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

U.S. PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code†	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20060095369	A1	2006-05-04	Hofl	
	2	20060278698	A1	2006-12-14	Lovett	
	3	20080043804	A1	2008-02-21	Goldsmith et al.	

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

Application Number		
Filing Date		2021-03-29
First Named Inventor	Fielding B. STATON	
Art Unit		
Examiner Name		
Attorney Docket Number	012107	

	4	20090139907	A1	2009-06-04	Hollingsworth et al.	
	5	20130048736	A1	2013-02-28	Wien	
	6	20150310771	A1	2015-10-29	Atkinson et al.	
	7	20170229000	A1	2017-08-10	LAW	

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

FOREIGN PATENT DOCUMENTS

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
	1							☐

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

NON-PATENT LITERATURE DOCUMENTS

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

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	
Filing Date	2021-03-29
First Named Inventor	Fielding B. STATON
Art Unit	
Examiner Name	
Attorney Docket Number	012107

¹See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ²Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵Applicant 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	
Filing Date	2021-03-29
First Named Inventor	Fielding B. STATON
Art Unit	
Examiner Name	
Attorney Docket Number	012107

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	/Anna M. Quinn/	Date (YYYY-MM-DD)	2021-03-29
Name/Print	Anna M. Quinn	Registration Number	72744

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.**

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

Application Number		
Filing Date		2021-03-29
First Named Inventor	Fielding B. STATON	
Art Unit		
Examiner Name		
Attorney Docket Number	012107	

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 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.

EFS Web 2.1.13

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	012107
		Application Number	
Title of Invention	Graphically Encoded Icons Having Intrinsic Attributes Embedded Therein and Systems and Methods for Using Same		
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		
	Fielding	B.	STATON			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Liberty	State/Province	MO	Country of Residence	US	
Mailing Address of Inventor:						
Address 1		1113 Aspen Drive				
Address 2						
City	Liberty	State/Province	MO			
Postal Code	64068	Country	US			
Inventor 2					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	David		STRUMPF			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Columbia	State/Province	MO	Country of Residence	US	
Mailing Address of Inventor:						
Address 1		4413 Shoram Court				
Address 2						
City	Columbia	State/Province	MO			
Postal Code	65203	Country	US			
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.						
Add						

Correspondence Information:

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	012107
		Application Number	
Title of Invention	Graphically Encoded Icons Having Intrinsic Attributes Embedded Therein and Systems and Methods for Using Same		

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

Customer Number	46287		
Email Address	docketing@avant.law	Add Email	Remove Email

Application Information:

Title of the Invention	Graphically Encoded Icons Having Intrinsic Attributes Embedded Therein and Systems and Methods for Using Same		
Attorney Docket Number	012107	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	19	Suggested Figure for Publication (if any)	

Filing By Reference:

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

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

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

Publication Information:

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

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

Representative Information:

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

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	46287		

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	012107
		Application Number	
Title of Invention	Graphically Encoded Icons Having Intrinsic Attributes Embedded Therein and Systems and Methods for Using Same		

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	16667552	2019-10-29		
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16667552	Continuation in part of	16198522	2018-11-21	10460222	2019-10-29
Prior Application Status	Expired		Remove		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
16198522	Claims benefit of provisional	62840142	2018-03-08		
Prior Application Status	Pending		Remove		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
16198522	Claims benefit of provisional	62590117	2017-11-22		
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX), 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).

Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Remove	Access Code ¹ (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.				

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	012107
		Application Number	
Title of Invention	Graphically Encoded Icons Having Intrinsic Attributes Embedded Therein and Systems and Methods for Using Same		

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

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	012107
		Application Number	
Title of Invention	Graphically Encoded Icons Having Intrinsic Attributes Embedded Therein and Systems and Methods for Using Same		

Authorization or Opt-Out of Authorization to Permit Access:

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

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

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

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

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

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

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

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

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

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

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	012107
		Application Number	
Title of Invention	Graphically Encoded Icons Having Intrinsic Attributes Embedded Therein and Systems and Methods for Using Same		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant 1			
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
Clear			
☒ Assignee	☐ Legal Representative under 35 U.S.C. 117	☐ Joint Inventor	
☐ Person to whom the inventor is obligated to assign.		☐ Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor:			
If the Applicant is an Organization check here. ☒			
Organization Name	Newtonoid Technologies, L.L.C.		
Mailing Address Information For Applicant:			
Address 1	1113 Aspen Drive		
Address 2			
City	Liberty	State/Province	MO
Country	US	Postal Code	64068
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

Assignee Information including Non-Applicant Assignee Information:

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	012107
		Application Number	
Title of Invention	Graphically Encoded Icons Having Intrinsic Attributes Embedded Therein and Systems and Methods for Using Same		

Assignee 1

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

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

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

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

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

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c). This Application Data Sheet must be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants. See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Anna M. Quinn/		Date (YYYY-MM-DD)	2021-03-29
First Name	Anna	Last Name	Quinn	Registration Number
				72744

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	012107
		Application Number	
Title of Invention	Graphically Encoded Icons Having Intrinsic Attributes Embedded Therein and Systems and Methods for Using Same		

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

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to 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 collected 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 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 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 (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 made 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 C.F.R. 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME		
First Named Inventor/Applicant Name:		Fielding B. Staton		
Filer:		Anna Marie Quinn/Melissa Turpen		
Attorney Docket Number:		012107		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	80	80
UTILITY SEARCH FEE	2111	1	350	350
UTILITY EXAMINATION FEE	2311	1	400	400
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				830

Electronic Acknowledgement Receipt	
EFS ID:	42310129
Application Number:	17216096
International Application Number:	
Confirmation Number:	8024
Title of Invention:	GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME
First Named Inventor/Applicant Name:	Fielding B. Staton
Customer Number:	46287
Filer:	Anna Marie Quinn/Melissa Turpen
Filer Authorized By:	Anna Marie Quinn
Attorney Docket Number:	012107
Receipt Date:	29-MAR-2021
Filing Date:	
Time Stamp:	17:21:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$830
RAM confirmation Number	E20213SH21544043
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1		012107_CON_Specification.pdf	270913	yes	59
			26258b04bca0370217958a44483203e7365701f3		
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	Document Description		Start	End	
	Specification		1	54	
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2	Drawings-only black and white line drawings	012107_Drawings_file.pdf	14361534	no	19
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4	Power of Attorney	Newtonoid_POA_file.pdf	277167	no	1
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5	Information Disclosure Statement (IDS) Form (SB08)	012107_SB08file.pdf	1247292	no	5
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7	Fee Worksheet (SB06)	fee-info.pdf	35196	no	2
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**GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES
EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING
SAME**

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. Patent Application No. 16/667,552, filed October 29, 2019, which is pending and which is continuation-in-part of U.S. Patent Application No. 16/198,522, filed November 21, 2018, which granted as U.S. Patent No. 10,460,222 on October 29, 2019, and which claims priority to U.S. Provisional Patent Application No. 62/590,117, filed November 22, 2017, and U.S. Provisional Patent Application No. 62/640,142, filed March 8, 2018, the disclosures of each of which are incorporated herein by reference in their entireties.

FIELD OF THE DISCLOSURE

[0002] The disclosure relates generally to the field of graphically encoded icons. More specifically, the disclosure relates to graphically encoded icons having intrinsic attributes embedded therein, and to systems and methods for using such graphically encoded icons.

SUMMARY

[0003] The following presents a simplified summary of the invention in order to provide a basic understanding of some aspects of the invention. This summary is not an extensive overview of the invention. It is not intended to identify critical elements of the invention or to delineate the scope of the invention. Its sole purpose is to present some concepts of the invention in a simplified form as a prelude to the more detailed description that is presented elsewhere herein.

[0004] In one embodiment, a graphically encoded icon comprises a label attached to an object. The label includes a static portion and an intrinsic portion. The static portion has an area of machine-readable indicia. The intrinsic portion includes at least one area comprising a stimuli-responsive material. The stimuli-responsive material is configured to change from a first state to a second state in response to a trigger, and the change in state is based on an attribute about the object.

[0005] In another embodiment, a system for providing and responding to a visual indication of an attribute about an object includes a graphically encoded icon secured to an object and a computing device. The graphically encoded icon includes a static portion comprising static machine-readable indicia; and an intrinsic portion comprising at least one area comprising a stimuli-responsive material configured to change from a first state to a second state in response to a trigger. The change in state is based on an attribute of the object. The computing device includes a processor in data communication with an input device, an output device, and computer memory. The computer memory has a program having machine readable instructions that, when effected by the processor, performs the following steps: (a) determine the change in state of the stimuli-responsive material; (b) determine if the change in state has reached a predetermined threshold; and (c) if the change in state has reached the predetermined threshold, activate the output device to provide a controlled response to the change in state.

[0006] According to still another embodiment, a user instrument for engaging in a transaction includes a graphically encoded icon having a static portion, and an intrinsic portion comprising an area of stimuli-responsive material defining a first machine-readable indicia. At least a portion of the stimuli-responsive material transforms from a first state to a second state in response to a trigger. The transformation from the first state to the second state of the portion of the stimuli-response material results in a second machine-readable

indicia. The transformation of the stimuli-responsive material from the first state to the second state is semi-irreversible. The second machine-readable indicia comprises information to permit or deny the user to engage in a second transaction via the user instrument.

[0007] In a further embodiment, a user instrument includes a graphically encoded icon having a static portion and an intrinsic portion comprising an area of stimuli-responsive material defining a first machine-readable indicia. At least a portion of the stimuli-responsive material transforms from a first state to a second state in response to a trigger. The transformation from the first state to the second state of the portion of the stimuli-response material results in a second machine-readable indicia. The transformation of the stimuli-responsive material from the first state to the second state is semi-irreversible.

[0008] In still a further embodiment, a security system includes a user instrument, a reader, and a signal generator. The user instrument is associated with a user and includes a graphically encoded icon which has an area of stimuli-responsive material defining a first machine-readable indicia. The reader is configured to read and decode the graphically encoded icon. The signal generator is configured to generate a signal operable to transform at least a portion of the stimuli-responsive material from a first state to a second state, wherein the transformation of the portion of the stimuli-responsive material results in a second machine-readable indicia. Each of the first machine-readable indicia and the second machine-readable indicia comprises information to permit or deny a user to engage in a transaction using the user instrument. If the reader determines that the respective machine-readable indicia comprises information to permit the user to engage in the transaction using the user instrument, the user is permitted to engage in the transaction.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0009] Illustrative embodiments of the present disclosure are described in detail below with reference to the attached drawing figures and wherein:

[0010] FIG. 1 shows a PRIOR ART one dimensional barcode together with a scanner therefor.

[0011] FIG. 2 shows a PRIOR ART two-dimensional barcode together with a scanner therefor.

[0012] FIG. 3A shows a top side of a label having a graphically encoded icon according to an embodiment of the present disclosure.

[0013] FIG. 3B shows a bottom side of the label of FIG. 3A.

[0014] FIGs. 4A-4B show a top side of labels having a graphically encoded icon of the type shown in FIG. 3A.

[0015] FIG. 5 shows a top side of a label having a graphically encoded icon comprising a fuzzy field, according to an embodiment.

[0016] FIGs. 6A-6C each show a container with the label of FIG. 5 disposed thereon.

[0017] FIG. 7 shows an alternate embodiment of the label of FIG. 5 comprising a two-dimensional fuzzy field.

[0018] FIG. 8A-8B show a label having sections that are configured to be manually triggered.

[0019] FIG. 9 shows a computing system for reading and processing the various graphically encoded icons disclosed herein.

[0020] FIG. 10 shows an embodiment of a label disposed on a container.

[0021] FIG. 11 shows a side view of the label of FIG. 10.

[0022] FIG. 12 shows a graphically encoded icon according to another embodiment of the invention.

[0023] FIG. 13 shows yet another graphically encoded icon according to an embodiment of the invention.

[0024] FIG. 14 shows a picture of an embodiment of a graphically encoded icon disposed on a salt shaker according to an embodiment of the invention.

[0025] FIG. 15 shows a one-dimensional graphically encoded icon according to still another embodiment of the invention.

[0026] FIG. 16 shows a two-dimensional graphically encoded icon according to still yet another embodiment of the invention.

[0027] FIG. 17 shows a plurality of graphically encoded icons disposed on a three-dimensional object according to a further embodiment of the invention.

[0028] FIG. 18 shows a plurality of graphically encoded icons incorporated into a label according to yet another embodiment of the invention.

[0029] FIGs. 19A-B show an exemplary embodiment of a graphically encoded icon according to various aspects of the invention included as part of a bandage.

[0030] FIG. 20 illustrates a further embodiment of a graphically encoded icon according to various aspects of the invention included as part of a credit card.

[0031] FIG. 21 illustrates still yet another embodiment of a graphically encoded icon according to various aspects of the invention included as part of a security badge.

DETAILED DESCRIPTION

[0032] The history of scanning, surveilling, dissecting, categorizing, decoding, and resolving information has been evolving for decades. There are many surveillance systems available today that are used for monitoring movement and identification of people or objects. Systems exist today that utilize fixed position observation as well as moving points of perspective. System input sources can range from a single camera to multiple points of observation. One exemplary way that surveillance systems have been used is in the tracking of inventory.

[0033] Up until the late 1800s, commercial establishments tracked their inventory primarily by hand. Such manual tracking of inventory was laborious and time consuming. Manual entry of large amounts of data and tracking thereof was also prone to error. Efforts were therefore made to develop machine readable indicia that could be used in large scale applications.

[0034] Punch cards, which typically comprised pieces of paper with holes punched therein, were invented in 1890 and allowed for inventory to be tracked more efficiently. Customers identified the products they had selected by removing the corresponding punch cards from a punch card catalog. The punch cards were then handed to the checkout clerk who passed the punch cards through a reader. The reader comprised an optical light and an optical sensor, and the punch card was placed in the reader such that the optical light and the optical sensor were on opposing sides of the card. If the optical sensor detected light passing through the card, i.e., through a hole punched therein, the reader would output a one; alternately, where the optical sensor detected no light, the reader would output a zero to indicate the absence of a punched hole.

[0035] Barcode scanning systems, which are configured to identify and decode inanimate objects and markers, were then invented in the 1950s and revolutionized the way in which inventory was tracked. The planar perspective of these systems can be categorized into dimensional perspectives (e.g. one, two, three, and multi-dimensional). The more dimensions of planar perspective available, the greater the ability to resolve more reliable information and greater yields of meaningful intelligence. FIG. 1 shows an example of a one-dimensional barcode 10 as is known in the art. The prior art example barcode 10 includes a plurality of slots 12. Each slot 12 contains a predefined number of stripes 14, including both black stripes 14A and white stripes 14B. All slots 12 have the same width, and all stripes 14 have the same width. A unique pattern of black and white stripes is associated with each digit

from zero to nine. For example, one digit may be represented by two white stripes, two black stripes, two white stripes, and one black stripe, whereas another digit may be represented by two white stripes, one black stripe, two white stripes, and two final black stripes, etc. The barcode 10 is readable by a barcode scanner 16. The scanner 16 shines LED, laser, projector, photonic semiconductor or other light onto the barcode 10. Light reflects back off barcode 10 into a light-detecting electronic component of the scanner 16, e.g., a photoelectric cell thereof. White stripes 14B reflect more light as compared to the black stripes 14A, which allows the scanner 16 to quickly decode the code. As the scanner 16 moves past the barcode 10, the cell generates a pattern of on-off pulses that correspond to the black and white stripes. An electronic circuit attached to the scanner 16 converts these on-off pulses into binary digits (zeros and ones) to decode the barcode 10.

[0036] Barcode 10 is typically referred to as a one dimensional or linear barcode. This is because the information in the code is organized horizontally and is read from left to right. The data in a one-dimensional barcode 10 is limited in practice because addition of data thereto requires an increase in the physical length of the barcode 10. It is this limitation of the one-dimensional barcode that in the late 1980s led to the advent of two dimensional barcodes.

[0037] Two dimensional barcodes, such as a Quick Response (QR) code, a Datamatrix code, a PDF417 code, an Aztec code, etc., are configured to hold information in both the vertical and horizontal directions. Data is encoded in such two-dimensional barcodes in patterns, matrices, squares, hexagons, dots, and other shapes. Because the data is encoded in both the vertical and horizontal directions, a two-dimensional barcode can store much more information (e.g., 200 times more information) as compared to a similarly sized one dimensional barcode.

[0038] FIG. 2 shows a QR code 20 as is known in the art. Each QR code includes modules that contain static information required to read the QR code 20. For example, the illustrated QR code 20 includes three edge modules 22A, 22B, and 22C (i.e., the three large squares) which tell the scanner where the edges of the QR code 20 are, and an alignment marker 22D that acts as reference points for the scanner. The QR code 20 also contains other modules and zones, such as timing pattern markers to define the positioning of the rows and columns, formatting markers to outline whether the QR code 20 contains numbers, text, symbols, or some combination thereof, a quiet zone, etc. Data and error correction information is encoded in a data encoding portion 24 of the QR code 20. As is known, QR code 20 can be read using a smart phone 30 or another device having an imager. To read the QR code 20, the imager of the QR code reader 30 is used to capture an image of the QR code 20. The processor of the QR code reader 30 then decodes the image and converts it into information meaningful to humans.

[0039] Machine readable indicia, such as the barcode 10 and the QR code 20, can be read by computing systems quickly (as compared to Arabic numerals, for example). However, humans are typically unable to decipher such machine-readable indicia using the naked eye. To this end, machine readable indicia may be accompanied with static information that can be readily comprehended by the naked eye. For example, the barcode 10 may include at the bottom (or elsewhere) a sequence of Arabic numerals, Greek numerals, Chinese numerals, etc. that corresponds to the machine-readable indicia of the barcode 10 and allow the barcode 10 to be read both by humans and by machines. Or, for instance, where machine readable indicia on the QR code 20 translates to a product code containing letters of the English alphabet, these letters may be listed underneath the machine-readable indicia to allow a human to comprehend the information stored in the QR code 20 with the naked eye.

[0040] Associating machine-readable indicia with static human readable indicia has several benefits. For example, if the barcode 10 or QR code 20 is deformed or is otherwise rendered unreadable by a computing system, a user may read the static human readable information provided with the barcode 10 and the QR code 20, respectively, and manually enter same into the computing system (e.g., a point of sale or other system). The static human readable information may also be used for error detection and correction, validation of the machine-readable data, security, encryption, etc.

[0041] While the one-dimensional barcodes represent a significant advance over the punch cards of old and the two-dimensional barcodes represent a significant advance over one-dimensional barcodes, the prior art one and two-dimensional barcodes are limited in that the information represented thereby is static. That is, once the prior art barcode 10 and the prior art QR code 20 are printed, they become fixed in form and cannot be used to convey variable information. As discussed herein, machine-readable indicia that includes both static and variable information can have wide ranging applicability. This is particularly so when the variable information conveyed by the machine-readable indicia: (a) is tied to an intrinsic attribute, e.g., of an object associated with the machine readable indicia; and/or (b) can be readily comprehended both by the naked eye and by computing systems.

[0042] Focus is directed to FIGs. 3A and 3B, which respectively show an upper surface 302U and a lower surface 302L of a label 300 according to an embodiment of the present disclosure. The lower surface 302L of the label 300 may include an adhesive 308, e.g., at the edges thereof or elsewhere, to allow the label 300 to be permanently or removably adhered to an object.

[0043] The upper surface 302U of the label may contain a graphically encoded icon 310. In an embodiment, the graphically encoded icon 310 is configured to be deciphered by a machine (e.g., a bar code scanner, an imager, etc.) in its entirety and portions

thereof are further configured to readily convey meaningful information about an attribute of an object associated with the label 300 to the naked eye. In some embodiments, a portion of the graphically encoded icon 310 is configured to be deciphered by a machine, another portion of the graphically encoded icon 310 is configured to convey information to the naked eye, and yet another portion of the graphically encoded icon 310 is readable by a machine and is further configured to convey meaningful information about an attribute of an object associated with the label 300 to the naked eye.

[0044] In the illustrated example, the graphically encoded icon 310 includes a static portion 312 and an intrinsic attribute portion 314. The static portion 312 comprises static machine-readable indicia, such as a traditional one-dimensional barcode, a traditional two-dimensional barcode, a three-dimensional barcode, etc. In embodiments, the static portion 302 may also include information readily decipherable by the naked eye; for example, where the static portion 302 is a two-dimensional barcode, the static portion 302 may include a listing of numerals, alphabets, etc. that corresponds to the static machine-readable indicia.

[0045] The intrinsic attribute portion 314 may, in embodiments, be fully or partially encapsulated by the static portion 312. The intrinsic attribute portion 314 may be configured to convey information about an attribute of an object to which the label 300 is adhered. In embodiments, indicia in the intrinsic attribute portion 314 may be machine readable and may further be configured to convey meaningful information about the attribute of the object associated with the label 300 to the naked eye.

[0046] In embodiments, indicia in the intrinsic attribute portion 314 may change states based on a trigger. For example, in embodiments, indicia in the intrinsic attribute portion 314 may initially appear invisible to the naked eye and to the scanner (e.g., a computing system having an imager), and may thereafter change states based on a trigger to

convey meaningful information about an attribute associated with an object to which the label 300 is adhered.

[0047] In embodiments, the intrinsic attribute portion 314 may include stimuli-responsive polymers 316 and/or other such materials that exhibit a change in a characteristic thereof in response to a known stimulus. The change effectuated by the trigger may be one that is discernible by the naked eye. For example, the intrinsic attribute portion 314 may, in embodiments, include thermochromic (i.e., temperature sensitive ink) that changes colors based on temperature. Or, for instance, the intrinsic attribute portion 314 may contain smart polymers and smart polymer solutions that exhibit a visible change based on factors such as humidity, pH, the wavelength and/or intensity of impinging light, an electrical field, a magnetic field, etc. The artisan understands that smart polymers, e.g., poly propyl (acrylic acid), poly(ethacrylic acid), PMMA-PEG copolymer, polysilamine, poly(4-vinylpyridine), poly(2-vinylpyridine), poly(2-diethylaminoethyl methacrylate), etc., which exhibit a visible change based on their environment are commercially available in the marketplace today and that much research is underway to develop additional stimuli-responsive materials. The stimuli-responsive polymers 316 used in the present disclosure may, in embodiments, respond to one or more such factors by altering their color, transparency, or other physical attributes.

[0048] In embodiments, the response of the stimuli-responsive polymers in the intrinsic attribute portion 314, once triggered by the triggering stimulus, may be permanent. Such stimuli-responsive polymers may be referred to herein as irreversible stimuli-responsive polymers. In other embodiments, the response of the stimuli-responsive polymers may be reversible. Such stimuli-responsive polymers may be referred to herein as reversible stimuli-responsive polymers. Consider, for example, a stimuli-responsive polymer that is initially transparent to the naked eye but changes color, e.g., changes from being transparent to

appearing in a red hue, when the environment in which it is located reaches a temperature equal to or greater than a triggering temperature T_{trigger} . If this example polymer can respond to the stimulus more than once, e.g., turns red when the temperature reaches T_{trigger} and turns transparent again after the temperature reaches below T_{trigger} , it may be referred to herein as a reversible stimuli-responsive polymer. Alternately, if this polymer maintains its changed state once the response is triggered notwithstanding any other changes in the environment, e.g., if the polymer turns red when the temperature reaches T_{trigger} and remains red even when the temperature goes below T_{trigger} , it may be referred to herein as an irreversible stimuli-responsive polymer. It shall be understood that the stimuli-responsive polymer may be irreversible under normal operating conditions, yet be reversed in response to a controlled stimulus (e.g., to “reset” the polymer). Thus, the stimuli-responsive polymer may be semi-irreversible in certain embodiments. Depending on the application, embodiments of the present disclosure may employ a reversible stimuli-responsive polymer, an irreversible stimuli-responsive polymer, a semi-irreversible stimuli-responsive polymer, or any combination of the three.

[0049] The graphically encoded icons disclosed herein, e.g., the graphically encoded icon 310, may have wide ranging applicability, and may be employed in any application where it is desirable to readily convey an intrinsic attribute of an object associated with the graphically encoded icon 310 to the naked eye and/or to a machine.

[0050] Assume, for example, that containers carrying seafood (e.g., shrimp) from various locations are shipped to another location (e.g., to a warehouse). As is known, shrimp is preferably stored at a temperature of -22 degrees Fahrenheit. In the prior art, a one or two-dimensional barcode may be adhered to each of the various containers. The prior art barcodes may outline, e.g., the shipping location, the location of the ultimate recipient, the product code associated with the shrimp, and other such information. The prior art barcodes,

however, do not outline whether the shrimp container was maintained at a desirable storage temperature during transit.

[0051] FIG. 4A shows example shrimp containers 401 and 401' that are to be shipped from a shipping location to a recipient. The example containers 401 and 401' are each shown as having a label 400 adhered thereto. Label 400 is an example of the label 300 and includes a graphically encoded icon 410 of the type shown in FIGs. 3A and 3B. The graphically encoded icon 410 includes a static portion 412 containing static machine-readable indicia and an intrinsic attribute portion 414 encapsulated by the static portion 412. In embodiments, care may be taken to ensure that the intrinsic attribute portion 414 is in the data encoding portion of the graphically encoded icon (e.g., in embodiments, the intrinsic attribute portion 414 does not cover the edge modules, the alignment markers, etc.). Such may ensure that the indicia in the static portion 412 and the intrinsic attribute portion 414 is readable by a machine.

[0052] In this example, the intrinsic attribute portion 414 contains an irreversible (or semi-irreversible) stimuli-responsive polymer 416 configured to change its state when the temperature of the environment exceeds -22 degrees Fahrenheit (or another temperature). That is, the trigger in this example is a maximum temperature $T_{\text{trigger(max)}}$. As discussed herein, in other embodiments, the trigger may be a minimum temperature or another factor. The irreversible stimuli-responsive polymer 416 may initially appear transparent and may change to black, red or a different hue when the temperature of the environment exceeds -22 degrees Fahrenheit.

[0053] FIG. 4B shows the example shrimp containers 401 and 401' as received by the recipient. The label 400 on the container 401, and particularly the intrinsic attribute portion 414 thereof, now displays a trigger notification 420 (an X in this example). The trigger notification 420 apprises the recipient that the shrimp container 401, during transit or

at another time, was placed in an environment where the temperature exceeded -22 degrees Fahrenheit. The recipient may therefore easily observe that the shrimp in the container 401 may be spoiled. Such may allow the recipient to discard the shrimp container 401 without having to open the container 401. Conversely, the intrinsic attribute portion 414 of the container 401' shown in FIG. 4B does not display the trigger notification 420. The recipient may therefore definitively observe that the shrimp container 401' was maintained at a proper temperature during transit.

[0054] The trigger notification 420, shown as an X in FIG. 4B, may in embodiments be a different visible notification. For example, in embodiments, the trigger notification 420 may comprise the text "S" for spoiled. Or, for instance, the trigger notification 420 may be a square, circle, dashed line, or other shape or pattern that is visibly manifested when the trigger condition is met. As noted, the trigger notification 420 may, in embodiments, be machine readable. For example, in embodiments, a computing system having an imager may be configured to decode the trigger notification 420 to determine whether the shrimp in the various shrimp containers is spoiled. In these embodiments, a human may optionally verify the results using the naked eye. For instance, all shrimp containers flagged by the computing system as potentially containing spoiled shrimp may be routed to an inspection area, and personnel may visually inspect these containers to ensure that the trigger notification 420 has not been identified by the computing system in error. Such may allow for the verification of spoilage of goods with greater accuracy without having to inspect the goods themselves. FIG. 18 illustrates a label having a plurality of graphically encoded icons with machine readable and human readable information, including indicating that the temperature is within an acceptable range for the application. Thus, a user can easily verify that the temperature is acceptable, and this may be further confirmed by the machine-readable indicia.

[0055] While the label 400 containing the graphically encoded icon 410 is illustrated above for a particular application (i.e., for shrimp containers), the artisan will understand from the present disclosure that labels having graphically encoded icons disclosed herein may be used in other applications where it is desirable to determine whether a trigger condition is met. For example, in an embodiment, a label having a graphically encoded icon of the type shown in FIGs. 3A-3B may be configured such that the intrinsic attribute portion 314 displays a trigger notification when the temperature equals or exceeds a particular temperature $T_{\text{trigger(max)}}$. For instance, in an example application, the $T_{\text{trigger(max)}}$ may be 32 degrees Fahrenheit (or another temperature), and this label may be placed on paint containers. If the intrinsic attribute portion displays a trigger notification, such may indicate that the paint in the container has undergone at least one freezing cycle and is likely unfit for use. The label may therefore facilitate the discarding of unusable paint without having to open the container in which the paint is housed.

[0056] The graphically encoded icons 310 having an irreversible stimuli-responsive polymer may serve, in effect, as single use or permanent memory. The graphically encoded icons 310 having a semi-irreversible stimuli-responsive polymer may serve, in effect, as semi-permanent memory during normal operating conditions. These graphically encoded icons 310 may be used, e.g., in applications where the relevant question is whether the trigger condition was met at some point in time; the current state of the environment, conversely, is unimportant. For example, if the label 400 is placed on a shrimp container that has at one time (e.g., a day before, an hour before, etc.) been placed in an environment in which the temperature exceeds $T_{\text{trigger(max)}}$, it may not matter than the shrimp container is currently in a suitable environment. In other embodiments, the graphically encoded icon 310 may have a reversible stimuli-responsive polymer, and may serve, in effect, as volatile

memory. In these applications, the focus may be on the current state of the environment and it may be unimportant to determine whether the trigger condition was previously met.

[0057] For example, in embodiments, the intrinsic attribute portion 314 of the graphically encoded icon 310 may comprise a reversible stimuli-responsive polymer, and this graphically encoded icon 310 may be placed, via a label or otherwise, on bottles of water or other such non-perishable drinks in a restaurant. The stimuli-responsive polymer may be configured to exhibit a visible change when the temperature of the environment goes above 50 degrees Fahrenheit (i.e., in this example, the trigger is a maximum temperature and the value of $T_{\text{trigger(max)}}$ is 50 degrees Fahrenheit (or a different temperature). For instance, the stimuli-responsive polymer may appear to be transparent until the temperature reaches $T_{\text{trigger(max)}}$, at which point its hue may change to red (or another color). When the bottle of water is to be served to a customer, the server at the restaurant may visibly inspect the graphically encoded icon 310, and where the intrinsic attribute portion 314 thereof is transparent, the server may easily observe that the water is appropriately cold and may be served to the customer. Alternately, if the intrinsic attribute portion 314 appears red, the server may determine that the bottled water is not suitably cold and should not be served to the customer. The server may therefore place the bottle of water in a refrigerator or ice bucket and serve it to a customer when the reversible stimuli-responsive polymer in the intrinsic attribute portion 314 appears transparent. If the intrinsic attribute portion 314 of the graphically encoded icon turns transparent and subsequently turns red again, the server may place the bottle in the refrigerator once again. And so on.

[0058] Such graphically encoded icons 310 may likewise be used on bottles of water (or other drinks) being served in a vending machine. The vending machine may contain a computing system having an imager or other scanner, and the computing system may vend a bottle of water only if the graphically encoded icon 310 associated therewith

appears transparent. Conversely, if the graphically encoded icon 310 associated with a bottle of water in the vending machine is red, the vending machine may vend a different bottle of water to a user; alternately, the vending machine may apprise the user that cold bottled water is currently unavailable for purchase.

[0059] In embodiments, the intrinsic attribute portion 314 of the graphically encoded icon 310 may comprise a reversible stimuli-responsive polymer configured to change its state when the temperature goes below a certain temperature $T_{\text{trigger}(\text{min})}$. Such a graphically encoded icon 310 may, for example, be associated with coffee, tea, or other drinks to ensure that these drinks, when served, are appropriately hot.

[0060] In some example embodiments discussed above, the graphically encoded icon 310, and particularly the intrinsic attribute portion 314 thereof, may employ Boolean logic. That is, the intrinsic attribute portion 314 may have a binary value. For example, if the intrinsic attribute portion 314 contains an irreversible stimuli-responsive polymer that is configured to change its state when a trigger condition is met, the intrinsic attribute portion 314 will either: (a) appear in one (e.g., a changed) state if the trigger condition is met; or (b) appear in another (e.g., an original) state if the trigger condition is unmet. Similarly, if the intrinsic attribute portion 314 contains a reversible stimuli-responsive polymer, the intrinsic attribute portion 314 will either: (a) appear in one (e.g., a changed) state if the trigger condition is currently being met; or (b) appear in another (e.g., an original) state if the trigger condition is currently unmet. In some embodiments of the present disclosure, and as discussed in more detail herein, the intrinsic attribute portion 314 may employ many-valued logic (as opposed to Boolean logic). For example, in embodiments, the intrinsic attribute portion 314 may comprise a fuzzy field that may be in one state at one time, a second state at another time, a third state at yet another time, and so on. In other embodiments still, the intrinsic attribute portion 314 may comprise each of a binary field and a fuzzy field.

[0061] FIG. 5 shows a top side of a label 500, which is another example of the label 300. The label 500 includes a graphically encoded icon 510 comprising static portions 512A and 512B. The static portions 512A and 512A each include static machine-readable indicia. The illustrated graphically encoded icon 510 includes an intrinsic attribute portion 514, which may be situated between the static portions 512A and 512B or elsewhere. In embodiments, the graphically encoded icon 510 may include a solitary static portion 512 and a solitary intrinsic attribute portion 514. In other embodiments, the graphically encoded icon 510 may include a plurality of intrinsic attribute portions 514 and a solitary static portion 512.

[0062] The illustrated intrinsic attribute portion 514 may be a fuzzy field. The illustrated fuzzy field 514 has ten possible levels 516(1) to 516(10), although any number of levels may likewise be employed. The fuzzy field levels may but need not be visibly demarcated. As discussed herein, the fuzzy field 514 may, in embodiments, be configured to be “filled in” by a substance. That is, in some embodiments, the intrinsic attribute portion 514 may be configured to directly delineate a quantity of a substance in a container to which the label 500 is adhered. The substance may be a solid (e.g., candies, powdered salt, etc.), liquid (e.g., oil, coffee drinks, water, etc.), or gas (e.g., chlorine, nitrogen dioxide, etc.) that is visible to the naked eye. The fuzzy field 514 may (but need not) be transparent or generally transparent so as to allow the level of a substance to be ascertained as discussed herein.

[0063] FIGs. 6A-6C show one example application of the label 500. Assume, for example, that an entity (e.g., a commercial establishment such as a restaurant, a household, etc.) carries in a refrigerator or elsewhere a container 600 of salad dressing. Assume further that the entity wishes for additional salad dressing to be ordered when the level of salad dressing in the container 600 falls below a certain level (e.g., falls below the midway point). FIG. 6A shows the container of salad dressing 600 with the label 500 adhered thereto. The container 600 shown in FIG. 6A has no salad dressing therein. FIG. 6B, conversely, shows

the container 600 when it is generally full of salad dressing. And FIG. 6C shows the container 600 that is only partially full.

[0064] The refrigerator (or the cupboard, kitchen, or other location) in which the container 600 is housed may contain or have associated therewith a computing system having an imager. The imager may be configured to capture an image of the container 600 periodically (e.g., once a day, once a week, etc.). The computing system may decode the graphically encoded icon 510 of the label 500, and particularly the fuzzy field 514 thereof, to determine whether additional salad dressing is to be ordered. For example, when the imager captures an image of the container 600 in FIG. 6C, the computing system may determine that the level of salad dressing in the container 600 has fallen below a midway point. The computing system may be in communication with a network and use same to order an additional salad dressing container (e.g., the computing system may be in communication with the world wide web and use same to automatically order another salad dressing from a grocery store). Or, for instance, the computing system may alert the user that a new salad dressing container is needed and/or add a salad dressing container to a grocery list communicated to the user. Alternately, when the imager captures an image of the container 600 in FIG. 6B, the computing system may determine that ordering of an additional salad dressing container is not yet required. In this way, the label 500, and specifically the fuzzy field 514 thereof configured to be filled in by a substance (salad dressing in this example), may ensure that the entity maintains the required supply of salad dressing. The artisan will appreciate that containers of salad dressing are but one example, and that the fuzzy field 514 may likewise be used to track the quantity of other substances (e.g., milk in a refrigerator, oil in an oil tank, salt in a salt shaker, ketchup in a bottle, lotion in a tube, lint in a dryer, toner in a printer, etc.).

[0065] From time to time, the fuzzy field output may be between two discrete levels, e.g., may be between level 516(5) and 516(6). In embodiments, the computing system may be configured to round the output up or down by ascertaining whether the output is closer to level 516(5) or level 516(6). In other embodiments, an output between two levels may always be rounded up or be rounded down.

[0066] The fuzzy field 514 of the label 500 illustrated in FIG. 5 is one dimensional. In other embodiments, the fuzzy field may be two dimensional, three dimensional, etc. FIG. 7 shows a label 700 that is an example of the label 300. The label 700 has an intrinsic attribute area that contains a fuzzy field 714 arranged as a two-dimensional matrix. The illustrated two-dimensional matrix has ten rows and four columns 716A-716D.

[0067] In embodiments, each column 716A-716D may be adapted to convey the same information and thus provide a mechanism to verify the reading of one of the columns 716A-716D. For example, the label 700 may be placed on the salad dressing container of FIGs. 6A-6C and the computing system may order a new salad dressing container if at least three of the four columns 716A-716D indicate that the salad dressing in the container has fallen below the midway point (or another level). Assume, for instance, that the salad dressing container is generally empty but that a portion of salad dressing is stuck to the container walls, e.g., at level 8 of column 716A. If the fuzzy field 514 were one dimensional and contained only column 716A, the computing system may have erroneously determined that the salad dressing in the container is at level 8, and consequently, no salad dressing would have been ordered. The plurality of fuzzy field columns 716A-716D may ensure that an accurate assessment of the quantity of salad dressing in the container is obtained notwithstanding the faulty reading of column 716A.

[0068] In embodiments, the computing system may be configured to average the readings from the multiple columns 716A-716D, and the decision based thereon (e.g., the

decision to order a new salad dressing container) may be based on this average. In other embodiments, integration and time stabilizing techniques may be used to normalize the fuzzy field outputs.

[0069] In embodiments, at least two of the columns 716A-716D may be configured to convey different information. For example, column 716A may be configured to convey an amount of a substance and another column 716D may be configured to convey whether a trigger condition is met (e.g., whether the temperature is below a certain temperature $T_{\text{trigger(min)}}$). The multiple columns 716A-716D may be provided with different colors that are printed using the same or different printing techniques.

[0070] FIG. 8A shows a label 800 that is an alternate embodiment of the label 300. The label 800 is substantially similar to the embodiment 200, except as specifically noted and/or shown, or as would be inherent. Further, those skilled in the art will appreciate that the embodiment 300 (and thus the embodiment 800) may be modified in various ways, such as through incorporating all or part of any of the various described embodiments, for example. For uniformity and brevity, corresponding reference numbers may be used to indicate corresponding parts, though with any noted deviations.

[0071] The example label 800 is shown as having a plurality of sections 802A-802L. Each section 802A-802L may be configured to convey distinct information. For example, in the illustrated example, section 802A conveys that a substance is extremely poisonous, section 802B conveys that a substance is relatively explosive, section 802C conveys that a substance is fairly poisonous, and so on. The trigger for each section 802A-802L may (but need not) be the same. In this embodiment, the trigger event may be one that is configured to be applied manually (i.e., the trigger event may be unlikely or impossible to occur on its own). For example, the trigger may be a temperature of 150 degrees Fahrenheit or another such trigger. Each section 802A-802J may initially be transparent, but may

become visible when the trigger is applied thereto. For example, FIG. 8B shows the label 800 in which sections 802A and 802I are manually triggered whereas the remaining sections appear invisible to the naked eye.

[0072] The manually triggerable sections 802A-802I may allow a user to use the label 800 to convey different information at different times. For example, the label 800 may be placed on a truck that typically carries hazardous materials. If the material currently being carried by the truck is highly poisonous and relatively flammable, only sections 802A and 802I may be triggered and the remaining sections may appear blank to the naked eye. Similarly, if a different material is being transported, the appropriate sections may be triggered and the remaining sections may remain deactivated. The warning indicia in each section 802A-802I may be maintained in its changed state using electronics or other means. In order to maintain standards throughout the industry, the Department of Transportation has indicia (or labels) that are acceptable for each potential attribute of a hazardous material. Accordingly, the warning indicia revealed (or activated) for the material may be an approved Department of Transportation indicium (or label) for the particular attribute of the hazardous material in order to avoid confusion.

[0073] In embodiments, it may not be necessary for the label to carry machine readable indicia. Rather, the label may be singularly configured to provide meaningful information about an attribute of an object associated with the label to the naked eye. Figure 10 shows a label 1000 according to an embodiment of the invention. The label 1000 is substantially similar to label 300 except as is shown and described. The label 1000 includes a graphically encoded icon 1010 having a one or more portions 1015a, 1015b, 1015c (generally 1015), and each portion may include stimuli-responsive particles which may be embedded, for example, in a laminate or other transparent material. In one embodiment, each of the portions 1015 may have a plurality of static programmable electrochromic ("SPEC") non-

volatile particles (hereinafter referred to as “SPECink”) distributed within the portion 1015 configured to change a particular color upon a triggering event. In another embodiment, each portion 1015 has a SPECink distributed therein, wherein each portion is configured to change to a different color upon a triggering event.

[0074] In figure 10, the label 1000 is configured for use on a container for holding leftover food (although the label 1000 may be used on other containers as well, and the container may hold items other than food). Here, the graphically encoded icon 1010 is divided into three portions 1015a, 1015b, and 1015c. Each of the portions 1015a, 1015b, and 1015c is coated (or partially coated, e.g., in a pattern) in stimuli-responsive SPECink particles 1100 (FIG. 11) that changes a color based on a triggering event. Each of the portions 1015a, 1015b, and 1015c selectively change to a different color based on the triggering event. For example, portion 1015a may be selectively green. Portion 1015b may be selectively yellow. And portion 1015c may be selectively red. Optionally, a central portion 1020 is configured as a display (or user interface) for providing information to a user.

[0075] The SPEC particles 1100 may form a non-volatile, semi-permanent SPECink that responds to a stimulus (e.g., electrical, magnetic, etc.) causing the particles to switch between a first colored-state and a second colored-state (e.g., a white-state). The SPECink is considered semi-permanent because, once the SPEC particles have switched, e.g., from the colored-2 state to the colored-1 state (or vice versa), the SPEC particles remain in that state until a stimulus (e.g., electrical) causes the SPEC particles to switch to the other state (e.g., from the colored-1 state to the colored-2 state). The SPEC particles 1100 may be laminated between layers of film to form the top of the label 1000. The composite layers contained within label 1000 may allow for scanning modes of operation based on reflective, transmissive, or emitted wavelengths of energy (e.g. reflected light, transmitted filtered light, emissivity of IR thermal energy wavelengths, black-light, electroluminescence, UV, etc.)

[0076] In an embodiment, the triggering event is dependent on a predetermined period of time, e.g., the time that the food in the container remains edible. A user may place the label 1000 on the container having the food therein. Pressure sensors disposed within the label 1000 may allow the user to interact with the user interface 1020 to toggle between numbers of days that the particular food may remain in the container (e.g., 2 days, 3 days, 4 days, 5 days, 10 days, 30 days, etc.). Once the user has selected the predetermined number of days that the food may remain in the container, the portion 1015a may turn green, and the container may be placed in the refrigerator or cupboard, as the case may be. A timer 1130 (FIG. 11) disposed within the label 1000 may keep track of the elapsed number of days, and upon reaching the half-life (e.g., 5 days for a label set for 10 days), the portion 1015a may switch from the green-state to a white state (or a second colored state), and the portion 1015b may switch from a white-state (or a second colored state) to a yellow-state. This readily alerts the user that the food in the container is nearing the end of its edible life. The timer 1130 continues to monitor the elapsed number of days, and upon reaching the predetermined number of days, the portion 1015b may switch from the yellow state to the white state, and the portion 1015c may switch from the white state (or a second colored state) to a red-state. The user may then readily see that the food in the container is deemed no-longer safe to eat, and the food may be disposed accordingly. The label 1000 may be reusable by simply toggling through the options to reach a "0" day, which may reset the label 1000 for later use.

[0077] Optionally, the label 1000 may include a communications module 1125. The communications module 1125 may be configured to communicate (e.g., via RFID, Bluetooth, near-field communication, or other data exchange function now known or later developed) with the user's phone, or with the refrigerator (e.g., where the refrigerator is configured with a display). For example, at the half-life of the food in the container, the

portions 1015a and 1015b may change as described above, and an alert may additionally be sent to the user's phone to alert the user that the food item is nearing expiration.

[0078] In some embodiments, the label 1000 may include one or more sensors 1135 configured to determine the identity of the food in the container (or an attribute about the food in the container). Upon determining the food in the container, the sensors 1135 may transmit the information (e.g., via the communications module) to a processor 1140, which may access a database 1145 having information regarding spoilage information for a variety of food items. Upon locating the correct food item, the processor may cause the user interface 1020 to display information about the food item (e.g., the number of recommended days for that food item to be stored before spoilage), and the timer 1130 may be automatically set accordingly. In embodiments, the user may be required to confirm the display information by, for example, touching the label 1000 (e.g., one tap indicates confirmation, two taps causes the display to begin to toggle through the number of days).

[0079] Additional, or alternate, sensors may be incorporated into the label 1000. For example, temperature sensors, bacteria sensors, humidity sensors, motion detectors, IR sensors, or any other sensor relevant to the environment of the label, whether now known or later developed, may be included as part of the label. The sensors may be configured to determine various attributes about the environment of the label. For example, in embodiments where the label is incorporated into food containers, a bacteria sensor may tell if harmful bacteria is present, or likely to be present (e.g., due to humidity conditions as measured by a humidity sensor). In other embodiments, such as where the label 1000 is placed, for example, on a wall in a bathroom, a bacteria sensor incorporated into the label may detect the presence of bacteria in the restroom. In embodiments, the connection with the communications module 1125 as described above may permit the label 1000 to be configured to provide a dynamic controlled response to eliminate or reduce the bacteria. In such embodiments, an output

device, such as a UV-A, UV-B, and/or UV-C light (or other appropriate output device for a particular sensor), which may be configured as part of the label 1000, or a separate device in communication with the label 1000, may be activated. Activation of the UV-A, UV-B, and/or UV-C light (or other output device) may thus be triggered based on information received from a sensor. The UV-A, UV-B, and/or UV-C light (or other output device) may remain activated for a predetermined period of time (and thus may also be in communication with the timer). Additionally, or alternately, the UV-A, UV-B, and/or UV-C (or other output device) may be automatically activated after a particular time-lapse and may therefore not be reliant on information from a sensor. For example, in an embodiment where the label is placed in the UV-A, UV-B, and/or UV-C light may be activated at the half-life of a food item to ensure that the food remains healthy for a user to consume. In another embodiment, where the label is placed, for example, on a wall in the bathroom, the UV-A, UV-B, and/or UV-C light, in connection with the timer, may be programmed to activate for, e.g., 5 minutes every hour, 30 minutes between 12:00 a.m. and 1:00 a.m., etc. To prevent harmful ultraviolet rays from reaching humans, a motion detector in communication with the label 1000 may confirm that there are no humans in the room before the UV-A, UV-B, and/or UV-C lights are activated.

[0080] Because the power required to cause the particles to switch states is low, a lithium battery 1120 (or other type of battery such as an ultra-capacitor, supercapacitor, or batteries having energy-harvesting capabilities, for example) may be sufficient to cause the electrical stimulus needed to activate the particles. The battery 1120, communication module 1125, timer 1130, other sensors 1135, processor 1140, and database 1145 may be (but need not be) embedded in a flexible circuit board 1110 which may be disposed at a backside of the label 1000, as shown in figure 11. In embodiments, the one or more sensors may be configured as an adhesive layer 1115. Here, the adhesive may be configured to act as a

pressure sensor to allow the user to set the timer as described herein. In an embodiment, the adhesive 1115 may further act as a heater or defroster. The heater or defroster may be configured to defrost a portion of the container to allow the user to see inside of the container. Exemplary adhesives are described in U.S. Patent Application Nos. 15/365,923 and 15/678,392, for example.

[0081] While the label 1000 is described as being adhered to a container for storing food, it shall be understood that the label 1000 may be configured for other purposes, including placement on freight packaging, shelf displays, etc. The label 1000 may, but need not include computer-readable information as described herein. As will be understood by those of skill in the art, the user interface (via the processor) may be configured to provide information relevant to the environment in which the label 1000 is deployed, and is not limited by the description provided herein.

[0082] It shall be further understood that the SPEC particles may be incorporated for use in many additional applications. It shall be clear from the above discussion that the SPEC particles have color changing attributes. The particles may be programmable, reprogrammable, transmissive, reflective, visible within the human visible range, and/or emissive within the infrared and/or ultraviolet spectrums. In embodiments, the particles may be virtually invisible to human viewers in one mode (e.g., an “off” mode) and in another mode (e.g., an “activated” mode) the particles may become visible. In further embodiment, the particles may be incorporated into liquid crystal displays (LCD), light emitting diode (LED) displays, electroluminescent (EL) displays, and/or organic light emitting diode (OLED) displays.

[0083] Among other reasons, the SPEC particles having color changing attributes may make the particles particularly useful in human-engaging applications where real-time information and/or safety is key. The SPEC particles may be deposited on virtually any

surface. In embodiments, the SPEC particles may be laminated between layers of transparent substrate or film. The resultant substrate having the SPEC particles may be incorporated as, for example, a book cover, a page in a book, or may be inserted into a pocket formed into a folder or book. The SPEC particles may be uniformly deposited, deposited in a pattern, etc. In one embodiment, a plurality of SPEC particles having identical color-changing attributes may be deposited onto or within the substrate (e.g., all particles are a first color in a first mode (a “resting” mode) and a second color in a second mode (an “activated” mode)). In another embodiment, a plurality of a first type of SPEC particles having a first color changing attribute, and a plurality of a second type of SPEC particles having a second color changing attribute, may be deposited onto or within the substrate. The first and second types of particles may be deposited in a particular pattern. Additional types of SPEC particles may optionally be included. As described herein, power to the particles may be provided via a flexible circuit board which may be provided behind the particles, or embedded between layers of particles. The flexible circuit board may have a variety of components (e.g., batteries, memory, processors, communication modules, etc.) as is known in the art. The communication modules may allow the particles to react in response to a remote signal. Consider for example, an embodiment where a plurality of particles is deposited on a substrate that is incorporated into a folder or binder for students in a school. A first portion of the particles may be selectively activated by the student to display the student’s favorite color. The substrate (e.g., via the communications module) may be in communication with an alert system at the school. In an emergency situation, the alert system may be activated, and the communications modules of each of the substrates may receive an alert. The alert may cause the first portion of the particles to selectively transition to the “resting” mode (e.g., a color-2 mode, or a white mode). A second portion of the particles (e.g., being selectively red in an activated state) may then be activated to alert the students to the emergency situation. In

embodiments, the particles, in communication with the alert system, may be programmed to provide an instruction message to the students (e.g., “Take cover in closet”, “Remain in place”, etc.). Optionally, the second portion of the particles may “flash” between the activated state and the resting state to provide the student with a visual, eye catching alert. Thus, emergency situations may be easily, quickly, and quietly communicated to students throughout a school.

[0084] Of course, the substrate may be incorporated into various devices within a home, workplace, public destination, outdoor environment, etc. Several further examples are provided below, which are intended to be exemplary in nature only and not intended to be limiting.

[0085] In one embodiment, the SPEC particles are incorporated into a paint, SPECink, or adhesive that may be used to provide color changing attributes to, for example, beverage or food containers. For example, consider a traditional Diet-Coke® can. The red ink on the can may be replaced by SPECink comprising the SPEC particles. In a “rest” state, the particles may appear as a red ink, similar to what is shown on a traditional can. Upon activation, however, the particles may “flash” between a colored-1 state (e.g., red) and a colored-2 state (e.g., white, or another color). Such flashing may cause attention to be drawn towards the can, providing increased branding recognition. In embodiments, sensors may optionally be distributed at or near the can (or within the ink itself) to measure, for example, the amount of liquid in the can. When the can is full, the particles may show the ink in a “rest” state. As the contents in the can are depleted, the particles may begin to flash, for example, slowly at first, and more quickly as the can approaches emptiness. Thus, in a retail environment, it may be possible for a waiter to quickly and easily tell whether a customer is in need of another drink (e.g., similar to the fuzzy field graphically encoded icons described above) while the user sees an aesthetically pleasing and intriguing can exterior.

[0086] Similarly, the particles may be distributed, for example, on the outside surface of a flower pot (e.g., as a paint). Moisture sensors may also be distributed at or near the flower pot. As the water evaporates leaving the plant dry (as measured by the sensors), the particles may begin to flash between a colored-1 state and a colored-2 state. In embodiments, the sensors may be distributed along a vertical line in or on the pot. As the water evaporates, the sensors may cause the particles to switch from a colored-1 state to a colored-2 state. The sensors may be pre-programmed to cause the particles to switch at a predetermined moisture content (e.g., at or below 10% moisture). Therefore, a viewer may be able to readily tell the moisture content of the soil in the pot, and may thus provide water. In certain embodiments, a plurality of particles having different colored-1 and colored-2 states may be deposited on the pot (e.g., different shades of green). When the moisture content is at 100%, a first particle may be activated to show the pot as, for example, Kelly green. As the moisture content decreases, the first type of particles may be deactivated (e.g., flip to a colored-2 state, such as white or black) and a second-type of particle may be activated, thereby changing the apparent color of the pot.

[0087] In another embodiment, the SPEC particles may be utilized as a paint, SPECink, distributed within a film, or laminated within a substrate for use on displays such as road signs or traffic cones. Of course, other displays (e.g., store displays) may additionally utilize such particles to draw attention to a particular product, sale, etc. Here, portions of a display, such as a road sign, may have particles distributed in a pattern known to drivers. For example, consider object markers used on the road today (road signs having a yellow background with black diagonal stripes). Here, particles may be programmed such that in a first state, the particles distributed in the traditionally yellow section are viewable to the user as “yellow” and the particles distributed in the traditionally black section are viewable to the user as “black.” When the particles are activated (e.g., via a temporal sensors, light sensors,

etc.), the particles in the traditionally yellow section may flash to black, and the particles in the traditionally yellow section may flash to yellow. The flashing may occur in succession for a predetermined period of time. Similarly, a stop sign may be configured to flash between white and red. In embodiments, it may be particularly useful if the particles have a reflective attributes. Thus, attention is drawn to traffic signals such that drivers may be made increasingly aware of the hazard or instruction.

[0088] In still another embodiment, the particles may be utilized as a paint, ink, distributed within a film, or laminated within a substrate for use with tiles (e.g., floor tiles, tiles for a counter top, etc.). This may be particularly useful in retail environments (e.g., grocery stores) where hazards may occur that are not readily identifiable by shoppers. For example, a substrate having the particles dispersed therein may be a layer of a tile. The tile may include one or more of a variety of sensors (e.g., moisture, bacteria, temperature, etc.). In an embodiment, the tile is configured for use on a floor. Moisture sensors disposed on or within the substrate may detect when a spill is affecting a particular tile. If the sensor detects that there is moisture on the tile, the particles in the substrate may change from a colored-1 state to a colored-2 state to alert customers that the tile is not safe and that an alternate route should be taken. In another embodiment, the tile is configured for use on a countertop. Here, bacteria sensors disposed on or within the substrate may detect the presence of harmful bacteria. If the sensor detects that there is harmful bacteria, the particles in the substrate may change from a colored-1 state to a colored-2 state to alert the user that the tile is not safe and that the tile should be thoroughly cleaned. Optionally, when the bacteria sensor identifies the presence of harmful bacteria, a bacteria-killing light (e.g., UV-A, UV-B, and/or UV-C, which may be a part of the substrate or remotely positioned such that the light contacts the substrate, for example, under the upper cabinets) may be activated to remedy the situation.

[0089] The floor tiles may include sections of sidewalks at intersections (e.g., the corner sections). The particles may be distributed to provide information to a user such as to flash red if it is not safe to cross the road, or to provide direction indicators (e.g., arrows). In some embodiments, the sidewalks may include additional programmable smart material particles, such as particles configured to heat up (e.g., so as to melt snow at busy cross-sections).

[0090] It shall thus be understood that the particles may be utilized in a variety of different applications, and further non-limiting applications include use with fishing lures, as an additive to nail polish, on shoes, purses, sunglasses, sportswear, military gear, and other fashion forward items, in building materials such as wall-paint, on baseboards, on doors, shingles, etc. The particles may additionally be utilized to program machine readable indicia on the graphically encoded icons described herein.

[0091] For example, consider again FIGs. 3A, 4A, 4B, 5, 6A-C, 7, as well as FIGs. 12 and 13. FIGs. 12 and 13 represent exemplary configurations of graphically encoded icons 600 having a non-rectangular shape. Within the graphically encoded icons 600 are machine readable sections 610 having areas of programmability. Here, the dark-colored dots are arranged in a pattern so as to provide information about an object to which the graphically encoded icon 600 is attached. The dots may be areas of SPEC particles that are “activated” (i.e., turned to a color state), and the white areas likewise correspond to areas of SPEC particles that are “deactivated” (i.e., turned to a white state). The black dots can be “deactivated” and one or more portions of the white area can be “activated” from time to time in order to convey updated information about the object. For example, on a shipping pallet the information may be updated to provide each location where the pallet was loaded or unloaded onto a carrier, the length of time spent at each location, the parties involved in the

transaction, etc. Accordingly, the graphically encoded icons can dynamically provide information to a user.

[0092] Thus it is clear that graphically encoded icons can be encoded in several modes, including passive, proactive, and dynamic. The graphically encoded icons allow for readings of attributes about an object (e.g., container, surface, or system) which can be presented as geometrically predictable and decodable icons, images, or patterns in order to express qualitative and/or quantitative data. The SPEC particles may be configured to form lattice or lattice-work structures that can be formed into the geometric shapes forming the graphically encoded icons. In embodiments, the lattice-work can be programmed to form a structural array of elements (or node particles) that can be formed in one-, two-, or three-dimensional groupings.

[0093] While prior art systems provide means by which information can be presented to, and encoded by, humans and machine, such information is limited to numerical strings. However, in certain applications, it may be important for the information to convey not a number, but an actual attribute of the product or item that one is attempting to encode for scanning purposes by an observer. For example, and similar to the dressing container described above, a salt shaker (FIG. 14) on the table may contain a label that has a vertical gradient pattern that resembles industry standard bar code patterns. There may be a desire to scan intrinsic attributes related to the contents of the salt shaker container. The fields of information (e.g., the area in which the black dots occur) may be structured and encoded in such a manner that the level and contents of the salt shaker can be qualitatively examined by a scanning and decoding system without digitally acquiring the content level of the container. In this example, the white salt may contrast against a darker printing of a graphically encoded icon “frame” that is strategically placed onto the container. The mixed-mode of quantified data fields, along with qualified fuzzy fields (or analog data – the area in which one can see

through the container and into the contents of the container) may be advantageous when the goal is to read naturally occurring physical attributes. The patterns and placement of the graphically encoded icon frame may increase the probability of decoding a reliable reading of the fuzzy fields.

[0094] In embodiments, a scanning voting system such as a simple 3-of-5 reading and scoring system may be employed to improve reliability of the scanned data. If the fuzzy fields yield varying results over time via multiple scans, in embodiments, a computing system may average and/or accept the more prevalent result of the fields that are scanned. These techniques may assist in reliability for qualitative fuzzy fields and increase reliability of scanned quantitative fields. A quantitative field may be one that is fixed (e.g., is in one of two states). In embodiments, reliability may be enhanced by a mathematical cross-checking system such as checksums, CRC, etc.

[0095] Qualitative fields may be enhanced in reliability by comparing sets of analog data in adjoining contiguous fuzzy fields such as a gray-scale reading of the salt shaker in a vertical range of the graphically encoded icon overall frame. The relative readings of analog grayscale (and/or, in embodiments, colors in RGB) may assist in finding the specific granularity of reading the content layer of salt. This may allow anomalies such as dirt or other data-noise to prevent false readings. In embodiments, it may be desirable to exclude the fuzzy fields from the mathematical calculations that are used to validate the quantitative fields.

[0096] Multiple versions of the encoded data set may be made available to the observer during scanning and decoding. One version of information (e.g., passive) may be a strictly digital and quantitative perspective that excludes the fuzzy bits entirely. Another version (e.g., proactive) may include all bits and fields but the fuzzy bits are triggered by a 50% (or other level) decision of logic for their data result for each fuzzy field. A more

advanced mode (e.g., dynamic) may incorporate one or more of the techniques above such as multiple scan, voting, and CRC error detection and correction. In an embodiment, the computing system in a RAW mode stores an image of the overall icon for further processing; this data may be sent to the cloud for processing and system level analysis.

[0097] A passive mode graphically encoded icon may be as simple as a line that has markings at measurable points along a line. The quantified data represented by the graphically encoded may be a wider marking at a certain location along the line as compared to the other unit markings along the line. FIGs. 15 and 16 below provide examples of a one dimensional and a two dimensional graphically encoded icon, respectively. In FIG. 15, the graphically encoded icon can be read as number 8. In FIG. 16, the graphically encoded icon can be read as a series of numbers 3, 5, 8, 11.

[0098] In embodiments, multiple dimensions may exist with different colors or varied printing techniques that reflect based on excitation wavelengths of light or energy waveforms (such as radio frequencies (RF)). Focal lengths may be used to increase the perceivable and recognizable dimensions of graphically encoded icon recognition.

[0099] Quantitative data encoding may yield specific information in the form of numerical values that can be mathematically validated. This may be in the form of checksums, CRC algorithms, or other techniques such as redundant bit stuffing relying on statistical probability to yield a resulting probable error percentage in GEI data decoding. These techniques are generally used for error detection or data field validation. However, one of the major benefits beyond Error Detection when encoding quantitative (or digital) data may be the potential ability to provide Error Correction to fields of data (rows, columns, shapes, lines, dashes, etc.) where a questionable reading has occurred.

[00100] In embodiments, qualitative or fuzzy logic data may be encoded intentionally or naturally based on material properties. An example of qualitative data (or

fuzzy bits) may be an observer examining the scratched part of the CD and reporting the "best guess" of whether the scratched portion should be replaced by a one or a zero. Another example would be a sequence of encoded numbers for 1, 2, 3, 4, and 5, but the observer reads 1, 2, 3, ?, 5. If the observer takes several readings and the questionable data field is close to "4" then four is likely the correct answer. This would be a case of a qualitative review for consideration as a resolution to the fuzzy field of data.

[00101] As described above, smart materials such as SPECink, may be utilized to exist on or within a substance (or structure) in such a way that can create a grid or pattern of graphically encoded icon fields. Each area of SPECink may be switchable to be dark or light based on a desired state of information for a graphically encoded icon field. In an embodiment, a graphically encoded icon field or group of fields may change color based on vibration, exposure to bacteria, moisture, aging, etc. These fields may generally be envisioned as fuzzy fields. However, in some cases the natural function and reliability of programmable matter may be deterministic and viewed as pseudo-digital (i.e., it can be reliably read as "on" or "off" with minimal unknown status). In these cases, the encoding system may treat such fields as qualitative but highly reliable. Or, in advanced systems, the error detection and correction calculations may have an active mode that changes a checksum field state based on intrinsic field fuzzy readings or trigger levels. In embodiments, integration and time stabilizing techniques may be used to normalize the fuzzy field trigger decisions.

[00102] One of the limitations of data acquisition and collection is the limited number of access points throughout the universe and on planet Earth today. Current methods strive to apply blanket coverage of ubiquitous access points of data collection opportunity to allow an overlapping mesh grid for SCADA and IoT communication globally. However, it is important to note that graphically encoded icons (or encoded patterns) can be utilized in

nearly any environment to provide information to a user. In embodiments, roadways may have surface patterns that include or resemble a QR code that contains some fixed quantitative graphically encoded icon fields, while other fields may comprise programmable particles within the asphalt or concrete itself.

[00103] One goal of graphically encoded icon usage in the mass deployment and intrinsic mode is to allow many mobile collection nodes (e.g., cameras, phones, cars safety systems, roadway traffic scanners, energy management systems, self-driving highway systems, etc.) to scan at will through opportunistic free-will. This concept may be encoded beyond just the structure of the graphically encoded icon field shapes and purposes. In an embodiment, one goal is to setup fields on the graphically encoded icon patterns in such a way as to attract an observer to scan many graphically encoded icon images into a device that is at a known physical location, at a known time, from a known entity (e.g., machine, person, system, etc.). The scan may encode an end-node identifier for itself and a routing target destination (i.e. www.ioTwebpaae.com) but append with supplemental fields of information such as sensor readings, trending data alerts, and requests to the higher-level system.

[00104] Data resulting from the user's scan may include post critical and intrinsically available data along with location, time, and locally important data/alerts. The user may then receive a resulting webpage including information about the area he is visiting or a coupon for the closest restaurant. The combination of multi-purpose media and network usage along with redundant network scanning reinforcement may provide hundreds of readings each day to the same end-nodes for data collection purposes. Additionally, there may be a back-channel such as localized Bluetooth or WiFi that provides a limited link for data to be returned to the end-node while the user is nearby in the scanning session. This may all occur in real-time as a user's car drives by a specific mile marker on the highway.

[00105] Mass scanning of end-nodes from multiple opportunistic network taps may enhance security and provide a more stable access path to millions of end nodes. Furthermore, the fuzzy intrinsic fields may be resolved more reliably with multiple devices and network access methods being utilized in real-time. The concept of “data analytics in the cloud” may be realized more easily with such a mass collection system as opposed to a massive web-mesh system. All of these techniques may be used interchangeably.

[00106] Security may be enhanced by providing fragments of data that have limited perspective and may be encrypted in a rolling system over time and contain different encryption keys, methods, and data stuffing techniques per end-node. By positioning hundreds of data fragments on varying networks and having obscure purpose for each node, the data itself can become very benign. Furthermore, the output for the user can evolve to be socially appealing and the data backchannels may become essentially seamless, and extremely low-cost to operate.

[00107] In embodiments, groupings and distribution of multiple graphically encoded icon patterns as an array or composite set may be useful to create patterns that are duplicating and replicated based on the scale (or zoom level) of the observer. Techniques such as fractal encoding may be used to create repeating patterns over scale zoom levels that can help with broad phase alignment, authentication, and decoding synchronization.

[00108] Patterns of graphically encoded icons may be planar or 3D geometrically shaped such as a sphere or buckyball polygon with three-dimensional distribution of fields (e.g., FIG. 17). Distribution of planar fields on a three-dimensional multi-planar surface such as a sphere (or geodesic dome) may create a concave or convex distribution of planar fields. The embedded and encoded geometric patterns may be used to enhance the planar integrity of the graphically encoded icon, or graphically encoded icons within the three-dimensional space. Mathematical techniques may be used to adjust and correct the perspective of planar

distortion and implied or inferred geometric patterning. Individual data fields may also contain geometric patterns or shapes within one-dimensional, two-dimensional, or three-dimensional perspective, and may not need to be a specific dot in space. Thus, a data field may actually be a subset of a fractal encoded environment.

[00109] Data field elements within the graphically encoded icon may be passive such as reflective or transmissive of a particular color or pattern. Each data field may also contain a geometric shape or pattern of motion or attribute that changes over time. An example of this could be a specific data field that is a resonant molecule or cluster of molecules that is vibrating or rotating at a specific vibration or resonant frequency pattern (including harmonics).

[00110] Graphically encoded icons can be utilized with systems within the macro-, micro-, and/or nano-scale. An example of a nanoscale implementation may include an outer definition of the graphically encoded icon geometry made up of carbon nanotubes that could contain a distribution or lattice of C-60 (i.e., Buckyballs) that could encode a specific pattern of data wherein the Buckyballs create the individual data fields and a three-dimensional perspective may be represented through the resonance or vibration of regionally positioned carbon molecules.

[00111] A macroscale implementation may have galactic applications. Imagine a distribution within a galaxy of pulsars where the pulsars are the encoded data field positions within the graphically encoded icon pattern. Each pulsar may be transmitting a series of information beacons by varying their magnetic rotation or position including color or radiation pattern. The combination of static fields such as star positions of particular color temperature may be used to identify orientation and position of the graphically encoded icon while the individual data fields may be encoded as a composite of the information intended to be decoded by the viewer. A simple example would be multiple pulsars that are transmitting

different bits of information such as the one's place is transmitted by Pulsar A, the two's place is transmitted by Pulsar B, and the four's place is transmitted by pulsar C. The synchronicity of the informational asynchronous composite of graphically encoded icon(s) may provide complex information transmission that can be sampled over time by the viewer.

[00112] A more micro perspective could be a segment of magnetic tape that contains a two-dimensional grid of magnetic particles such as ferric oxide that contain a gradient of electromagnetic poles similar to a magnetic strip or magnetic audio tape. But in a graphical application, there may be a fixed position of two-dimensional geometric patterns that can be scanned without requiring a sequential swiping of the tape itself. Each magnetic particle can become a graphically encoded icon data field, while the composite of the magnetic pattern can make up the graphically encoded icon geometric definition or shape.

[00113] It is thus evident that graphically encoded icons can be utilized in many different scenarios and for many different purposes in order to send and receive information securely and in a way that the information can be readily identified and updated as necessary. Graphically encoded icons may be utilized in one-dimensional, two-dimensional, or even three-dimensional form. Different embodiments of graphically encoded icons, such as icons 310, 410, 510, 500, and/or 1010 can be developed and utilized depending on the situation, and it should be understood that multiple versions of graphically encoded icons may be utilized in any given situation.

[00114] For example, FIGs. 19A-B illustrate a bandage 2000 having a graphically encoded icon 2010. The graphically encoded icon 2010 may be substantially similar to graphically encoded icon 310, 410, 510, and/or 1010, for example. The graphically encoded icon 2010 may include at least one static portion 2012 and at least one intrinsic portion 2014. The intrinsic portion 2014 may be configured to provide information about a person wearing the bandage, and in some embodiments, may be reconfigurable as described herein. For

example, one or more areas of the intrinsic portion 2014 may change states based on a trigger. For example, in embodiments, indicia in the intrinsic attribute portion 314 may initially appear invisible to the naked eye and to the scanner (e.g., a computing system having an imager), and may thereafter change states based on a trigger (e.g., an input, such as from a doctor) to convey meaningful information about an attribute associated with the person with which the graphically encoded icon 2010 is associated.

[00115] As with embodiment 300, the intrinsic attribute portion 2014 may include stimuli-responsive polymers and/or other such materials that exhibit a change in a characteristic thereof in response to a known stimulus. For example, and as discussed above regarding embodiment 1000, the bandage 2000, may include a communications module 2125. The communications module 2125 may be configured to communicate (e.g., via RFID, Bluetooth, near-field communication, or other data exchange function now known or later developed) with a computing device, such as a physician's computer or a user's phone. For example, the physician may complete imaging scans on a person wearing the bandage, and the intrinsic portion 2014 may be updated to include information about the most recent scan. When the graphically encoded icon 2010 is thereafter read (e.g., via an imaging device at a later doctor visit), the information about the patient can be readily scanned and ascertained by the doctor without having to pull the patient's files, thus saving time and effort. In embodiments, the response of the stimuli-responsive polymers in the intrinsic attribute portion 2014, once triggered by the triggering stimulus, may be permanent, semi-permanent, and/or reversible.

[00116] In some embodiments, the GEI 2012 may include one or more sensors 2135 configured to determine an attribute about an area underlying the bandage 2000. Upon determining the attribute (e.g., presence of bacteria), the sensors 2135 may transmit the information (e.g., via the communications module) to a processor 2140. The processor 2140

may store the information in a database 2145. In some embodiments, the bandage 2000 may include a networking device 2150 configured to communicate over a network with a third party, such as a treating physician. Thus, information may be easily transmitted between the person wearing the bandage 2000 and the physician without having to rely on the person to relay information to the physician themselves.

[00117] Additional, or alternate, sensors may be incorporated into the bandage 2000. For example, temperature sensors, bacteria sensors, humidity sensors, motion detectors, IR sensors, imaging sensors, or any other sensor relevant to the environment of the bandage 2000, whether now known or later developed, may be included. The sensors may be configured to determine various attributes about the environment of the bandage 2000.

[00118] In embodiments, the connection with the communications module 2125 as described above may permit the bandage 2000 to be configured to provide a dynamic controlled response to eliminate or reduce a scenario, either automatically or in conjunction with a treating physician. For example, where it is determined that certain harmful bacteria is present, an output device 2155, such as a UV light (or other appropriate output device for a particular sensor), which may be configured as part of the bandage 2000, or a separate device in communication with the bandage 2000, may be activated. Activation of the output device 2155 may thus be triggered based on information received from a sensor 2135. However, in some embodiments, the physician may be required to communicate with the bandage 2000 (e.g., remotely over a network via the networking device 2150) to activate the output device 2155.

[00119] A battery 2120 (or other type of battery such as an ultra-capacitor, supercapacitor, or batteries having energy-harvesting capabilities, for example) may be sufficient to cause the electrical stimulus needed to activate the bandage 2000, and particularly the particles of the intrinsic portion 2014, the sensors 2135, the output device

2155, and/or any other component of the bandage 2000. The battery 2120, communication module 2125, other sensors 2135, processor 2140, and database 2145 may be (but need not be) embedded in a flexible circuit board.

[00120] FIGs. 20 and 21 illustrate still further embodiments of accessories incorporating graphically encoded icons (e.g., such as graphically encoded icons 310, 410, 510, 1010, etc.) to increase security by utilizing cryptography, namely, GEIs, to encrypt data that is both dynamic and verifiable. In FIG. 20, a credit card 3000 includes a chip 3005 typical with modern-day credit cards, and a graphically encoded icon 3010, which may be substantially similar to graphically encoded icon 310, 410, 510, and/or 1010, as described herein. The graphically encoded icon 3010 may thus include a static portion 3012, and an intrinsic portion 3014 that includes at least one area that may change states based on a trigger. The trigger may be, for example, the interaction of the credit card with the credit card reader. In other words, when the credit card is used to complete a transaction, the intrinsic portion 3014 may be updated. Thus, the intrinsic portion 3014 may include a permanent, semi-permanent, or reversible record of the transactions associated with the card. In some embodiments, the intrinsic portion 3014 includes an embedded key validator that allows the user and/or the system (e.g., the GEI reader) to validate the current transaction and/or future transactions. In some embodiments, a embedded key validator may be a validation area 3020, which may be incorporated directly into the GEI 3010, or may be separate therefrom. The validation area 3020 may provide a visual indicator, which may be human readable and/or machine readable, that a transaction is verified as being authentic, skeptical, and/or fraudulent. In embodiments, the validation area 3020 may include SPEC particles that are programmable to turn color, provide an image, or otherwise indicate the current status of the card. The validation area 3020 may be triggered via the card reader during a transaction. For example, if the card 3000 is used to purchase an item in a location that is atypical for the card

user, then the validation area 3020 may be triggered to provide a “skeptical” indication. The intrinsic area 3014 may be updated to record the transaction, and may further be updated to include a record that the card was flagged as having potential unauthorized activity as a result of the transaction.

[00121] In some embodiments, the “skeptical” indication will be dynamic such that an unauthorized user will not be aware that the card is flagged. When the user attempts to use the card 3000 at another location or for another transaction, the store employee may be prompted (e.g., via the computer system) to look for a particular “skeptical” indication and to further verify if the user is authorized for the transaction. This may require the user to call his or her credit card company to verify that he or she is travelling and that the charges are authorized. In some embodiments, when the card is flagged, the user may be prevented from further using the card. In some embodiments, a GEI reader at a store may be able to read the GEI 3010 and alert the employee as to an issue with the card, with or without the verification area 3020. In some embodiments, the card 3000 may be equipped with an RFID tag 3025, such as any RFID tag now known or later developed. The RFID tag 3025 may include information about the card 3000 and/or the user of the card 3000, and may be used to track the location of the card 3000, information about the card 3000, and/or information about the user of the card 3000, as is known to those of skill in the art. In embodiments, the RFID tag 3025 provides still another level of security capability to the credit card 3000. Here, in some scenarios, an RFID signal may be received and processed by the RFID tag 3025, and the tag 3025 may provide a signal in response, verifying the information on the tag 3025. However, in some instances, the signal from the RFID tag 3025 may be weak or the RFID reader may be unavailable. Here, the GEI 3010 may provide the necessary information to verify the authenticity of a transaction. A GEI reader, such as a camera or any other reader capable of reading and processing the GEI 3010, may scan the card 3000 for the GEI 3010, and upon

determining the presence thereof, ascertain the information about the card 3000 and/or the user necessary to validate the transaction. Thus, even when the RFID tag 3025 does not work, it is still possible to provide extra validation security to the credit card transaction. In still other embodiments, the RFID tag 3025 and the GEI 3010 work together in a RFID-GEI hybridized system to provide uni-directional and/or bi-directional communication to and from the card 3000 and a computing system to validate transactions.

[00122] It should be understood that while the GEI, the validation area 3020, and the RFID tag 3025 are shown as being incorporated with a credit card 3000, such components can be also, or alternately, be incorporated into any article where it is desirable to know and/or provide information about the thing to which the article is attached, or the article itself. For example, a clothing tag (or any other type of tag) may incorporate a GEI (such as GEI 310, 410, 510, 1010, etc.), an RFID tag, and/or one or more verification areas.

[00123] In another example, illustrated in FIG. 21, a security badge 4000 incorporates a GEI 4010, which may be substantially similar to GEI 310, 410, 510, 1010, et cetera. Accordingly, the GEI 4010 includes a static portion 4012 and an intrinsic portion 4014. The intrinsic portion 4014 may be configured to change state based on a trigger. In embodiments, the badge 4000 further includes an RFID tag 4025. The RFID tag 4025 may be an active or a passive RFID tag, as is known in the art, and may be utilized as is known in the art, for example, to track the location of the badge 4000. As has been described herein, the GEI 4010 may be configured to change state based on a trigger. In this example, consider that the badge owner is a maintenance worker at ABC Corporation. The worker (John Smith) may not be authorized to enter all areas of ABC Corp. at all times. Rather, John may be permitted to enter only those areas that are in need of maintenance. One or more signal generators and/or GEI reading devices (which may be combined into a single device) may be located throughout ABC Corp. When it is determined that John is needed in a particular area, the

signal generator may be sent to his badge 4000 (i.e., as identified by the RFID tag) to update the GEI intrinsic portion 4014 to allow entry into that particular area. When John approaches the area, a GEI reading device may see the GEI on John's badge 4000, ascertain that access has been granted, and open the door for John to enter the restricted area. After John has completed the job, the intrinsic portion 4014 may be "reset" to again prevent John from entering the restricted location. The reading devices throughout ABC Corp. may be configured to identify information on a GEI to allow or deny entry into various locations. Thus, access to various areas within a restricted zone can be easily and quickly granted and restricted based on the immediate needs of that area.

[00124] Unfortunately, occasionally badges 4000 will be lost or stolen and access to certain restricted areas could be unintentionally granted to the wrong person. Accordingly, in some embodiments, cameras within the organization may be configured to scan an area and provide facial mapping, spatial mapping, etc. to verify that the badge 4000 is associated with the correct person. As John moves throughout ABC Corp., the cameras placed thereabout may continuously map his location within the corporation, and through facial recognition, confirm that it is indeed John that is wearing the badge 4000. If at some point it becomes clear that the badge 4000 is being worn by someone other than John, entry into certain areas may be restricted, even though the GEI may still be configured to allow the wearer of the badge 4000 access to the restricted area. Thus, multiple forms of security may be easily and seamlessly employed to ensure the safety of personnel throughout an organization.

[00125] Of course, the security badge 4000 need not be a badge exclusive to a company. In embodiments, the badge 4000 may be a driver's license, passport, or any other identification card. Further, the security badge 4000 may be a user instrument (e.g., a card) comprising a GEI that may be updated to provide admission to a particular event, such as a

concert, or game, or amusement park, or to provide access to services, such as a boarding pass for travel. Each time the card is scanned providing the user entry, the GEI may be automatically updated to prevent re-entry and/or reuse of the card without appropriate authorization.

[00126] Moving on, FIG. 9 is a functional block diagram of a computing system 900 which may be used to implement the various graphically encoded icon embodiments according to the different aspects of the disclosure. The computing system 900 may be, for example, a smartphone, a laptop computer, a desktop computer, a flexible circuit board, or other computing device whether now known or subsequently developed.

[00127] The computing system 900 includes a processor 902, a memory 904, a user interface 906, a communication module 908, and a dataport 910. These components are communicatively coupled together by an interconnect bus 912. The processor 902 may include any processor used in smartphones and/or other computing devices, including an analog processor (e.g., a Nano carbon-based processor, magnetic, photonic, pneumatic, hydraulic, thermal, convection, biochemical, gravimetric, etc.). In certain embodiments, the processor 902 includes one or more other processors, such as one or more microprocessors, and/or one or more supplementary co-processors, such as math co-processors.

[00128] The memory 904 may include both operating memory, such as random access memory (RAM), as well as data storage, such as read-only memory (ROM), hard drives, optical, flash memory, or any other suitable memory/storage element. The memory 904 may include removable memory elements, such as a CompactFlash card, a MultiMediaCard (MMC), and/or a Secure Digital (SD) card. In certain embodiments, the memory 904 includes a combination of magnetic, optical, and/or semiconductor memory, and may include, for example, RAM, ROM, flash drive, and/or a hard disk or drive. In embodiments incorporating SPEC particles, memory may include the visual aspects of the

color change itself (e.g., the particles remain in a colored-1 or colored-2 state until stimulated into another state). The processor 902 and the memory 904 each may be located entirely within a single device, or may be connected to each other by a communication medium, such as a USB port, a serial port cable, a coaxial cable, an Ethernet-type cable, a telephone line, a radio frequency transceiver, or other similar wireless or wired medium or combination of the foregoing. For example, the processor 902 may be connected to the memory 904 via the dataport 910.

[00129] The user interface 906 may include any user interface or presentation elements suitable for a smartphone and/or other computing device, such as a keypad, a display screen, a touchscreen, a microphone, and a speaker. The communication module 908 is configured to handle communication links between the computing system 900 and other, external devices or receivers, and to route incoming/outgoing data appropriately. For example, inbound data from the dataport 910 may be routed through the communication module 908 before being directed to the processor 902, and outbound data from the processor 902 may be routed through the communication module 908 before being directed to the dataport 910. The communication module 908 may include one or more transceiver modules configured for transmitting and receiving data, and using, for example, one or more protocols and/or technologies, such as GSM, UMTS (3GSM), IS-95 (CDMA one), IS-2000 (CDMA 2000), LTE, FDMA, TDMA, W-CDMA, CDMA, OFDMA, Wi-Fi, WiMAX, BLE, 5G-IoT, or any other protocol and/or technology.

[00130] The dataport 910 may be any type of connector used for physically interfacing with a smartphone, GEI (graphically encoded icon) reader 914, and/or other device, such as a mini-USB port or an IPHONE®/IPOD® 30-pin connector or LIGHTNING® connector. In other embodiments, the dataport 910 may include multiple

communication channels for simultaneous communication with, for example, other processors, servers, and/or client terminals.

[00131] The GEI reader 914 may be in data communication with the computing system 900. The GEI reader 914 may be a scanner, such as one-dimensional barcode scanner, an imager, or other reader that allows for the various graphically encoded icons discussed herein to be read by the computing system 900 for decoding. In embodiments, the reader 914 is merely a camera capable of picking up and analyzing the information from the graphically encoded icon and transmitting that information to the system 900. As discussed herein, in further embodiments, the GEI reader may include a RFID reader, or an RFID reader may be additionally incorporated into the system in conjunction with a GEI reader. The RFID reader may be capable of receiving RFID signals from an RFID tag, and may additionally be configured to read and transmit data from a graphically encoded icon that incorporates an RFID tag or RFID technology, as described above.

[00132] The memory 904 may store instructions for communicating with other systems, such as a computer. The memory 904 may store, for example, a program (e.g., computer program code) adapted to direct the processor 902 in accordance with the present embodiments. The instructions also may include program elements, such as an operating system. While execution of sequences of instructions in the program causes the processor 902 to perform the process steps described herein, hard-wired circuitry may be used in place of, or in combination with, software/firmware instructions for implementation of the processes of the present embodiments. Thus, unless expressly noted, the present embodiments are not limited to any specific combination of hardware and software.

[00133] In embodiments, the memory 904 may include software 905. The software 905 may contain machine readable instructions configured to be executed by the processor 902. The software 905 may, e.g., process data obtained from the GEI reader 914.

In embodiments, the software 905 may cause the computing system 900 to dynamically respond to a reading obtained by the GEI reader 914. For example, the software 905 may order an item based on a reading obtained by the GEI reader 914. Alternately or in addition, the software 905 may round up, round down, integrate, stabilize, average, and/or otherwise mathematically manipulate the outputs of the various fuzzy fields. The software 905, e.g., one or more modules thereof, may also be used for error correction.

[00134] The computing system 900 may be in data communication with a remote storage 916 over a network 917. The network 917 may be a wired network, a wireless network, or comprise elements of both. The remote storage 916 may be, e.g., the “cloud” or other remote storage in communication with other computing systems. In embodiments, data (e.g., readings obtained by the GEI reader 914 and the dynamic responses of the computing system 900 thereto) may be stored in the remote storage 916 for analytics.

[00135] While graphically encoded icons are described above as a separate physical embodiment such as a label, coating, paint, etc., it shall be understood that a graphically encoded icon is more broadly a collection of visually identifiable matter (or energy fields) that can be used to observe meaningful information about an object, an assembly of objects, etc. Graphically encoded icons may therefore also be naturally occurring (e.g., patterns that occur naturally on/in an object, waveform patterns, anomalous biological cells, traffic patterns, antenna arrays, thermal scans, etc.) and may occur in clusters that are identifiable at a smaller scale but provide information about a larger scale assembly of objects.

[00136] Accordingly, graphically encoded icons may be incorporated into a broader scanning and surveillance system that gathers information directly from an object itself acting as the graphically encoded icon, or from the object in conjunction with a physically separate graphically encoded icon, such as the labels described herein. The

graphically encoded icons may be recognizable and readable via video surveillance systems. Video surveillance systems are known in the art. Over time, video surveillance has evolved from the use of low-resolution, fixed focus, fixed focal-length cameras to fully adaptive intelligent pan-tilt-zoom 360-degree domes. The flexibility of multidimensional scanning systems (e.g. advanced surveilling equipment) can be utilized to perform visual identification of people, animals, vehicles, inanimate fixed position objects, and complex moving objects that are moving in unpredictable manners.

[00137] Combining surveillance and scanning technologies may provide a universal scanning system that can operate in multiple dimensions and identify subjects including individuals (and attributes of the individual), animals, and objects in a location (e.g., building materials in a particular location). Scanning of uniquely identifiable shapes (e.g., GEIs) and movement trending data (e.g., movement of individuals and/or animals) can yield a complete spectrum of indicators that can be used to identify the presence, location, and meaning of all subjects being scanned. In some embodiments, as described herein, one or more cameras may be utilized to develop and/or recognize three-dimensional images of persons or spaces (e.g., facial mapping and/or spatial mapping) to verify a person's identity and/or the precise location of a particular person or graphically encoded icon. Together with the graphically encoded icon (e.g., graphically encoded icon 310, 410, 510, 600, 1010, etc.), the mapping may allow for an automatic two-step authentication of a user. In scanning for information, varying abilities to focus, zoom, and planar alignment can yield unreliable and unpredictable image information on a single scan which can be improved by providing clearly identifiable graphical indicators of a coarse nature as well as redundant repetitive image icons that occur at varying scale-levels. For example, the repeating pattern of a specific shape within other smaller scale shapes (e.g., fractal geometry) can be a trigger for recognizing a pattern that is out of frame from the observer's view to provide particular (e.g.,

redundant, preemphasis, forward error correction, cyclical error detection, encrypted, cross-media data striping, etc.) information about a subject. These techniques, as well as mathematical predictive techniques, can be used to provide rapid and reliable recognition of image intelligence. The net result of stacked and scaled patterns can yield localized quantified results that contain the same statistical character as the whole graphically encoded icon at varying zoom levels as well as partial field view graphically encoded icon observation. For example, when observing a full-frame image of the whole graphically encoded icon, the observer may identify a pattern of apparent black and white dots. However, if the observer were to zoom-in (or angularly align) on a particular dot pattern within the graphically encoded icon, it may become clear that there is finer granularity (e.g., resolution) imagery contained within the dot itself. Furthermore, it is possible that the dot image may contain a micro-scaled (or macro-scaled, subset, superset) version of the entire content imagery of the graphically encoded icon itself. These scaled and optionally redundant patterns may repeat in scale to many levels that grow into macro, micro, and nano-scale. These techniques of encoding may be utilized to provide ease of identification, authentication, security validation, encryption, and minimized re-scanning of the graphically encoded icon. It is important to note that strategic encoding techniques within a dot pattern (e.g., internal content(s) within a graphically encoded icon image or dot) can be utilized to encode intentional averaging of gray-scale, color, or thermal imagery as an integrated view by a coarse wide-angle (e.g., low resolution) observation. This means that the dots or apparent image attributes may appear as simple resolvable dots but may contain multiple layers (e.g. multiple dimensioned arrays) of complex composite information within each apparent dot.

[00138] By utilizing and exploiting natural and unnatural patterns in a recursive pattern of shapes the encoded information can be packed in such a way as to provide scalable decoding at various zoom levels, angular planar views, and focus levels. Information encoded

in geometric patterns that are fractal encoded (or other recursive patterns) can exploit shapes that either are naturally occurring in nature or are not naturally occurring in nature to encode and modulate recognizable patterns related to the intelligence of information encoded within the composite shapes (e.g. GEIs). Shapes and geometric patterns may be enhanced or accentuated utilizing reinforcing waveform and media types such as varying colors, wavelengths of transmissive and/or reflective materials, magnetic, radioactive, thermal, electrical, and physically oscillating materials (e.g. quartz crystals), fluorescing materials (biological films, bacteria, etc.), position changing actuators, magnetic tape, laser reflection (CD-ROM / DVD like surfaces), etc. Geometric shaped encoding methods may be used to allow a GEI to become mathematically resolvable in order to correct for non-ideal focal lengths, planar alignment, and non-ideal image framing.

[00139] In embodiments, the full implementation of a scanning system could thus provide the ability to provide scanning, surveilling, dissecting, categorizing, decoding, and resolving of all subjects (or selected category of subjects) within an observer's (or scanning device's) field of view in the system. Optionally, the observed subjects can be superimposed with unique identifying markers known as 3D spatial markers. The marking content can be graphical in the form of iconic encoded information that is identifiable by scanning algorithm methods.

[00140] Thus, as has been described, the graphically encoded icons disclosed herein may represent a significant advance over the traditional machine readable indicia embedded in one dimensional, two dimensional, multi-dimensional and other such barcodes. Many different arrangements of the various components depicted, as well as components not shown, are possible without departing from the spirit and scope of the present invention. Embodiments of the present invention have been described with the intent to be illustrative rather than restrictive. Alternative embodiments will become apparent to those skilled in the

art that do not depart from its scope. A skilled artisan may develop alternative means of implementing the aforementioned improvements without departing from the scope of the present invention. Not all steps listed in the various figures need be carried out in the specific order described.

CLAIMS

1. A user instrument for engaging in a transaction, comprising:
 - a graphically encoded icon, comprising:
 - a static portion;
 - an intrinsic portion comprising an area of stimuli-responsive material defining a first machine-readable indicia;
 - wherein:
 - at least a portion of the stimuli-responsive material transforms from a first state to a second state in response to a trigger;
 - the transformation from the first state to the second state of the portion of the stimuli-response material results in a second machine-readable indicia;
 - and
 - the second machine-readable indicia comprises information to permit or deny the user to engage in a transaction via the user instrument.
2. The user instrument of claim 1, wherein:
 - the user instrument is a credit card;
 - the trigger is a transaction using the credit card; and
 - the second machine-readable indicia comprises information relating to the transaction using the credit card.
3. The user instrument of claim 1, wherein:
 - the user instrument is a security badge;
 - the trigger is a signal operable to transform the stimuli-responsive material from the first state to the second state; and

the second machine-readable indicia comprises information that allows or denies the user entry into a restricted location.

4. The user instrument of claim 1, wherein the user instrument is a label.

5. The user instrument of claim 1, further comprising a second area of stimuli-responsive material configured to transform in response to a trigger, wherein the transformation of the stimuli-responsive material of the second area results in human readable indicia.

6. The user instrument of claim 5, wherein the second area of stimuli-responsive material forms a part of the graphically encoded icon.

7. The user instrument of claim 1, wherein the machine-readable indicia is non-human readable.

8. A graphically encoded icon, comprising:

a label attached to an object, the label comprising a static portion and an intrinsic portion;

wherein:

the static portion comprises machine-readable indicia;

the intrinsic portion comprises an area of stimuli-responsive material;

and

the stimuli-responsive material is configured to change from a first state to a second state in response to a trigger, the change in state being based on an attribute about the object.

9. The graphically encoded icon of claim 8, wherein the change in state of the stimuli-responsive material results in machine-readable indicia.
10. The graphically encoded icon of claim 9, wherein the machine-readable indicia of the stimuli-responsive material is non-human readable.
11. The graphically encoded icon of claim 10, wherein the machine-readable indicia of the static portion is non-human readable.
12. The graphically encoded icon of claim 8, wherein the trigger is a change in temperature, and wherein the trigger occurs when the change in temperature is above or below a predetermined threshold.
13. The graphically encoded icon of claim 8, wherein the trigger occurs automatically based on a predetermined condition about the attribute of the object.
14. The graphically encoded icon of claim 8, wherein the transformation of the stimuli-responsive material is a change in reflection of the stimuli-responsive material.
15. The graphically encoded icon of claim 8, wherein the transformation of the stimuli-responsive material is a change in the transparency of the stimuli-responsive material.
16. An article, comprising:

a user instrument associated with a user, the user instrument comprising a
graphically encoded icon, the graphically-encoded icon comprising an area of
stimuli-responsive material defining a machine-readable indicia;

wherein:

the stimuli-responsive material is configured to change from a first state to a
second state in response to a trigger; and
after the change of the stimuli-responsive material from the first state to the
second state, the machine-readable indicia comprises information to
permit or deny a user to engage in a transaction using the user
instrument.

17. The article of claim 16, wherein the user instrument is selected from the list consisting
of: a label, a credit card, and a badge.

18. The article of claim 16, wherein the machine-readable indicia is non-human readable.

19. The article of claim 16, wherein the trigger occurs automatically based upon a
predetermined condition.

20. The article of claim 16, wherein the graphically encoded icon is configured as a QR
code.

ABSTRACT

A user instrument for engaging in a transaction includes a graphically encoded icon having a static portion, and an intrinsic portion comprising an area of stimuli-responsive material defining a first machine-readable indicia. At least a portion of the stimuli-responsive material transforms from a first state to a second state in response to a trigger. The transformation from the first state to the second state of the portion of the stimuli-response material results in a second machine-readable indicia. The transformation of the stimuli-responsive material from the first state to the second state is semi-irreversible. The second machine-readable indicia comprises information to permit or deny the user to engage in a second transaction via the user instrument.

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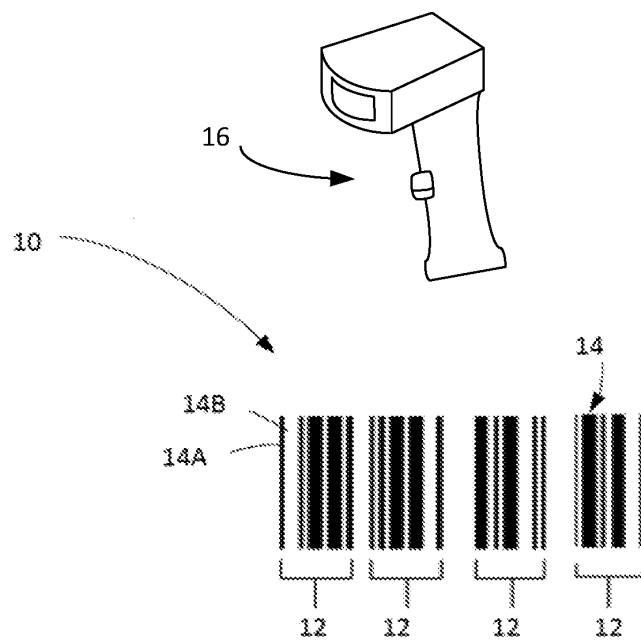


FIG. 1
(PRIOR ART)

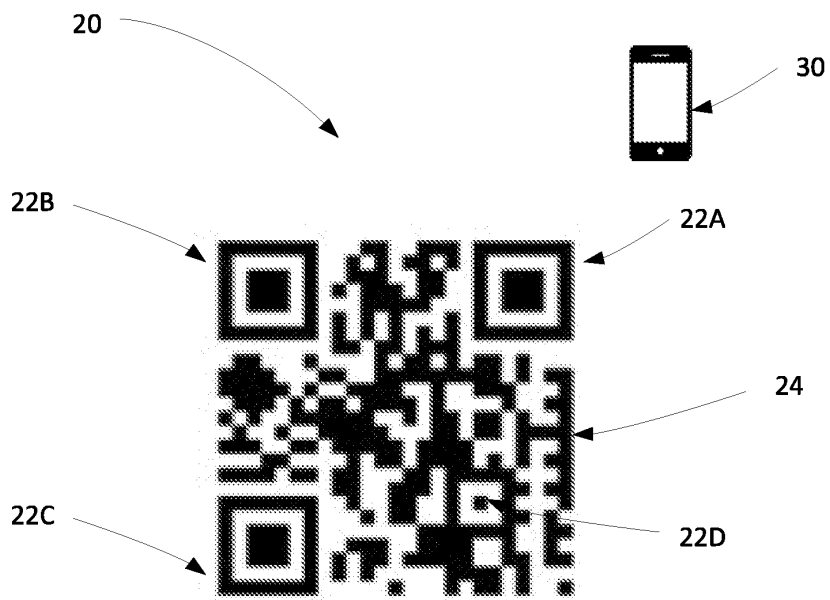


FIG. 2
(PRIOR ART)

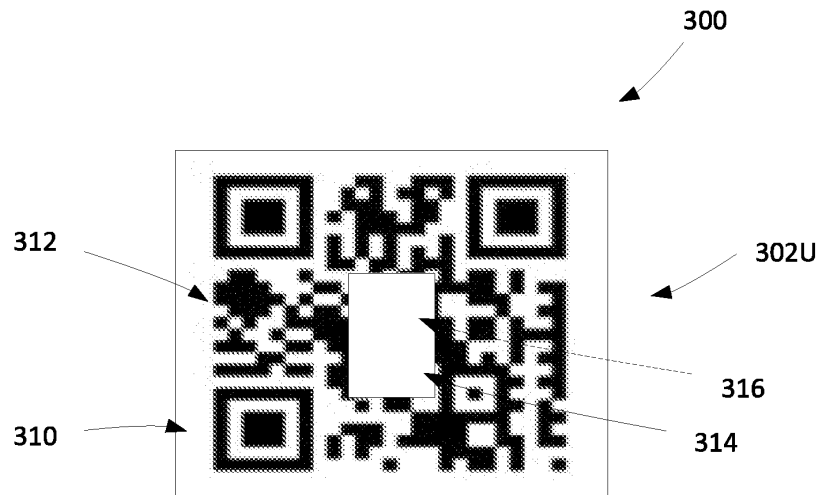


FIG. 3A

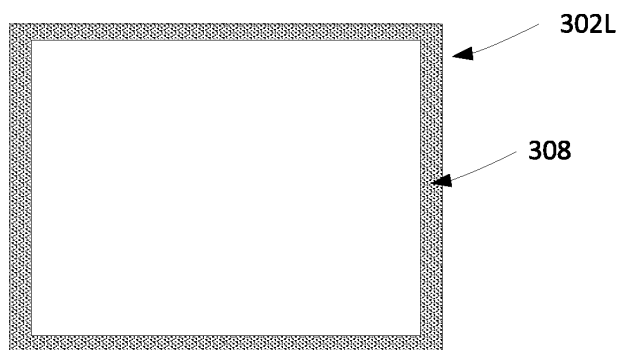


FIG. 3B

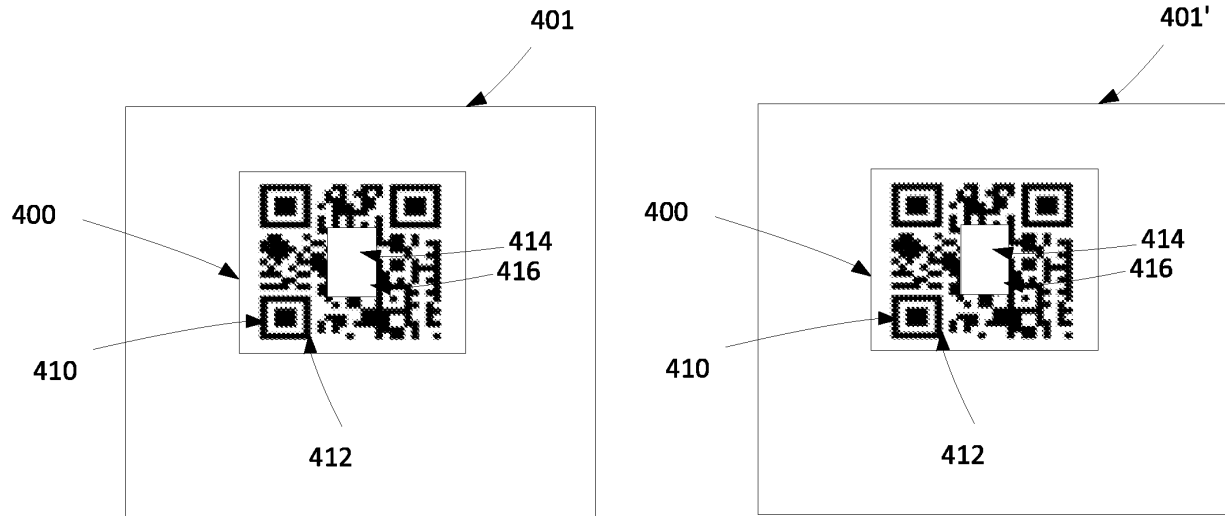


FIG. 4A

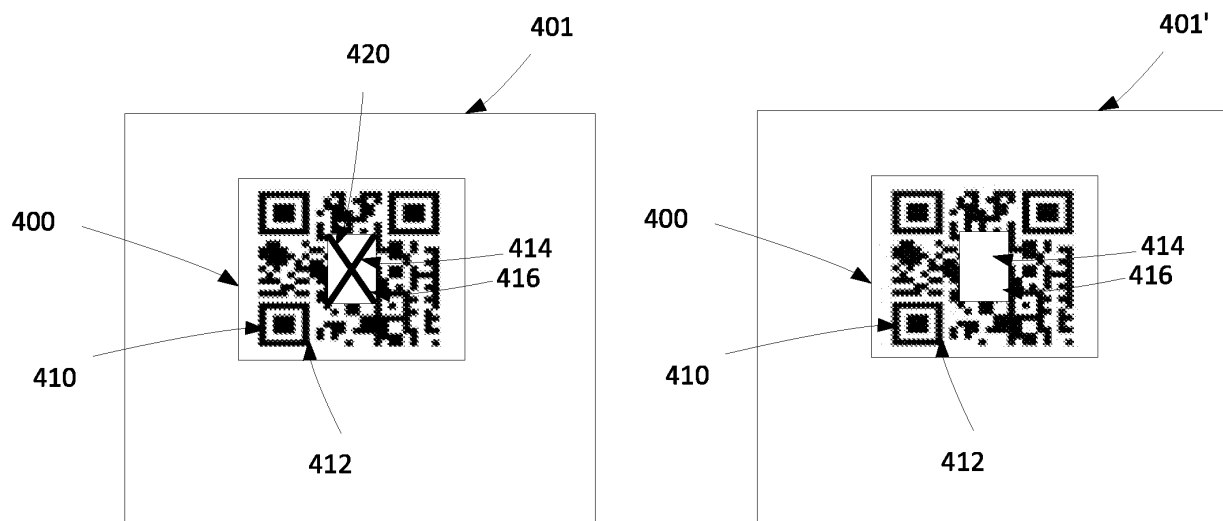


FIG. 4B

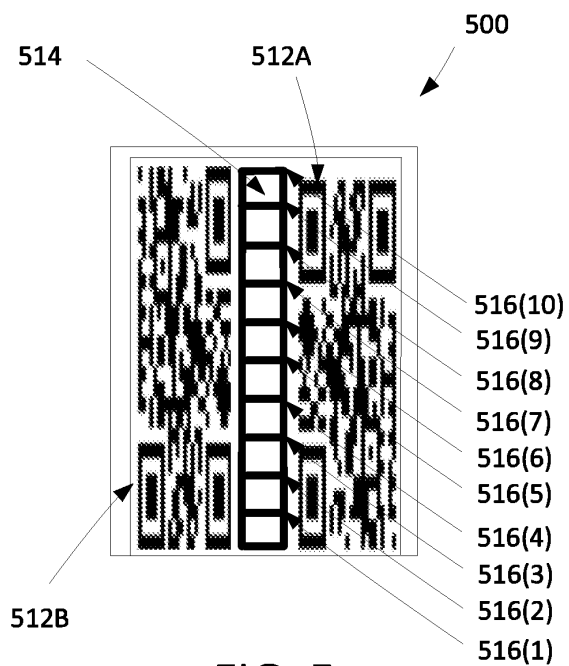


FIG. 5

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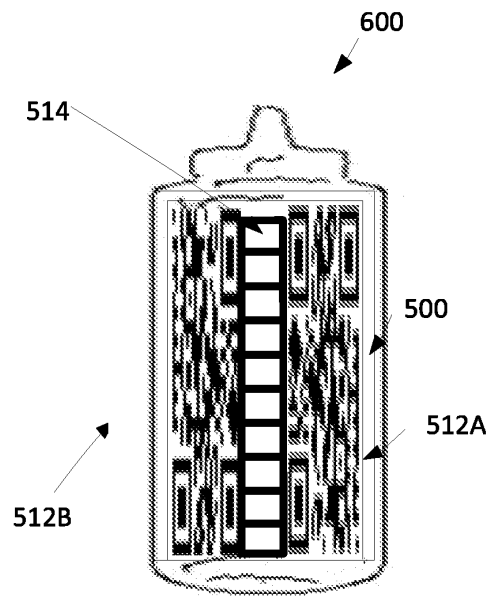


FIG. 6A

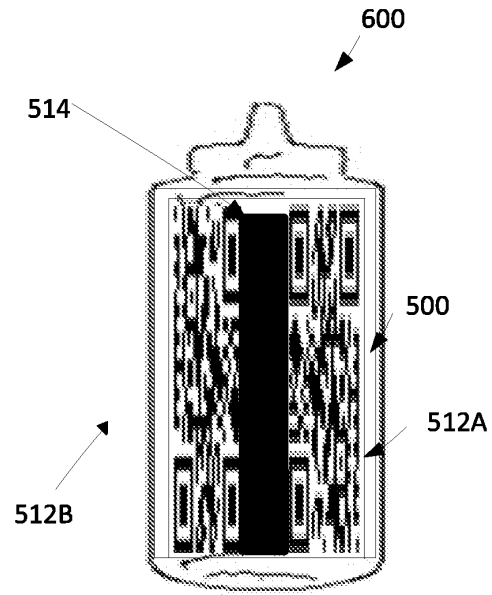


FIG. 6B

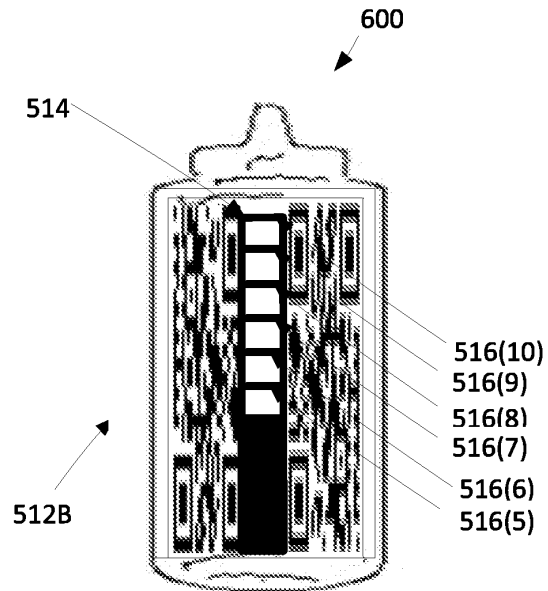


FIG. 6C

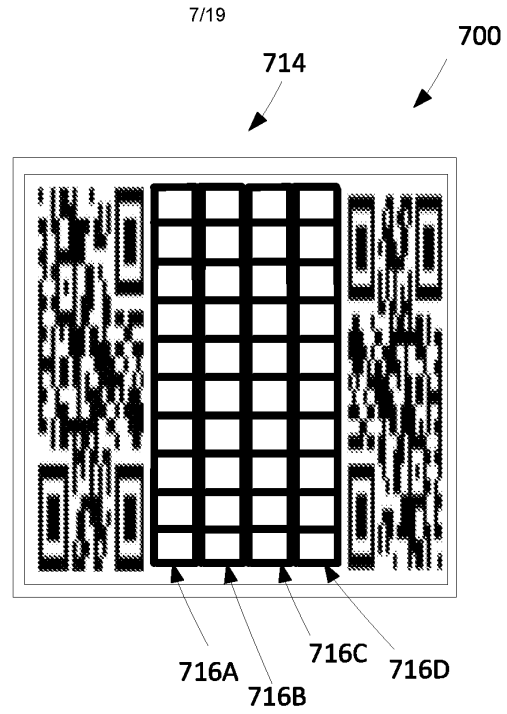


FIG. 7

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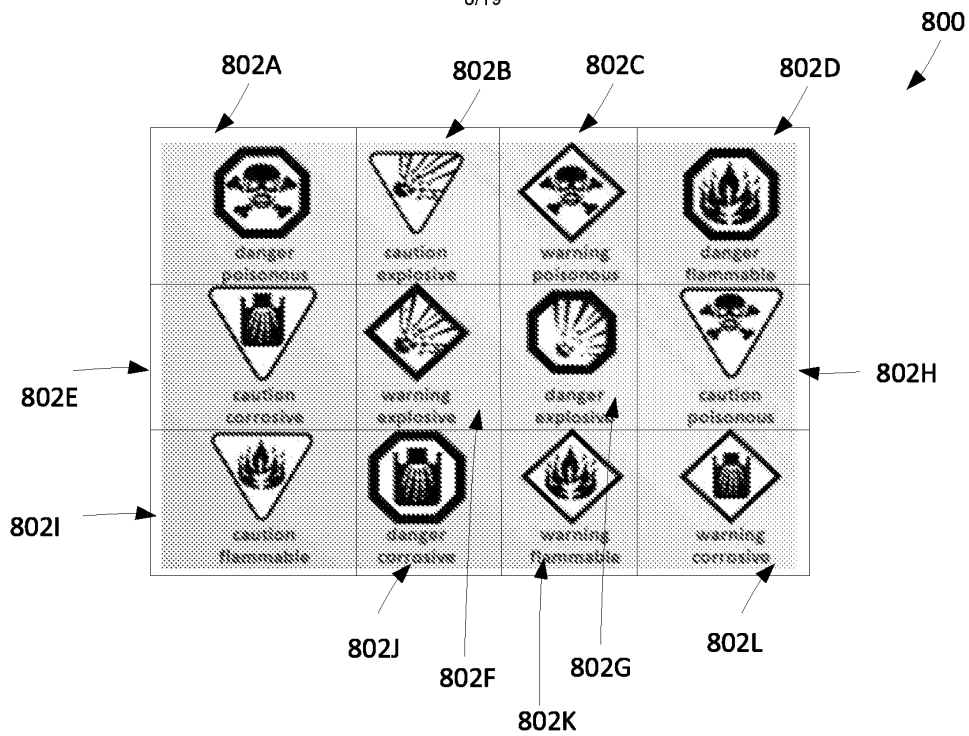


FIG. 8A

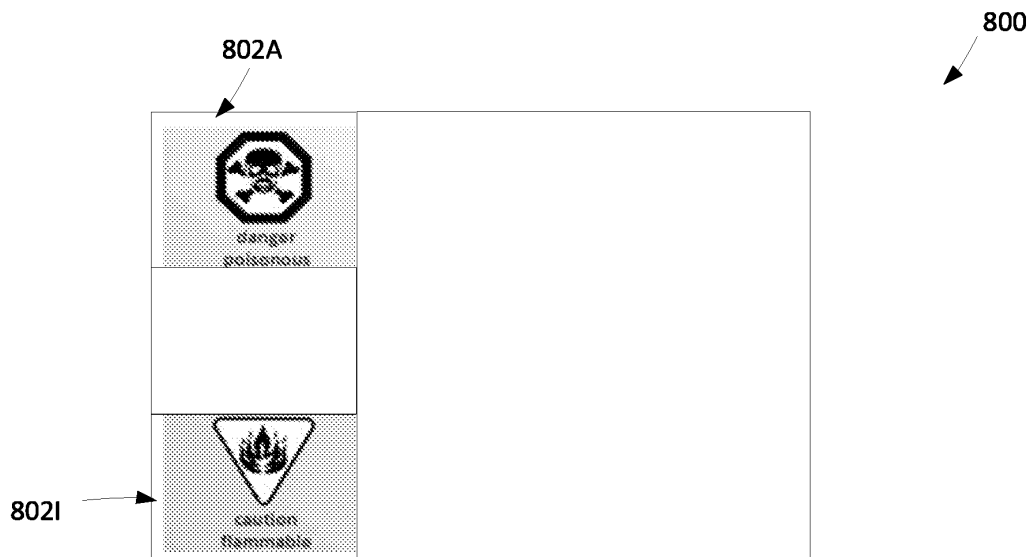
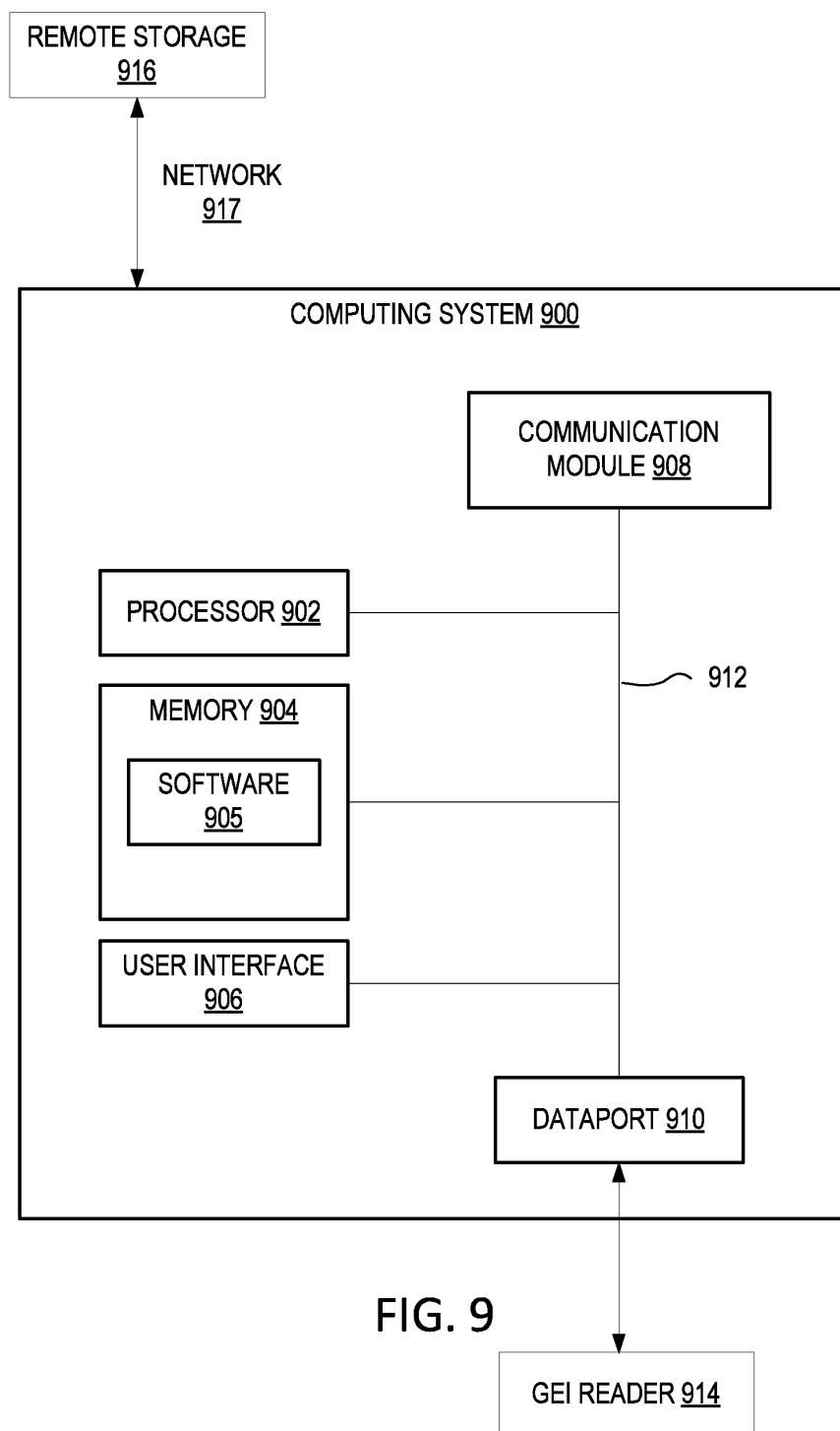


FIG. 8B



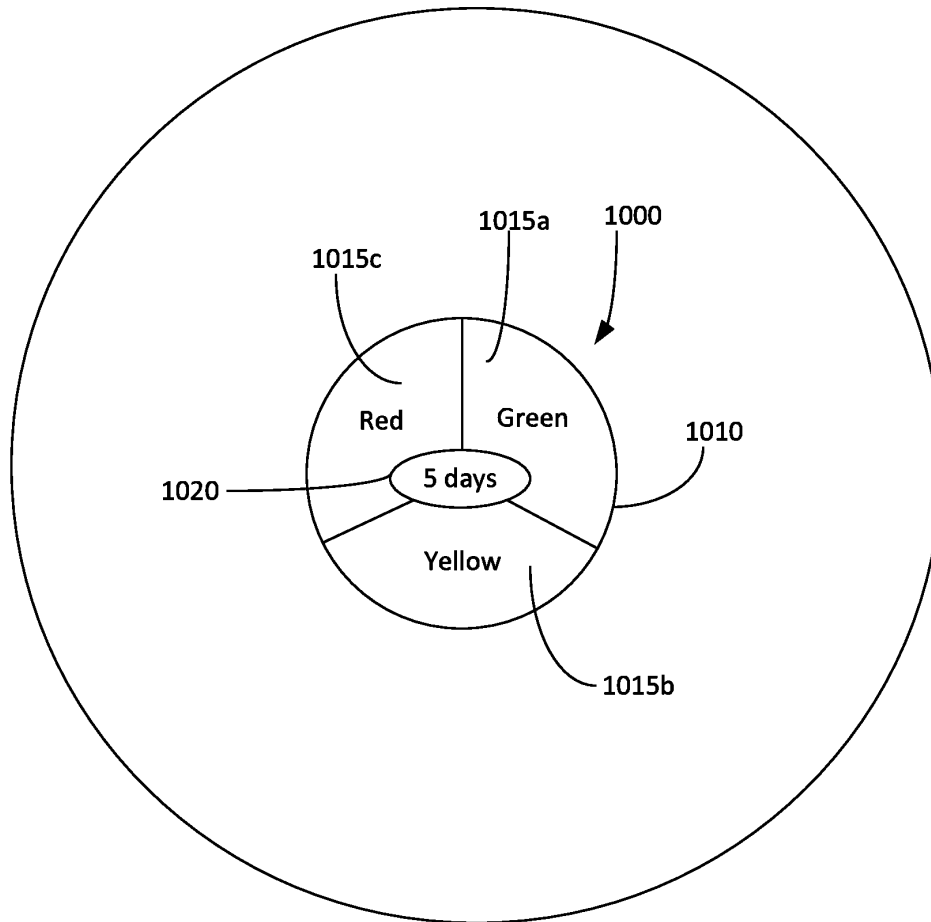


FIG. 10

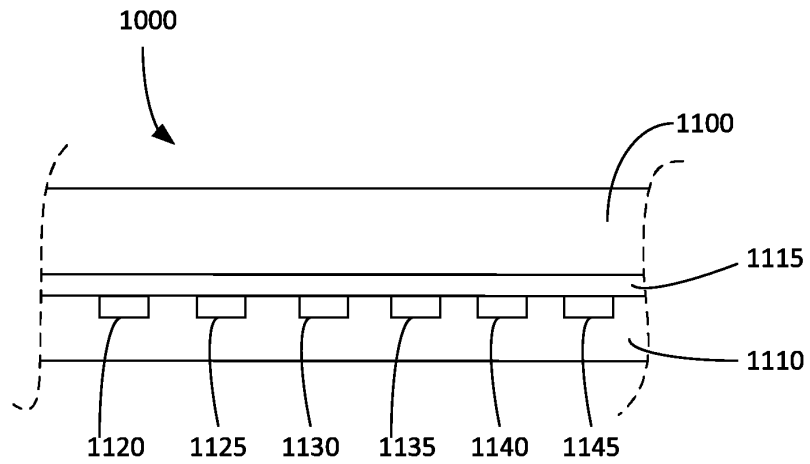


FIG. 11

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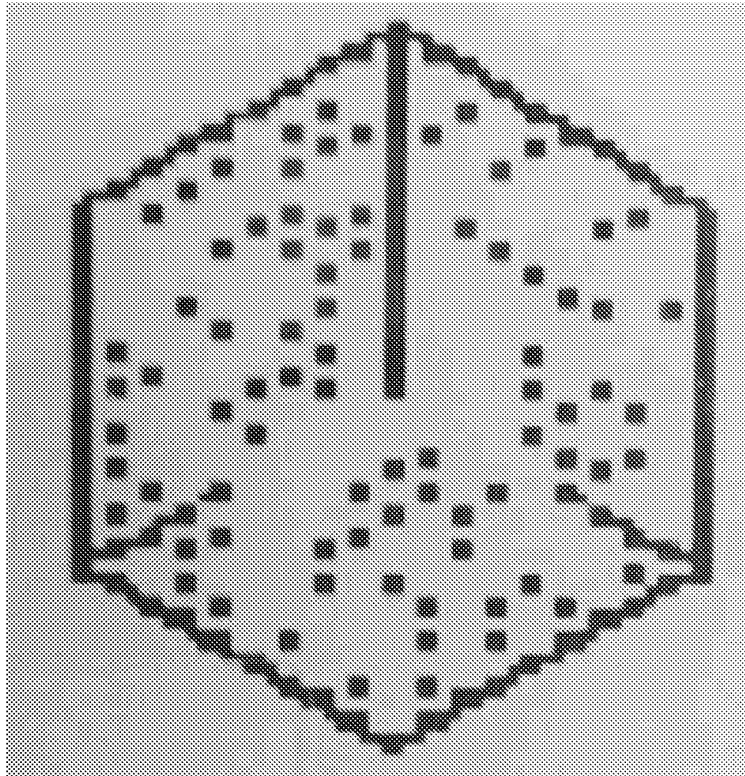


FIG. 12

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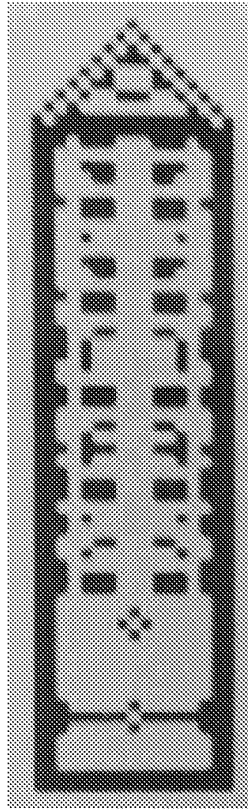


FIG. 13

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FIG. 14

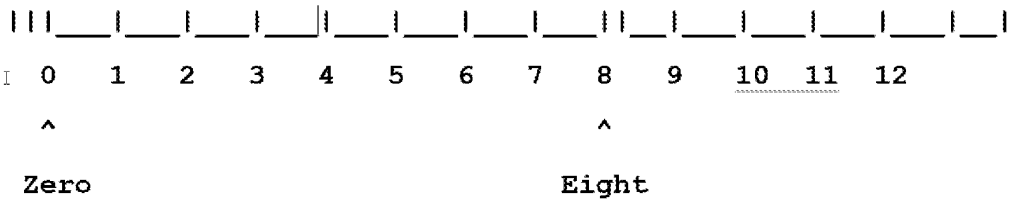


FIG. 15

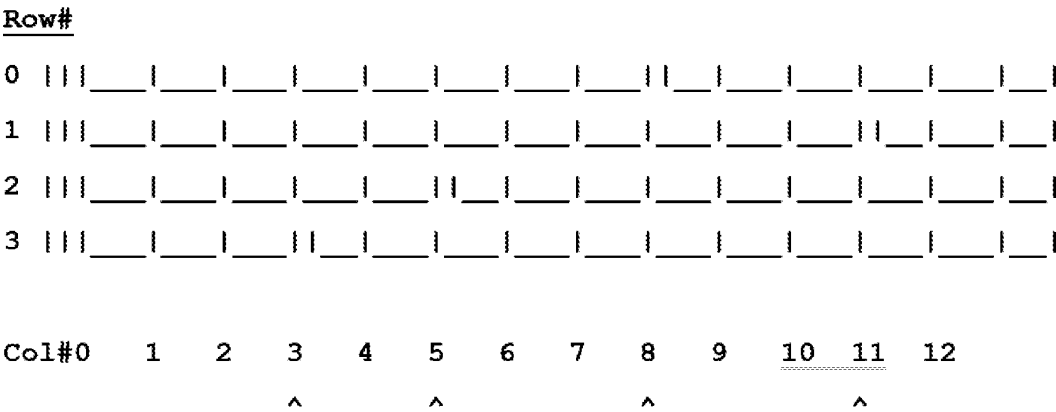


FIG. 16

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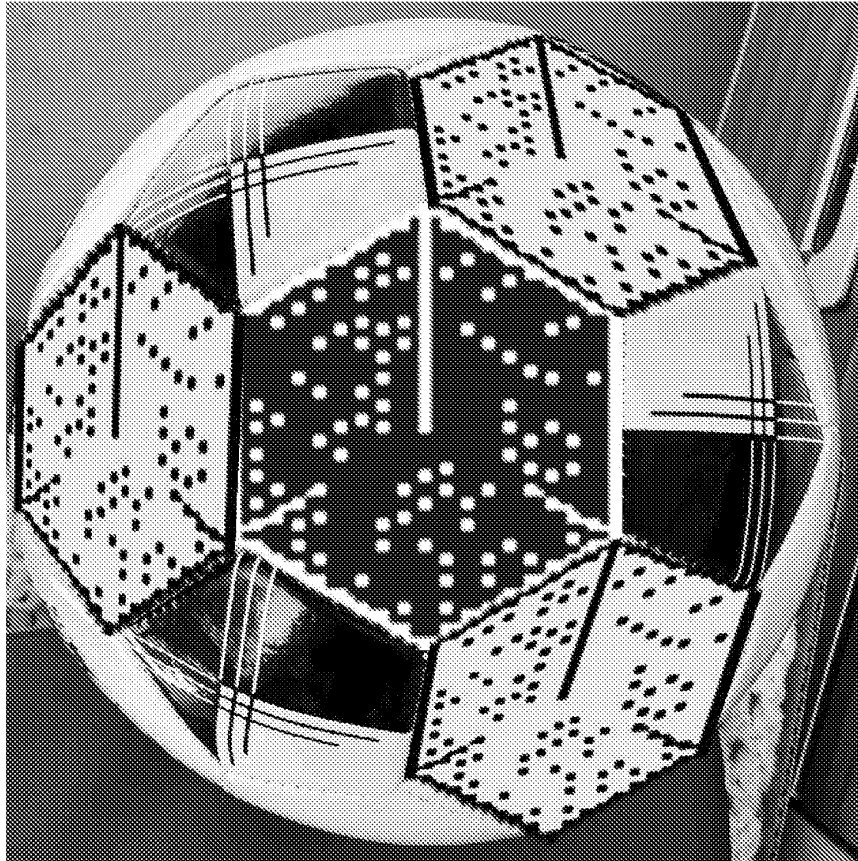


FIG. 17

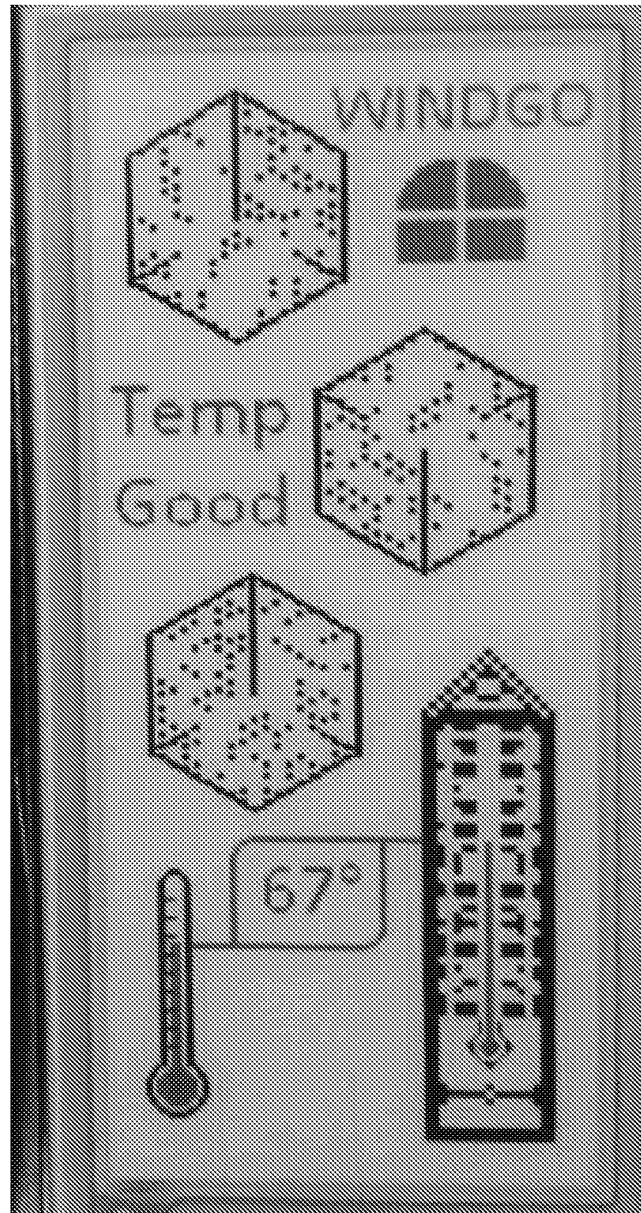


FIG. 18

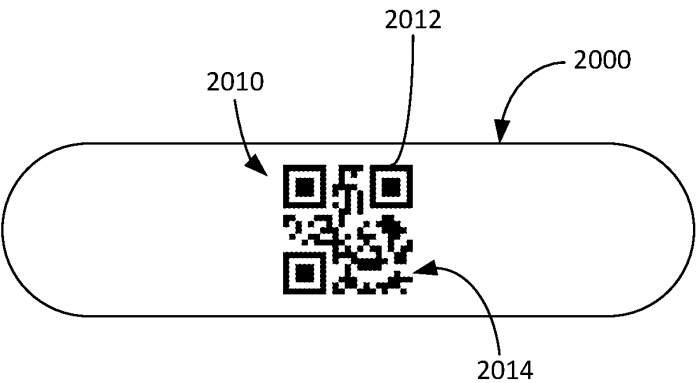


FIG. 19A

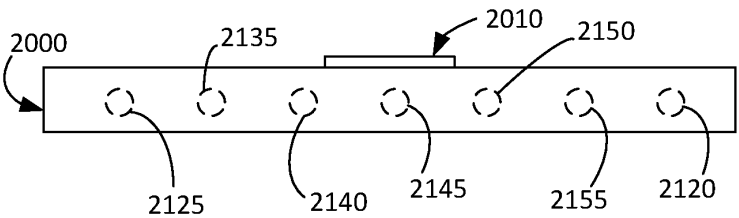


FIG. 19B

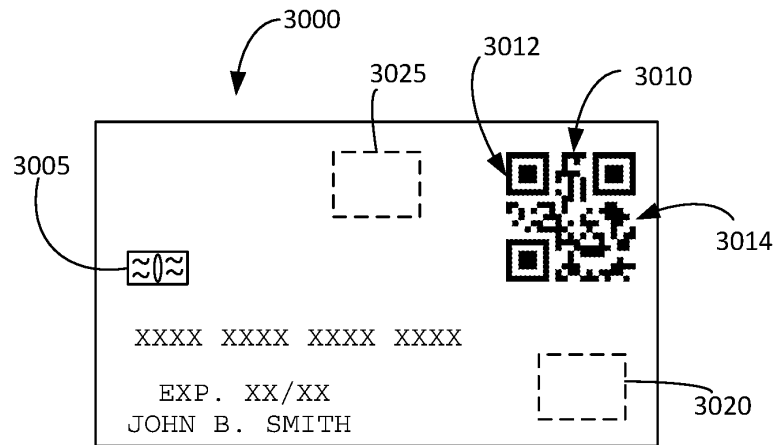


FIG. 20

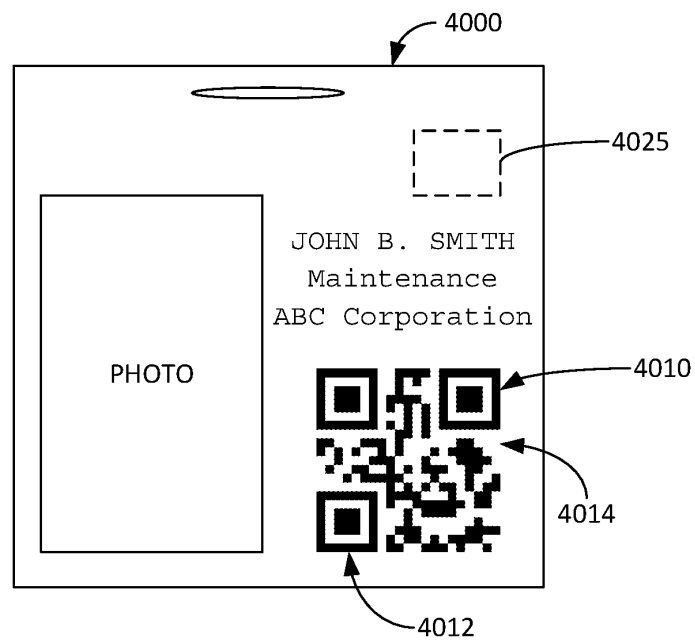


FIG. 21

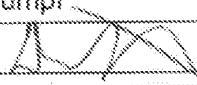
**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME Attorney Docket No. 617907
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 <u>16/667,552</u>	
filed on <u>October 29, 2019</u>	
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:	<u>Fielding B. Staton</u> Date (Optional): _____
Signature:	_____
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. This 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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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	GRAPHICALLY ENCODED ICONS HAVING INTRINSIC ATTRIBUTES EMBEDDED THEREIN AND SYSTEMS AND METHODS FOR USING SAME Attorney Docket No. 617907
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 <u>16/667,552</u>	
filed on <u>October 29, 2019</u>	
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: <u>David Strumpf</u> Date (Optional): _____	
Signature: 	
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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