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Abstracts from Representative Patent Applications

Commercial Electronics • Barcode Reader

Information Processing / Security • Secure One-Time Passwords

Electro-Mechanical & Signal Processing • Aircraft Engine Monitoring

Industrial Sensing & Processing • Supply Chain Tracking for Produce From Farm To Store

Biotechnology & Signal Processing • Assessing Heart Attack Risk

Mechanical / Materials • Structural Design for Thin Electrical Medical Wires

Signal Processing • Improved Error Correction for Reading Flawed Matrix Code Symbols

Biotechnology / Electrical • Implantable Bioelectric Battery System

Data Processing • High Speed Data Processing for Real-Time Airplane Accident Monitoring

Electro-Mechanical / Data Encryption • Encrypted Printhead for Laser Printer

Electro-Mechanical • Internal Device Sensing and Operational Process Correction for Printer

Electronics / Component, Circuit, Chip • IC With Power-Optimized Architecture

The abstracts in this document showcase the diverse range of technologies spanned by the patent applications drafted by Steven Oppenheimer.

For some abstracts, the figure shown here is not the one printed on the first page of the issued/published application. A different figure (but still taken from the actual patent/application) has been "photo-shopped" into place on the first page.

US010055625B2

(12) **United States Patent**
Feng et al.

(10) **Patent No.: US 10,055,625 B2**
(45) **Date of Patent: Aug. 21, 2018**

(54) **IMAGING BARCODE READER WITH COLOR-SEPARATED AIMER AND ILLUMINATOR**

(71) Applicant: **Hand Held Products, Inc.**, Fort Mill, SC (US)

(72) Inventors: **Chen Feng**, Snohomish, WA (US); **Jie Ren**, Jiangsu (CN)

(73) Assignee: **Hand Held Products, Inc.**, Fort Mill, SC (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/470,971**

(22) Filed: **Mar. 28, 2017**

(65) **Prior Publication Data**

US 2017/0300728 A1 Oct. 19, 2017

(30) **Foreign Application Priority Data**

Apr. 15, 2016 (CN) 2016 1 0233259
Apr. 15, 2016 (CN) ..... 2016 2 0314790 U

(51) **Int. Cl.**
G06K 7/10 (2006.01)
G06K 7/14 (2006.01)
G06K 19/06 (2006.01)

(52) **U.S. Cl.**
CPC ***G06K 7/10732*** (2013.01); ***G06K 7/10811*** (2013.01); ***G06K 7/10881*** (2013.01); ***G06K 7/1417*** (2013.01); ***G06K 19/06037*** (2013.01)

(58) **Field of Classification Search**
CPC .. G06K 7/10; G06K 9/36; G06K 9/80; G06K 15/12; G06K 5/00; G06K 7/14; G03B 7/08; G06F 17/00
(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,832,725 B2 12/2004 Gardiner et al.
7,128,266 B2 10/2006 Zhu et al.
(Continued)

FOREIGN PATENT DOCUMENTS

WO 2013163789 A1 11/2013
WO 2013173985 A1 11/2013
(Continued)

OTHER PUBLICATIONS

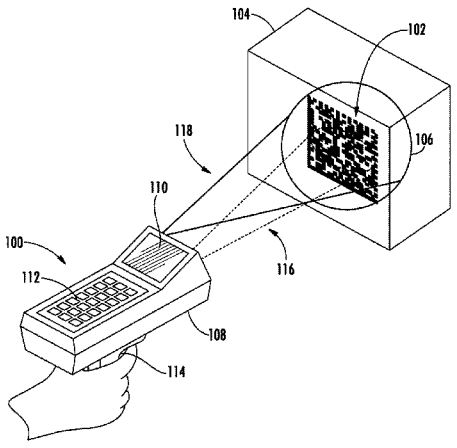
U.S. Appl. No. 14/715,916 for Evaluating Image Values filed May 19, 2015 (Ackley); 60 pages.
(Continued)

Primary Examiner — Edwyn Labaze
(74) *Attorney, Agent, or Firm* — Additon, Higgins & Pendleton, P.A.

(57) **ABSTRACT**

A scanner for machine-readable symbols, such as barcodes and two-dimensional matrix symbols, employs at least two different light frequencies (colors). The first frequency supports accurate aiming of the scanner at a symbol. The second frequency supports illumination of a machine-readable symbol so that the reflected illumination light can be read at the second frequency by the scanner's optical imaging element. Employing two different light frequencies enables both aiming and scanning to occur simultaneously, while the aiming process does not interfere with the scanning process. It enables the aiming frequency to be used for additional purposes, such as providing signaling to a user of the scanner. In an embodiment, two distinct light sources are used in the scanner to provide the different light frequencies. In an embodiment, various color filters are employed to separate and distinguish light frequencies. In an embodiment, signal processing may be employed to digitally distinguish multiple separate frequencies in light reflected from the symbol.

20 Claims, 7 Drawing Sheets



US010282526B2

(12) **United States Patent**
Nichols

(10) **Patent No.: US 10,282,526 B2**
(45) **Date of Patent: May 7, 2019**

(54) **GENERATION OF RANDOMIZED PASSWORDS FOR ONE-TIME USAGE**

(71) Applicant: **Hand Held Products, Inc.**, Fort Mill, SC (US)

(72) Inventor: **Matthew Nichols**, Pittsburgh, PA (US)

(73) Assignee: **HAND HELD PRODUCTS, INC.**, Fort Mill, SC (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 136 days.

(21) Appl. No.: **14/963,943**

(22) Filed: **Dec. 9, 2015**

(65) **Prior Publication Data**

US 2017/0169198 A1 Jun. 15, 2017

(51) **Int. Cl.**
G06F 21/31 (2013.01)

(52) **U.S. Cl.**
CPC ***G06F 21/31*** (2013.01)

(58) **Field of Classification Search**
CPC G06F 21/31
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,892,470 A * 4/1999 Kusnick H03M 7/08 341/106
6,832,725 B2 12/2004 Gardiner et al.
7,128,266 B2 10/2006 Zhu et al.
7,159,783 B2 1/2007 Walczyk et al.
7,210,622 B2 * 5/2007 Lambert G06F 21/31 235/379
7,413,127 B2 8/2008 Ehrhart et al.
(Continued)

FOREIGN PATENT DOCUMENTS

GB 2379525 A 3/2003
JP 2011-022953 A 2/2011
(Continued)

OTHER PUBLICATIONS

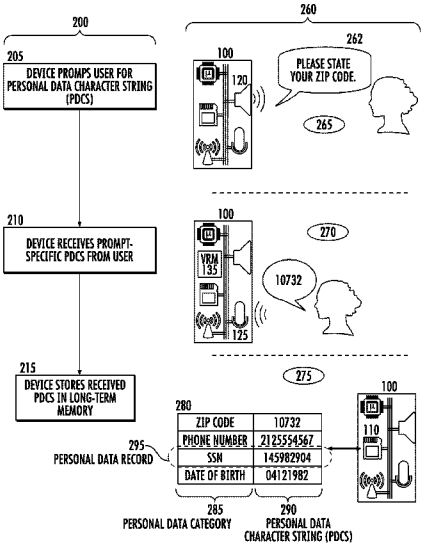
U.S. Appl. No. 14/715,916 for Evaluating Image Values filed May 19, 2015 (Ackley); 60 pages.
(Continued)

Primary Examiner — Saleh Najjar
Assistant Examiner — Louis C Teng
(74) *Attorney, Agent, or Firm* — Additon, Higgins & Pendleton, P.A.

(57) **ABSTRACT**

An electronic device dynamically generates a password for one-time only usage. The one-time password is constructed by placing, in a random sequential order: (i) several randomly chosen digits and (ii) several digits, which are randomly selected from personal identification numbers, which were previously provided by an authorized user. The current user of the device is presented with a natural-language password hint, which describes the sequence of digits in the password. Only the authorized user knows the personal identification numbers; and so is able to construct, on-the-fly, the one-time password, and present that password to the device. The password hint may be presented aloud, in audio form, and the password may be entered into the device via speech. If someone nearby hears the hint and/or the password, they cannot use it at a later time to gain device control or data access, since the password is only valid the one time.

21 Claims, 4 Drawing Sheets



US 20210139167A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2021/0139167 A1**

Dunning et al. (43) **Pub. Date: May 13, 2021**

(54) **MONITORING OF A REVOLVING COMPONENT EMPLOYING TIME-SYNCHRONIZED MULTIPLE DETECTORS**

(71) Applicant: **GE AVIATION SYSTEMS LIMITED**, Gloucestershire (GB)

(72) Inventors: **Paul Dunning**, Eastleigh (GB); **Nicholas Keningley**, Eastleigh (GB); **Steven Bonnett**, Eastleigh (GB); **Timothy North**, Eastleigh (GB); **Matthew William Wiseman**, Fairfield, OH (US)

(73) Assignee: **GE AVIATION SYSTEMS LIMITED**, Gloucestershire (GB)

(21) Appl. No.: **16/677,631**

(22) Filed: **Nov. 7, 2019**

Publication Classification

(51) **Int. Cl.**

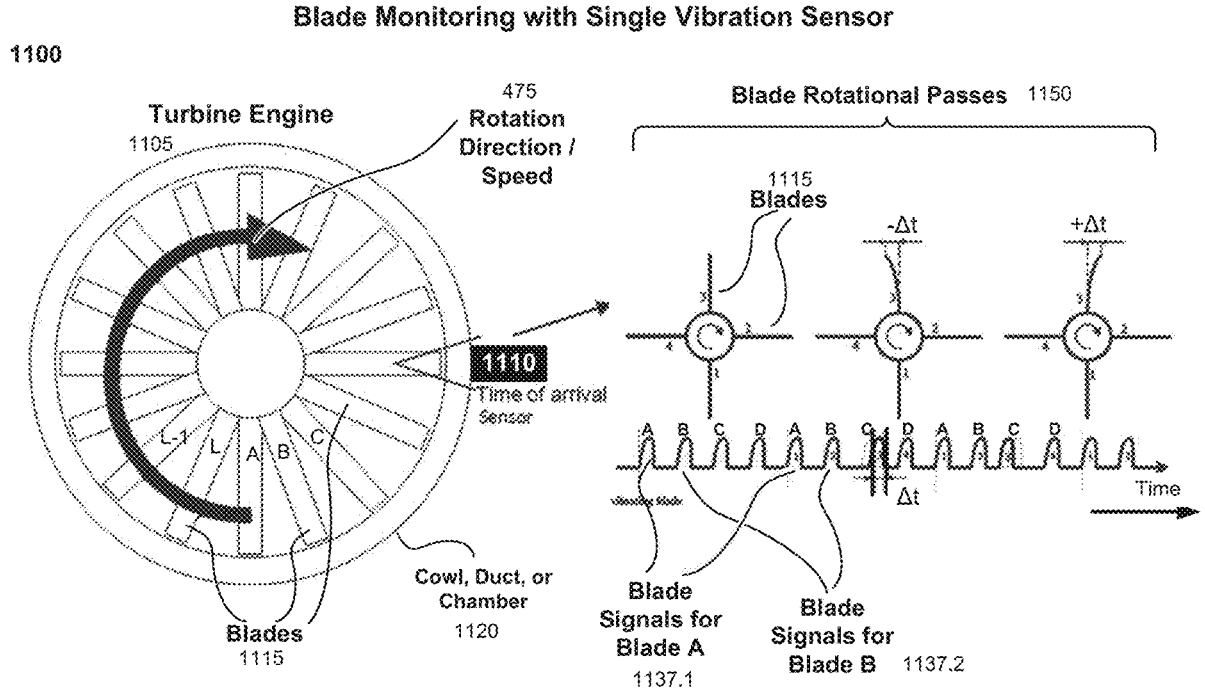
B64F 5/60	(2006.01)
G07C 5/02	(2006.01)

(52) **U.S. Cl.**

CPC . ***B64F 5/60*** (2017.01); ***G07C 5/02*** (2013.01)

(57) **ABSTRACT**

A system and method for acquiring accurate vibration data, time of arrival, or other mechanical state for a mechanical system with rotary elements, such as a planetary gear system with multiple planet gears that rotate relative to a central sun gear, or blades in a turbine engine. Multiple vibration sensors are arranged at spaced intervals along the exterior of the gear system (such as along the ring gear of the system or the exterior housing of the system). Each vibration sensor is so situated as to periodically detect vibrations from each one of the planet gears in succession, as the planet gears rotate around the central sun gear. Using timing and gear-system configuration information, a determination is made as to which gear is being sensed by any one sensor at any time; also determined is which teeth of each gear are being sensed by a particular sensor at any one time. The system and method consolidates the vibration data from multiple sensors to determine a consolidated vibration profile for each planet gear.



US010740855B2

(12) **United States Patent**
Lesik et al.

(10) **Patent No.: US 10,740,855 B2**
(45) **Date of Patent: Aug. 11, 2020**

(54) **SUPPLY CHAIN TRACKING OF FARM PRODUCE AND CROPS**

(71) Applicant: **Hand Held Products, Inc.**, Fort Mill, SC (US)

(72) Inventors: **Joseph R. Lesik**, Greenburg, PA (US); **Brian Sutton**, North Huntingdon, PA (US)

(73) Assignee: **HAND HELD PRODUCTS, INC.**, Fort Mill, SC (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 601 days.

(21) Appl. No.: **15/378,124**

(22) Filed: **Dec. 14, 2016**

(65) **Prior Publication Data**

US 2018/0165771 A1 Jun. 14, 2018

(51) **Int. Cl.**
G06Q 50/02 (2012.01)
G06Q 10/08 (2012.01)

(52) **U.S. Cl.**
CPC ***G06Q 50/02*** (2013.01); ***G06Q 10/087*** (2013.01)

(58) **Field of Classification Search**
CPC G06Q 10/087; G06Q 50/02
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,832,725 B2 12/2004 Gardiner et al.
7,128,266 B2 10/2006 Marlton et al.
7,159,783 B2 1/2007 Walczyk et al.
7,413,127 B2 8/2008 Ehrhart et al.
7,726,575 B2 6/2010 Wang et al.
8,294,969 B2 10/2012 Plesko
8,317,105 B2 11/2012 Kotlarsky et al.
8,322,622 B2 12/2012 Suzhou et al.
8,366,005 B2 2/2013 Kotlarsky et al.
8,371,507 B2 2/2013 Haggerty et al.
8,376,233 B2 2/2013 Van Horn et al.
8,381,979 B2 2/2013 Franz
8,390,909 B2 3/2013 Plesko
8,408,464 B2 4/2013 Zhu et al.
(Continued)

FOREIGN PATENT DOCUMENTS

WO 2013163789 A1 11/2013
WO 2013173985 A1 11/2013
(Continued)

OTHER PUBLICATIONS

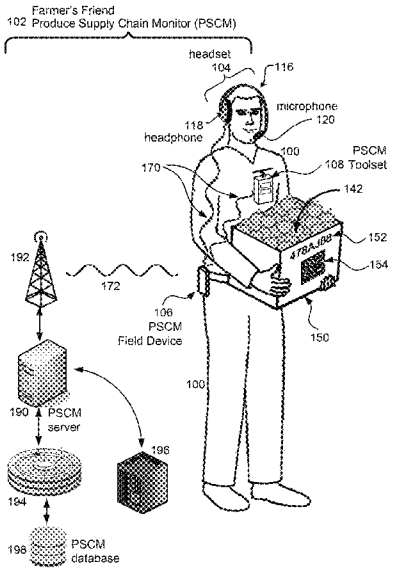
U.S. Appl. No. 13/367,978, filed Feb. 7, 2012, (Feng et al.); now abandoned.
(Continued)

Primary Examiner — A. Hunter Wilder
Assistant Examiner — Joseph M Mutschler
(74) *Attorney, Agent, or Firm* — Alston & Bird LLP

(57) **ABSTRACT**

A device, system, and method are disclosed whereby farm produce harvested at a particular time and location can be tracked throughout the food supply chain, from farm or orchard to consumer market. If farm produce in the market is found to be unhealthy, contaminated, or otherwise unsuited for human consumption, the system and method enables identification of the source of harvesting, and so identification of other produce which was harvested at substantially the same time and location. This enables improved identification and containment of any problems in the produce food supply chain.

20 Claims, 7 Drawing Sheets



US 20110082350A1

(19) United States

(12) Patent Application Publication

(10) Pub. No.: US 2011/0082350 A1

(43) Pub. Date: Apr. 7, 2011

Koh

(54) **ASSESSING A DEGREE OF VASCULAR BLOCKAGE OR RISK OF ISCHEMIA**

(75) Inventor: **Steve Koh**, South Pasadena, CA (US)

(73) Assignee: **PACESETTER, INC.**, Sylmar, CA (US)

(21) Appl. No.: **12/573,735**

(22) Filed: **Oct. 5, 2009**

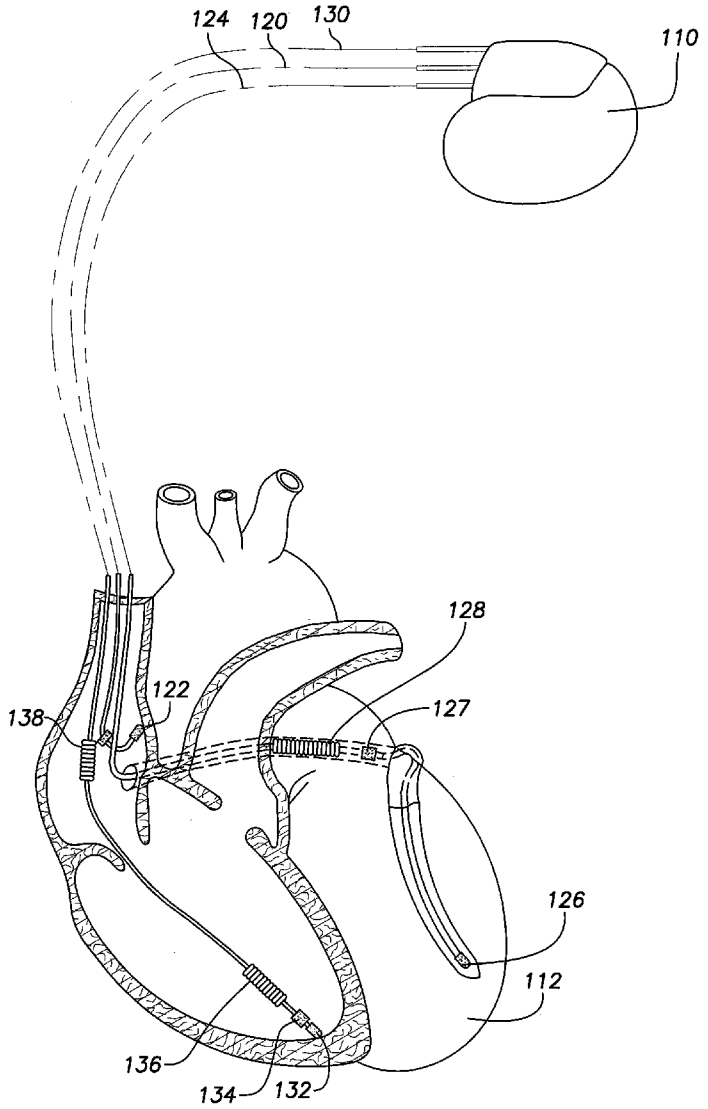
Publication Classification

(51) **Int. Cl.**
A61B 5/0205 (2006.01)

(52) **U.S. Cl.** **600/301**; 600/484

(57) **ABSTRACT**

A system and method for determining a patient's degree of cardiac vascular blockage or, equivalently, a patient's risk of cardiac ischemia, based on the time interval between the onset of exercise activity and the onset of an episode of cardiac ischemia. In one embodiment, an implantable cardiac device may obtain an EGM and possibly other measures of patient physiologic activity. These measures are used to determine when the patient has initiated exercise activity. Analysis of the EGM then detects an elevated or depressed ST segment, which typically indicates an episode of cardiac ischemia. The time interval between the onset of exercise and the onset of ischemia is a metric reflecting the patient's degree of vascular blockage or, equivalently, the patient's risk of ischemia. Other metrics may be derived, such as a substantially workload-level invariant measure determined as the product of the exercise workload level and the ischemia onset time interval.



US008108053B2

(12) **United States Patent**
Zhao

(10) **Patent No.: US 8,108,053 B2**
(45) **Date of Patent: Jan. 31, 2012**

(54) **SMALL CALIBER IMPLANTABLE BIOMETRIC LEADS AND CABLES FOR SAME**

(75) Inventor: **Yong D. Zhao**, Simi Valley, CA (US)

(73) Assignee: **Pacesetter, Inc.**, Sylmar, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 534 days.

(21) Appl. No.: **12/370,461**

(22) Filed: **Feb. 12, 2009**

(65) **Prior Publication Data**

US 2010/0204767 A1 Aug. 12, 2010

(51) **Int. Cl.**
A61N 1/00 (2006.01)

(52) **U.S. Cl.** **607/122**

(58) **Field of Classification Search** 607/122
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,712,555	A	12/1987	Thornander et al.	
4,788,980	A	12/1988	Mann et al.	
4,940,052	A	7/1990	Mann et al.	
4,944,298	A	7/1990	Sholder	
5,466,254	A	11/1995	Helland	
5,476,483	A	12/1995	Bornzin et al.	
6,314,323	B1	11/2001	Ekwall	
7,366,556	B2 *	4/2008	Brister et al.	600/347
2007/0106144	A1	5/2007	Squeri	
2009/0192577	A1 *	7/2009	Desai	607/116

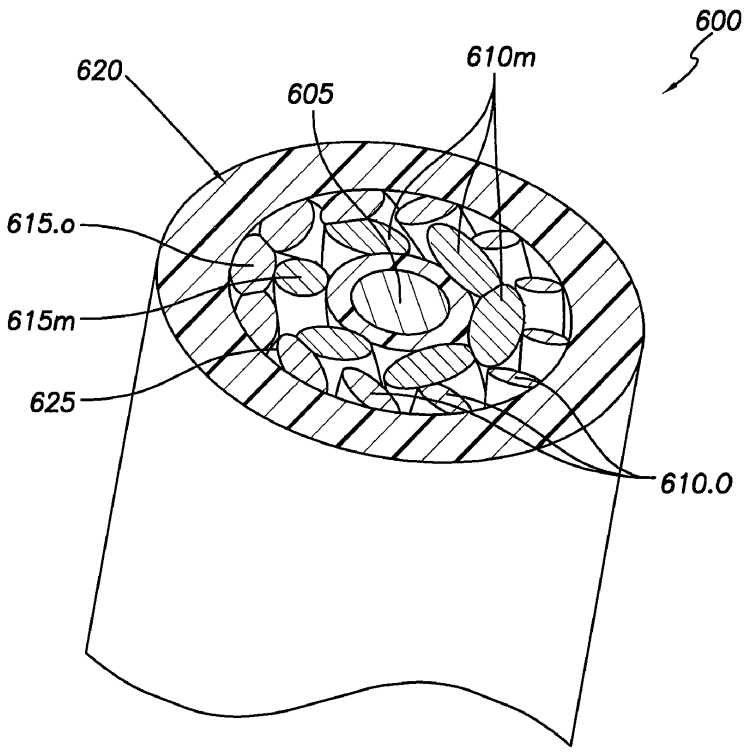
* cited by examiner

Primary Examiner — George Manuel

(57) **ABSTRACT**

Implantable medical leads have reduced diameter while providing for optimized mechanical and electrical properties, by reducing the diameters of the conducting cables used within the leads for sensing and delivery of therapeutic electrical stimulation. In an embodiment, conducting filaments within a cable have oval cross-sectional areas. Suitably orienting the oval filaments increases the contact surface between adjacent filaments, broadly distributing the pressure between filaments and reducing fretting fatigue, while the oval cross-sectional area also increases conductivity. In an embodiment, non-conducting coatings around filaments within a cable, or around groups of filaments organized into cable-layers, reduce fretting fatigue. In an embodiment, the cross-sectional area of filaments decreases as the filaments are positioned at increasing radial distances from the center of the cable. In an embodiment, the relative composition of various filament metals and/or alloys is varied in filaments at different radial distances from the center of the cable.

21 Claims, 26 Drawing Sheets



US010235547B2

(12) **United States Patent**
Ackley

(10) **Patent No.: US 10,235,547 B2**
(45) **Date of Patent: Mar. 19, 2019**

(54) **ENHANCED MATRIX SYMBOL ERROR CORRECTION METHOD**

(71) Applicant: **Hand Held Products, Inc.**, Fort Mill, SC (US)

(72) Inventor: **H. Sprague Ackley**, Seattle, WA (US)

(73) Assignee: **HAND HELD PRODUCTS, INC.**, Fort Mill, SC (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/006,561**

(22) Filed: **Jan. 26, 2016**

(65) **Prior Publication Data**

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(51) **Int. Cl.**
G06K 7/14 (2006.01)
G06F 11/10 (2006.01)

(52) **U.S. Cl.**
CPC ***G06K 7/1473*** (2013.01); ***G06F 11/10*** (2013.01); ***G06K 7/14*** (2013.01); ***G06K 7/1417*** (2013.01)

(58) **Field of Classification Search**
CPC G06K 7/1473; G06K 7/1417; G06K 19/06037; G06K 19/06046; G06K 19/06075; G06K 19/06056; G06K 7/10722; G06K 7/1434; G06F 11/10
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,553,084 A 9/1996 Ackley et al.
6,330,972 B1 12/2001 Wiklof et al.
6,832,725 B2 12/2004 Gardiner et al.
7,128,266 B2 10/2006 Marlton et al.
(Continued)

FOREIGN PATENT DOCUMENTS

WO 2013163789 A1 11/2013
WO 2013173985 A1 11/2013
(Continued)

OTHER PUBLICATIONS

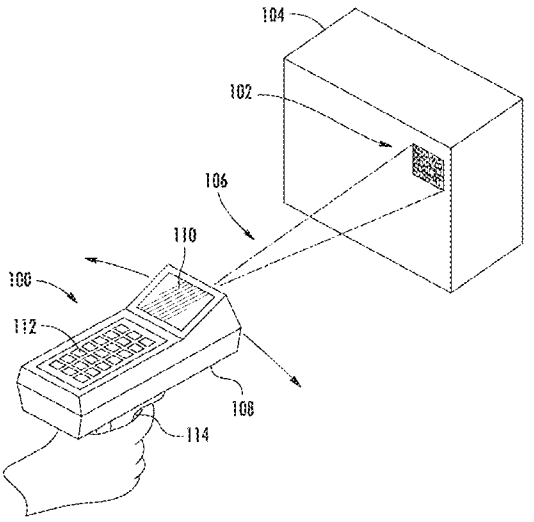
U.S. Appl. No. 14/715,916 for Evaluating Image Values filed May 19, 2015 (Ackley); 60 pages.
(Continued)

Primary Examiner — Kyle Vallecillo
(74) *Attorney, Agent, or Firm* — Additon, Higgins & Pendleton, P.A.

(57) **ABSTRACT**

A system and method for error correction for machine-readable symbols having data codewords, and having error correction (EC) codewords derived from the data codewords and redundantly indicating the location and data contents of the data codewords. The symbols use Reed-Solomon (RS) error correction to retrieve damaged codewords. RS error correction normally requires two EC codewords to identify both the location and data contents of a data codeword. The present system and method performs optical contrast analysis on the codewords, identifying those codewords with the lowest contrast levels (that is, the least difference between the reflectance of the black or white cells and the black/white threshold). Codewords with the lowest contrast levels are flagged as optically ambiguous, thereby marking, in the EC equations, the locations of the codewords most like to be in error. As a result, only a single EC codeword is required to retrieve the data for a flagged data codeword.

14 Claims, 8 Drawing Sheets



US 20100114236A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2010/0114236 A1**

(43) **Pub. Date: May 6, 2010**

Jiang et al.

(54) **HYBRID BATTERY SYSTEM WITH BIOELECTRIC CELL FOR IMPLANTABLE CARDIAC THERAPY DEVICE**

(75) Inventors: **Naixiong Jiang**, Mountain View, CA (US); **Gene A. Bornzin**, Simi Valley, CA (US); **John W. Poore**, South Pasadena, CA (US)

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(73) Assignee: **PACESETTER INC.**, Sunnyvale, CA (US)

(21) Appl. No.: **12/263,348**

(22) Filed: **Oct. 31, 2008**

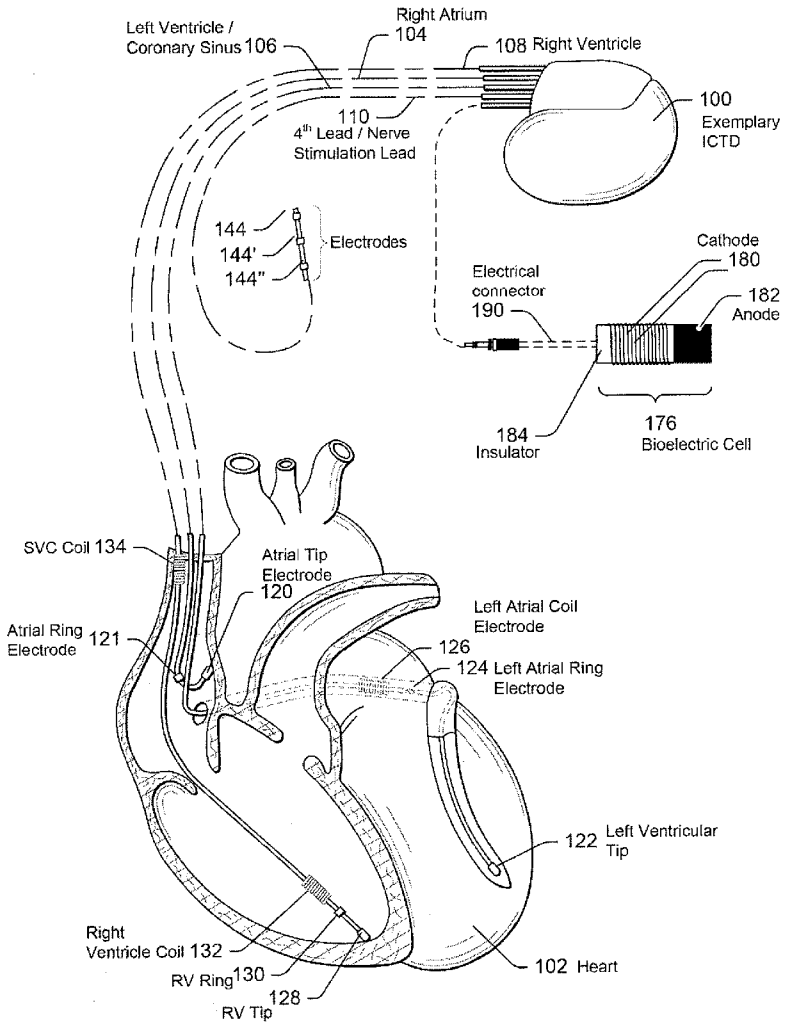
Publication Classification

(51) **Int. Cl.**
A61N 1/362 (2006.01)
H01M 10/36 (2006.01)

(52) **U.S. Cl.** **607/35**; 429/2

(57) **ABSTRACT**

A system and method for powering an implantable cardiac therapy device (ICTD) via a hybrid battery system. The hybrid battery is comprised of a low voltage and low current bioelectric cell, a high voltage and high current rechargeable cell, and a charging means. Via the charging means, the bioelectric cell maintains the rechargeable cell at or near full power. The rechargeable cell is configured to power some or all operations of the ICTD. Some ICTD operations may be powered directly by the bioelectric cell. The rechargeable cell is further configured to be charged via a continuous charging process, reducing the complexity of the charging circuitry. In an embodiment, at least the bioelectric cell is external to the ICTD, enabling easy replacement of this power source. In an embodiment, a consumable anode of the bioelectric cell is external to the ICTD, enabling replacement of the power source by replacing only the anode.



US 20210097782A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2021/0097782 A1**

Dunning et al. (43) **Pub. Date: Apr. 1, 2021**

(54) **PRESERVING VEHICULAR RAW VIBRATION DATA FOR POST-EVENT ANALYSIS**

(71) Applicant: **GE AVIATION SYSTEMS LIMITED**, Gloucestershire (GB)

(72) Inventors: **Paul Dunning**, Eastleigh (GB); **Steven Bonnett**, Eastleigh (GB); **Timothy North**, Eastleigh (GB); **Daniel Lee**, Eastleigh (GB)

(73) Assignee: **GE AVIATION SYSTEMS LIMITED**, Gloucestershire (GB)

(21) Appl. No.: **16/586,793**

(22) Filed: **Sep. 27, 2019**

Publication Classification

(51) **Int. Cl.**

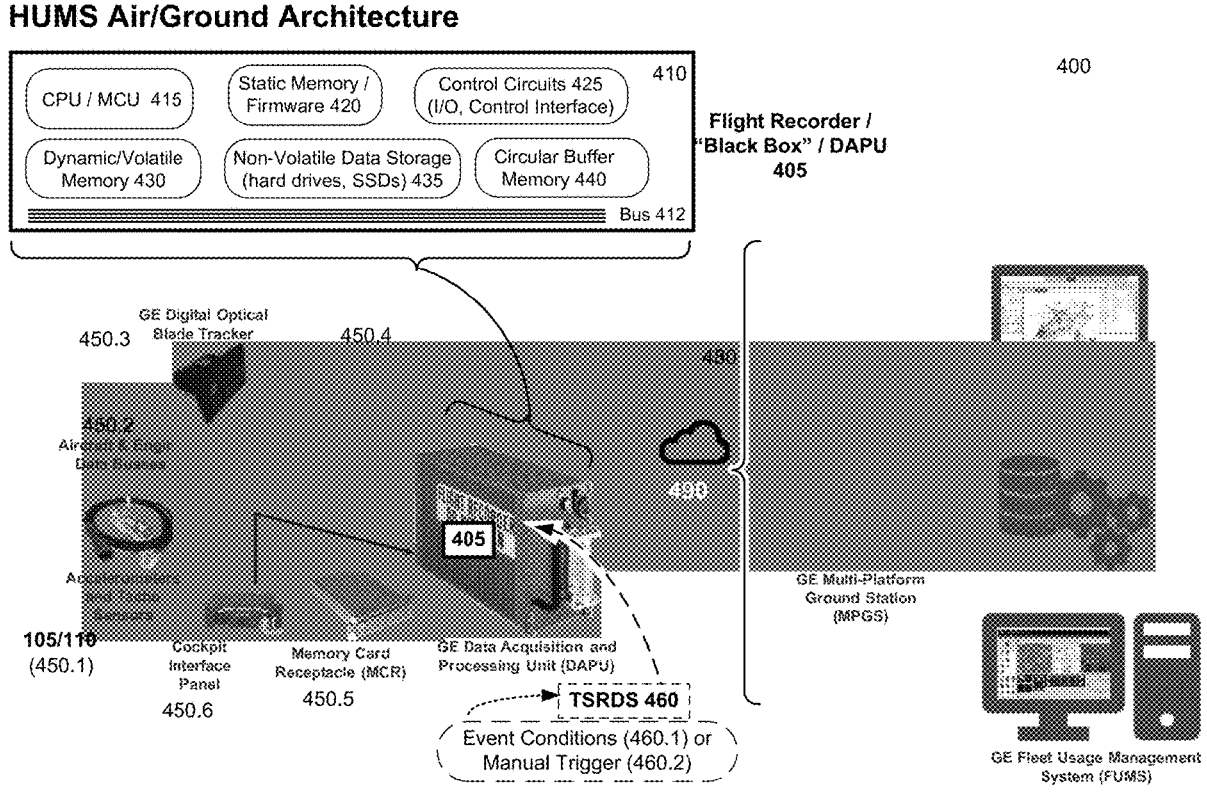
G07C 5/08	(2006.01)
B64F 5/60	(2006.01)

(52) **U.S. Cl.**

CPC ***G07C 5/085*** (2013.01); ***B64F 5/60*** (2017.01)

(57) **ABSTRACT**

A system and method preserves raw vibration data for a physical event involving a transport vehicle such as a helicopter, plane, boat, car, or truck. The event may involve unexpected mechanical stresses on the vehicle. The system and method preserves raw vibration data for parts of the transport vehicle, such as from multiple points along the drive train. The preserved raw vibration data includes data from time prior to the physical event. In an embodiment, the system and method continuously detects vibration data, and stores the most recent vibration data in a circular memory buffer. The buffer is continually updated with the most current vibration data. When an event is automatically detected or manually triggered, the most recently saved vibration data is transferred from the buffer to permanent storage, along with vibration data obtained subsequent to the event. This allows for a more thorough post-event analysis.



US010373032B2

(12) **United States Patent**
d'Armancourt

(10) **Patent No.: US 10,373,032 B2**
(45) **Date of Patent: Aug. 6, 2019**

(54) **CRYPTOGRAPHIC PRINTHEAD**

(71) Applicant: **Datamax-O'Neil Corporation**, Orlando, FL (US)

(72) Inventor: **Sébastien Michel Marie Joseph d'Armancourt**, Singapore (SG)

(73) Assignee: **Datamax-O'Neil Corporation**, Orlando, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/665,705**

(22) Filed: **Aug. 1, 2017**

(65) **Prior Publication Data**

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(51) **Int. Cl.**

H04N 1/32	(2006.01)
G06K 15/00	(2006.01)
G06K 15/02	(2006.01)
B41J 2/355	(2006.01)

(52) **U.S. Cl.**

CPC ***G06K 15/4095*** (2013.01); ***B41J 2/355*** (2013.01); ***G06K 15/028*** (2013.01); ***H04N 1/32272*** (2013.01); *H04N 2201/3281* (2013.01)

(58) **Field of Classification Search**

CPC ... G06K 15/4095; G06K 15/028; B41J 2/355; H04N 1/32272; H04N 2201/3281

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,583,779 A		12/1996	Naclerio et al.	
6,056,455 A	*	5/2000	Klaus	B41J 2/2132 400/176
6,250,824 B1	*	6/2001	Ogiyama	B41J 2/325 347/172
6,832,725 B2		12/2004	Gardiner et al.	
7,039,185 B2		5/2006	Campagna et al.	
7,128,266 B2		10/2006	Zhu et al.	
7,159,783 B2		1/2007	Walczyk et al.	
7,413,127 B2		8/2008	Ehrhart et al.	
7,726,575 B2		6/2010	Wang et al.	

(Continued)

FOREIGN PATENT DOCUMENTS

WO 2013163789 A1 11/2013

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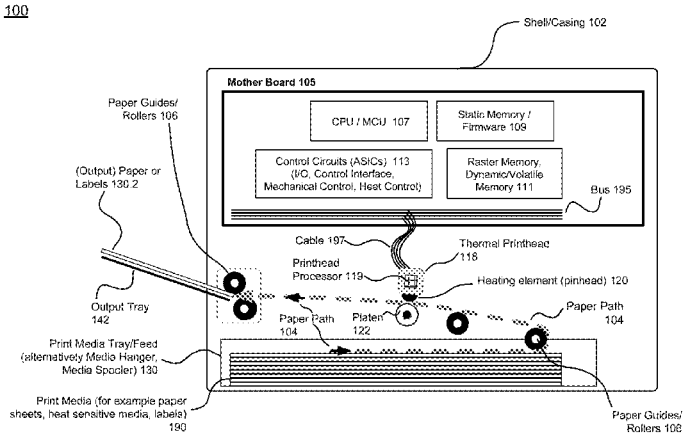
(57) **ABSTRACT**

A printer is configured with a processor which calculates printhead control parameters, the control parameters being determined by the processor in such a way as to optimize the printing process of the printer's printhead. The processor determines the printhead control parameters according to an optimization algorithm stored in the printer. To maintain the internal security of the optimization algorithm, the printhead control parameters are encrypted by the processor. The encrypted printhead control parameters are then transmitted to the printhead via an internal data path of the printer. If a third party monitors the data along the internal data path, the encryption algorithm remains secure because the control parameters are encrypted. The printhead contains a second, dedicated processor. The printhead processor receives the encrypted printhead control parameters, and decrypts the control parameters. The printhead then prints according to the decrypted printhead control parameters, ensuring optimized printing.

17 Claims, 5 Drawing Sheets

Exemplary Thermal Printer



US010960681B2

(12) **United States Patent**
Ho

(10) **Patent No.: US 10,960,681 B2**
(45) **Date of Patent: Mar. 30, 2021**

(54) **AUTOCORRECTION FOR UNEVEN PRINT PRESSURE ON PRINT MEDIA**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/511,840**

(22) Filed: **Jul. 15, 2019**

(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation of application No. 15/696,359, filed on Sep. 6, 2017, now Pat. No. 10,399,359.

(51) **Int. Cl.**
B41J 2/36 (2006.01)

(52) **U.S. Cl.**
CPC ***B41J 2/362*** (2013.01)

(58) **Field of Classification Search**
CPC B41J 29/393; B41J 2/32; B41J 2/36; B41J 2/362
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,827,279 A 5/1989 Lubinsky et al.
6,832,725 B2 12/2004 Gardiner et al.
7,128,266 B2 10/2006 Zhu et al.
7,159,783 B2 1/2007 Walczyk et al.
7,413,127 B2 8/2008 Ehrhart et al.
(Continued)

FOREIGN PATENT DOCUMENTS

WO 2013/163789 A1 11/2013

OTHER PUBLICATIONS

Notice of Allowance for related U.S. Appl. No. 15/696,359, dated May 20, 2019, 10 pages.
(Continued)

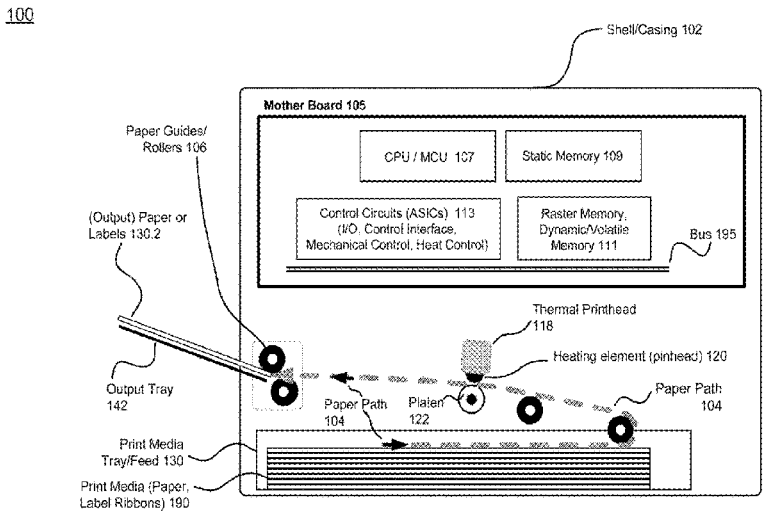
Primary Examiner — Jannelle M Lebron
(74) *Attorney, Agent, or Firm* — Alston & Bird LLP

(57) **ABSTRACT**

A printer may be used to print on print media, such as labels, where the print media, as fed through the print, spans substantially less than the full width of the printhead and platen. This may result in uneven print pressure across the print media during the print process. The uneven print pressure, in turn, may result in an uneven print density on the print media, which causes poor print quality. A system and method is employed with identifies the uneven print pressure, and compensates for the uneven print pressure to ensure consistent print density and good print quality. Along segments of the printhead which apply a below average pressure to the print media, the printhead is configured to apply a proportionately higher density of an appropriate contrast-inducing element, such as ink or heat. Along segments of the printhead which apply an above average pressure to the print media, the printhead is configured to apply a proportionately lower density of an appropriate contrast-inducing element, such as ink or heat.

17 Claims, 5 Drawing Sheets

Exemplary Thermal Printer



US008171323B2

(12) **United States Patent**
Rakshani et al.

(10) **Patent No.: US 8,171,323 B2**
(45) **Date of Patent: May 1, 2012**

(54) **INTEGRATED CIRCUIT WITH MODULAR DYNAMIC POWER OPTIMIZATION ARCHITECTURE**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 799 days.

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(22) Filed: **Jul. 1, 2008**

(65) **Prior Publication Data**

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(51) **Int. Cl.**
G06F 1/00 (2006.01)
G06F 1/32 (2006.01)

(52) **U.S. Cl.** **713/323**; 713/300; 713/320; 713/322; 713/324

(58) **Field of Classification Search** 713/300, 713/320, 322–324, 500, 600; 714/1, 4.11, 714/10, 11, 13
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,947,865	B1	9/2005	Mimberg et al.	
6,990,594	B2	1/2006	Kim	
7,043,649	B2	5/2006	Terrell	
2002/0021163	A1*	2/2002	Manning	327/534
2002/0165622	A1*	11/2002	Fujii	700/22
2004/0117678	A1*	6/2004	Soltis et al.	713/320
2005/0107967	A1*	5/2005	Patel et al.	702/64
2005/0253462	A1*	11/2005	Falkowski et al.	307/43
2006/0220726	A1*	10/2006	Ward et al.	327/534
2006/0294399	A1*	12/2006	Chen et al.	713/300
2007/0234083	A1*	10/2007	Lee	713/300
2007/0250721	A1*	10/2007	Searles et al.	713/300
2010/0097128	A1*	4/2010	Sumita	327/537
2010/0250974	A1*	9/2010	Ristic et al.	713/300

OTHER PUBLICATIONS

Strasser, M. et al. "Micromachined CMOS Thermoelectric Generators as On-Chip Power Supply". 2003. IEEE. The 12th International Conference on Solid State Sensors, Acutators, and Microsystems. Boston. Jun. 8-12, 2003. pp. 45-48.*

Mathuna, Sean et al. "Magnetics on Silicon: An Enabling Technology for power Supply on Chip". May 2005. IEEE. IEEE Transactions on Power Electronics. vol. 20, No. 3. pp. 585-592.*

"The Free On-Line Dictionary of Computing". Entry 'redundancy'. Online May 9, 1995. Retrieved from Internet Sep. 8, 2011. <http://foldoc.org/redundancy>.*

U.S. Appl. No. 11/073,229, filed Aug. 18, 2005, Krishnan.

* cited by examiner

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(57) **ABSTRACT**

A system and method for regulating power consumption within an integrated circuit (IC) with a modular design. The IC is designed so that any one distinct functional module within the IC utilizes only transistors with a substantially same or similar critical voltage level, which may for example be the threshold voltage of the transistors. Consequently, the supply voltage delivered to each functional modules can be lowered to the minimum voltage necessary to enable the transistors within the module to operate. Similarly, modules within the IC may be designed with transistors which share a common value for a substrate bias voltage or a clock speed, or with a combination of common values for several electrical factors. In this way, it is possible to reduce power consumption by fine-tuning the voltages supplied to (or clock speeds driving) specific modules, in a way which is custom-tuned to each module.

22 Claims, 10 Drawing Sheets