



- (51) **International Patent Classification:**
H02J 7/04 (2006.01) *H01M 10/44* (2006.01)
- (21) **International Application Number:**
PCT/US2012/035673
- (22) **International Filing Date:**
27 April 2012 (27.04.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/480,286 28 April 2011 (28.04.2011) US
61/522,204 10 August 2011 (10.08.2011) US
- (71) **Applicant (for all designated States except US):** **ZOLL CIRCULATION, INC.** [US/US]; 650 Almanor Avenue, Sunnyvale, California 94085 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **YIP, Sean** [US/US]; 2250 Latham Street, Apt. 81, Mountain View, California 94040 (US). **MACK, David** [US/US]; 18269 Baylor Avenue, Saratoga, California 95070 (US).
- (74) **Agent:** **JOHN K. FITZGERALD;** Fulwider Patton LLP, 6060 Center Drive, Tenth Floor, Los Angeles, California 90045 (US).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

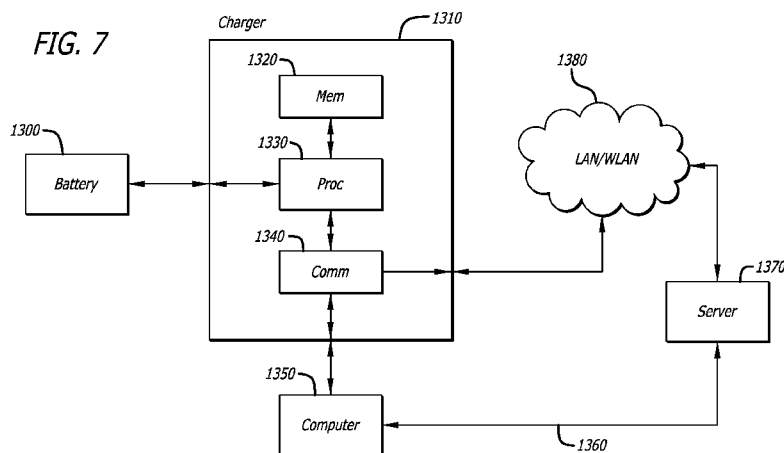
- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

- (88) **Date of publication of the international search report:**
27 December 2012

(54) **Title:** SYSTEM AND METHOD FOR TRACKING AND ARCHIVING BATTERY PERFORMANCE DATA



(57) **Abstract:** An intelligent rechargeable battery pack having a battery management system for monitoring and controlling the charging and discharging of the battery pack is described. The battery management system includes a memory for storing data related to the operation of the battery, and the battery management system is also configured to communicate the data related to the operation of the battery to other processors for analysis.

WO 2012/149482 A3

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference ZOLLMC-88194	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2012/035673	International filing date (<i>day/month/year</i>) 27 APRIL 2012 (27.04.2012)	(Earliest) Priority Date (<i>day/month/year</i>) 28 APRIL 2011 (28.04.2011)
Applicant ZOLL CIRCULATION, INC. et al		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

the international application in the language in which it was filed

a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (See Box No. II)

3. **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the **drawings** to be published with the abstract is Figure No. F.7.

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b. none of the figure is to be published with the abstract.

A. CLASSIFICATION OF SUBJECT MATTER***H02J 7/04(2006.01)i, H01M 10/44(2006.01)i***

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H02J 7/04; H01M 10/46; H02J 7/00; H01M 10/44; G01R 31/36

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: battery pack, parameter, memory, history, event

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6169387 B1 (KAIB; THOMAS E.) 02 January 2001	1-12, 16-18
Y	See the abstract; columns 4-7, claims 1-14, 34-35, and figures 1-9.	13-15
Y	WO 2009-070663 A1 (GWACS DEFENSE, INC. et al.) 04 June 2009	13-14
A	See the abstract; paragraph [0037], claims 1-14, and figure 1.	1-12, 15-18
Y	US 7728548 B2 (DAYNES JOHN C. et al.) 01 June 2010	15
A	See the abstract; paragraph [0027], claims 1-7, and figures 1-3.	1-14, 16-18
A	WO 2006-082425 A1 (XIPOWER LIMITED et al.) 10 August 2006	1-18
	See the abstract; claims 1-33, and figures 1-10.	

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

31 OCTOBER 2012 (31.10.2012)

Date of mailing of the international search report

01 NOVEMBER 2012 (01.11.2012)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan
City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

WEE Jae Woo

Telephone No. 82-42-481-8540



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/035673

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6169387 B1	02.01.2001	CA 2240996 A1	22.06.1999
		CA 2311873 A1	26.01.2001
		DE 69820015 D1	08.01.2004
		DE 69820015 T2	03.06.2004
		EP 0923961 A1	23.06.1999
		EP 0923961 B1	26.11.2003
		EP 1072285 A1	31.01.2001
		US 5929601 A	27.07.1999
		WO 2009-070663 A1	04.06.2009
EP 2232670 A1	29.09.2010		
KR 10-2010-0096209 A	01.09.2010		
US 2011-0023130 A1	27.01.2011		
US 7728548 B2	01.06.2010	US 2009-0295326 A1	03.12.2009
		US 2010-0198286 A1	05.08.2010
		US 2010-0198287 A1	05.08.2010
		US 8179087 B2	15.05.2012
		US 8183823 B2	22.05.2012
		WO 2009-149065 A2	10.12.2009
		WO 2009-149065 A3	17.06.2010
WO 2006-082425 A1	10.08.2006	AT 519124 T	15.08.2011
		AU 2006-210743 A1	10.08.2006
		AU 2006-210743 B2	09.12.2010
		DK 1846776 T3	21.11.2011
		EP 1846776 A1	24.10.2007
		EP 1846776 B1	03.08.2011
		ES 2371059 T3	27.12.2011
		GB 0502274 D0	09.03.2005
		US 2008-0278115 A1	13.11.2008