

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/113943 A1

(51) International Patent Classification⁷: **G01R 31/36**

(21) International Application Number:
PCT/SG2004/000164

(22) International Filing Date: 1 June 2004 (01.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
200303590-4 23 June 2003 (23.06.2003) SG

(71) Applicant (for all designated States except US): VEPAC
TECHNOLOGY PTE LTD [SG/SG]; 45 Campbell Lane,
Singapore 209917 (SG).

(72) Inventors; and

(75) Inventors/Applicants (for US only): CHEW, Song, Kit
[SG/SG]; 12 St. Michael's Road, Singapore 327964 (SG).
LEE, Bon, Kwe [SG/SG]; 95 Hillview Crescent, Singa-
pore 669488 (SG).

(74) Agent: ALBAN TAY MAHTANI & DE SILVA; 39
Robinson Road, #07-01 Robinson Point, Singapore
068911 (SG).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

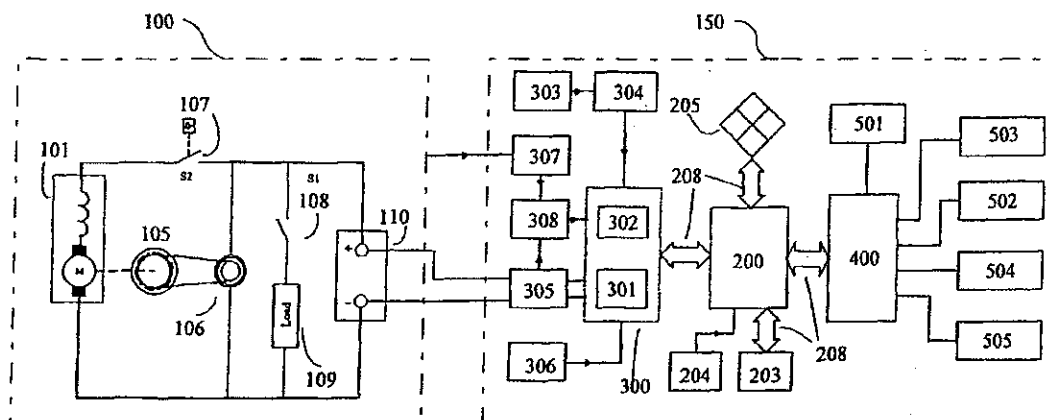
— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: SYSTEM AND APAPRATUS FOR VEHICLE ELECTRICAL POWER ANALYSIS



(57) Abstract: Apparatus for monitoring an electrical power supply system of a vehicle, the vehicle having a battery and internal combustion engine, an alternator, and a starter. The apparatus has a filter for determining the battery terminal voltage when the vehicle ignition is turned on. There is also a voltage gradient detector for detecting phase and gradient change of the battery terminal voltage when the vehicle ignition is on. A waveform detector is used for detecting and separating different waveforms when the vehicle ignition is on, and an engine-rotating sensor is used to sense a speed of the internal combustion engine when the vehicle ignition is on. Also included is a processor for processing at least one of the battery terminal voltage, the phase and gradient change, the different waveforms, and the speed of the internal combustion engine. An output is provided that is indicative of a condition of the electrical power supply system. A system for monitoring an electrical power supply system of a vehicle is also disclosed.