

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
24 March 2022 (24.03.2022)



(10) International Publication Number
WO 2022/060808 A1

- (51) **International Patent Classification:**
H02J 13/00 (2006.01) *H02J 3/00* (2006.01)
- (21) **International Application Number:**
PCT/US2021/050422
- (22) **International Filing Date:**
15 September 2021 (15.09.2021)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
17/026,648 21 September 2020 (21.09.2020) US
- (71) **Applicant:** LANDIS+GYR INNOVATIONS, INC.
[US/US]; 30000 Mill Creek Avenue, Suite 100, Alpharetta,
Georgia 30022 (US).
- (72) **Inventor:** TOULGOAT-DUBOIS, Frederic, Charles;
30000 Mill Creek Avenue, Suite 100, Alpharetta, Georgia
30022 (US).
- (74) **Agent:** HOLMES, Brenda, Ozaki et al.; Kilpatrick
Townsend & Stockton LLP, IP Docketing - 22nd Floor,
Suite 2800, 1100 Peachtree Street NE, Atlanta, Georgia
30309 (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, BN, BR, BW, BY, BZ,

CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN,
KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,
NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW,
SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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, ST, 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,
KM, ML, MR, NE, SN, TD, TG).

Published:
— with international search report (Art. 21(3))

(54) **Title:** AUTONOMOUS TOPOLOGY VALIDATION FOR ELECTRICAL SUPPLY NETWORK

CORRELATION DATA 312				
METER	A	B	C	D
B	0.95			
C	0.63	0.7		
D	0.9	0.89	0.71	
E	0.92	0.93	0.66	0.96

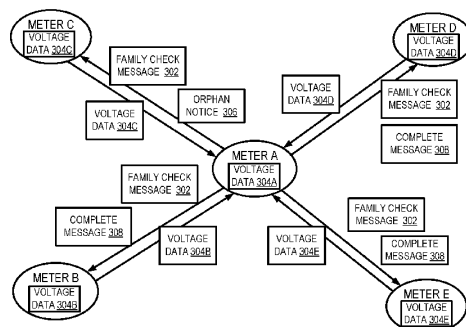


FIG. 3A

(57) **Abstract:** A system for autonomously validating the topology in-
formation of an electrical power distribution system is provided. For ex-
ample, the system includes a group of meters previously determined to
be connected to the same transformer of an electrical power distribution
system. The group of meters is configured to perform family check pe-
riodically or upon request and to identify orphan meters in the group.
The identified orphan meter can contact a community device commu-
nicatively connected to meters in more than one group to request a com-
munity check. The community device performs the community check
by contacting meters in other groups of meters and obtain their family
signature data. The community device further determines whether the
orphan meter belongs to a new family based on the voltage data of the
orphan meter and the family signature data of other groups. The orphan
meter can report the community check results to a headend system.

WO 2022/060808 A1