

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
01 May 2025 (01.05.2025)



(10) International Publication Number
WO 2025/090022 A1

- (51) **International Patent Classification:**
H04L 9/10 (2006.01) *H04L 9/32* (2006.01)
- (21) **International Application Number:**
PCT/SG2024/050676
- (22) **International Filing Date:**
23 October 2024 (23.10.2024)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
10202303025Q 25 October 2023 (25.10.2023) SG
10202400727T 15 March 2024 (15.03.2024) SG
- (71) **Applicant: ETYMOLOGY PTE. LTD.** [SG/SG]; 196 Pandan Loop #07-26 Pantech Business Hub, Singapore 128384 (SG).
- (72) **Inventors: WONG, Kok Ann;** 7 Woodland Drive 72 #06-14 Woodsvale, Singapore 738092 (SG). **TANG, Yi;** 91 Dawson Road #36-18 Skyterrace@Dawson, Singapore 144091 (SG).
- (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, CV, CZ, DE, DJ, DK, DM,

DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, 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, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, 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, ME, 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).

Declarations under Rule 4.17:

- *as to the identity of the inventor (Rule 4.17(i))*
- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

(54) **Title:** SECURITY SYSTEM AND METHOD FOR DATA COMMUNICATION CONCERNING INTERNET OF THINGS (IOT)

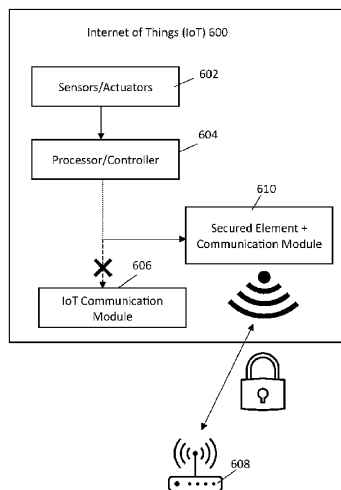


FIG. 6

(57) **Abstract:** The present invention provides a secured device for transmitting data over a IoT network, the secured device comprises an IoT device adapted to communicate to a IoT backend of the IoT network; and a communication module connecting locally to the IoT device and the IoT backend system, as a gateway to transmit data over a communication network; a microprocessor acts as a control unit for the secure device and handling the data flow; an FPGA chip operationally encrypting/decrypting the data; and a secure element for handling key diversification for encrypting/decrypting the data. The secured device is operationally, encrypting/decrypting data over the communication network, such that the data is end-to-end encrypted across the power grid metering network by the secure device. A method therefor is also provided.

WO 2025/090022 A1

[Continued on next page]

Published:

— *with international search report (Art. 21(3))*