(12) International Application Status Report

Received at International Bureau: 30 January 2020 (30.01.2020)
Information valid as of: 12 May 2020 (12.05.2020)
Report generated on: 26 September 2020 (26.09.2020)

(10) Publication number:
WO2020/112849

(43) Publication date:
04 June 2020 (04.06.2020)

(26) Publication language:
English (EN)

(21) Application Number:
PCT/US2019/063366

(22) Filing Date:
26 November 2019 (26.11.2019)

(25) Filing language:
English (EN)

(31) Priority number(s):
16/204,983 (US)

(31) Priority date(s):
29 November 2018 (29.11.2018)

(31) Priority status:
Priority document received (in compliance with PCT Rule 17.1)

(51) International Patent Classification:
G06F 21/00 (2013.01)

(71) Applicant(s):
BATTELLE ENERGY ALLIANCE, LLC [US/US]; P.O. Box 1625 MS 3899 Idaho Falls, Idaho 83415 (US) *(for all designated states)*
VIRGINIA COMMONWEALTH UNIVERSITY [US/US]; P.O. Box 980568 800 E. Leigh Street, Suite 300 Richmond, Virginia 23298 (US) *(for all designated states)*

(72) Inventor(s):
RIEGER, Craig G.; 1860 Ardella Drive Pocatello, Idaho 83201 (US)
MCJUNKIN, Timothy R.; 3103 Sandstone Drive Idaho Falls, Idaho 83404 (US)
MANIC, Milos; 12721 Sage Drive Henrico, Virginia 23233 (US)
AMARASINGHE, Kasun; 414 South Laurel Street Richmond, Virginia 23220 (US)

(74) Agent(s):
HAWKINS, Joseph J.; Stoel Rives LLP 201 So. Main Street, Suite 1100 Salt Lake City, Utah 84111 (US)

(54) Title (EN): SYSTEMS AND METHODS FOR CONTROL SYSTEM SECURITY

(54) Title (FR): SYSTÈMES ET PROCÉDÉS POUR LA SÉCURITÉ D'UN SYSTÈME DE COMMANDE

(57) Abstract:
(EN): A resilient security agent determines a cyber and/or physical health of a control system by, inter alia, communicating cyber-physical key data through cyber-physical control paths of the system, and determining error introduced by the communication. The resilient security agent may be further configured to verify the integrity of acquired cyber-physical state information. The cyber health of the control system may be evaluated by comparing the acquired cyber state information to one or more cyber state profiles. The physical health of the control system may be evaluated by comparing the acquired physical state information to one or more physical state profiles.

(FR): L'invention concerne un agent de sécurité résilient qui détermine la cybersanté et/ou la santé physique d'un système de commande, entre autres, par la communication de cyberdonnées et de données physiques clés par l'intermédiaire de cybervoies ou de voies physiques de commande du système, et par la détermination d'une erreur introduite par la communication. L'agent de sécurité résilient peut en outre être conçu pour vérifier l'intégrité des informations de cyberétat et d'état physique acquises. La cybersanté du système de commande peut être évaluée par comparaison des informations de cyberétat acquises à un ou plusieurs profils de cyberétat. La santé physique du système de commande peut être évaluée par comparaison des informations d'état physique acquises à un ou plusieurs profils d'état physique.

International search report:
Received at International Bureau: 30 March 2020 (30.03.2020) [US]

International Report on Patentability (IPRP) Chapter II of the PCT:

Not available

(81) Designated States:

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, 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, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

European Patent Office (EPO) : 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

African Intellectual Property Organization (OAPI) : BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG

African Regional Intellectual Property Organization (ARIPO) : BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW

Eurasian Patent Organization (EAPO) : AM, AZ, BY, KG, KZ, RU, TJ, TM