

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 July 2007 (19.07.2007)

PCT

(10) International Publication Number
WO 2007/082015 A3

(51) International Patent Classification:

H04J 3/26 (2006.01)

(21) International Application Number:

PCT/US2007/000687

(22) International Filing Date: 11 January 2007 (11.01.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/758,167 11 January 2006 (11.01.2006) US

(71) Applicant (for all designated States except US): **FISHER-ROSEMOUNT SYSTEMS, INC.** [US/US]; 12301 Research Boulevard - Law Department, Research Park Plaza, Building III, Austin, Texas 78759-2369 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DOBROWSKI, Patrick, M.** [US/US]; c/o Fisher-Rosemount Systems, Inc., 12301 Research Boulevard - Law Department, Research Park Plaza, Building III, Austin, Texas 78759-2369 (US). **LOVEGREN, Eric, R.** [US/US]; c/o Fisher-Rosemount Systems, Inc., 12301 Research Boulevard - Law Department, Research Park Plaza, Building III, Austin, Texas 78759-2369 (US). **ORTH, Kelly, M.** [US/US]; c/o

Fisher-Rosemount Systems, Inc., 12301 Research Boulevard - Law Department, Research Park Plaza, Building III, Austin, Texas 78759-2369 (US). **STOTZ, Kyle, L.** [US/US]; c/o Fisher-Rosemount Systems, Inc., 12301 Research Boulevard - Law Department, Research Park Plaza, Building III, Austin, Texas 78759-2369 (US).

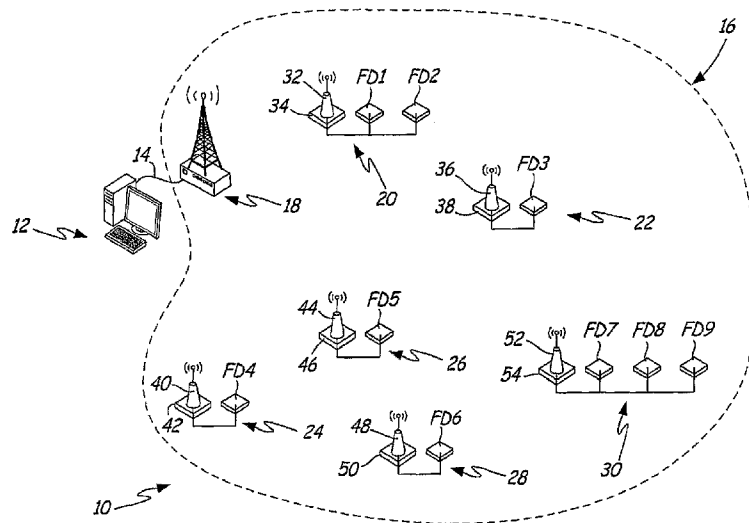
(74) Agents: **FAIRBAIRN, David, R.** et al.; Kinney & Lange, P.A., Kinney & Lange Building, 312 South Third Street, Minneapolis, Minnesota 55415-1002 (US).

(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, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: CONTROL OF LOW POWER WIRELESS NETWORKS FOR POWER CONSERVATION



(57) Abstract: A wireless mesh network routes messages between a host computer and a plurality of field devices. The mesh network is synchronized to a global regular active schedule that defines active periods when messages can be transmitted or received by nodes of the network, and inactive periods when messages cannot be transmitted or received. Based upon messages to be sent by the host computer to selected field devices, the network is controlled to selectively maintain active those nodes required to route messages to the selected field devices. Those required nodes are maintained in an active state as long as communication with the selected field devices continues, while other nodes are allowed to return to a low power inactive state. When communication between the host computer and the selected field devices is no longer required, the entire network is allowed to enter the low power inactive state.

WO 2007/082015 A3



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, 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).

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
17 January 2008

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

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/00687

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - H04J 3/26 (2007.01)

USPC - 370/432

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)

IPC(8) - H04J 3/00, 3/26; H04B 7/212, 7/00, 15/00; H04L 12/28; H04M 1/663, 1/725; H04Q 7/22, 7/20 (2007.01)

USPC - 370/336, 337, 345, 431, 432, 503; 455/412.2, 502, 507, 509

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

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

PatBase

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|---|-----------------------|
| X | US 2005/0238058 A1 (PEIRCE, JR. et al) 27 October 2005 (27.10.2005) entire document | 1-12 |
| A | US 2005/0282494 A1 (KOSSI et al) 22 December 2005 (22.12.2005) entire document | 1-12 |

☐ Further documents are listed in the continuation of Box C.

* 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 another 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

21 August 2007

Date of mailing of the international search report

16 NOV 2007

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Blaine R. Copenhagen

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774