

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
1 November 2007 (01.11.2007)

PCT

(10) International Publication Number
WO 2007/122620 A2

(51) International Patent Classification:
H04Q 7/22 (2006.01)

(21) International Application Number:
PCT/IL2007/000504

(22) International Filing Date: 22 April 2007 (22.04.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
175144 24 April 2006 (24.04.2006) IL

(71) Applicant (for all designated States except US): **ELBIT SYSTEMS LTD.** [IL/IL]; Advanced Technology Center, Hof Hacarmel, P.O.Box 539, 31053 Haifa (IL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **TEMELMAN, Aviv** [IL/IL]; 12 Haganim Street, Moshav Tsofit, 44925 Tsofit (IL). **POLYAKOV, Oleg** [IL/IL]; 47/11 Harei Yehuda Street, 55900 Ganei Tikva (IL). **KOOJMAN, Yehuda** [IL/IL]; 18 Rokach Street, 52542 Ramat Gan (IL).

(74) Agent: **KORAKH, Eliav**; 15th Floor, Atidim Tower, Kiryat Atidim, P.O. Box 58100, 61580 Tel Aviv (IL).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, 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, 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), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, 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:

— without international search report and to be republished upon receipt of that report

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.

(54) Title: WIRELESS DATA NETWORK

(57) Abstract: A wireless ad hoc network comprising a plurality of nodes, each of the nodes has a dynamically determined role, a portion of the nodes are designated with the role of super node and the remaining of the nodes are designated with the role of ordinary nodes, the super nodes form the routing backbone of the network, each of the nodes includes a transmitter, transmitting messages over a wireless medium, a receiver, receiving messages over a wireless medium, a local topology processor, coupled with the transmitter and with the receiver, maintains a local topology database, the local topology processor further determines the role of the node, a network topology processor, operative when the role of the node is super node, coupled with the transmitter, with the receiver and with the local topology processor, maintains the network topology database, and establishes and terminates a dedicated backbone routing link with each one hop super node neighbor, a routing processor, coupled with the transmitter, with the receiver, with the local topology processor and with the network topology database, maintains a local routing table according to the local topology database, and constructs a network routing table, according to the network topology database, when the node is a super node, wherein, each of the nodes attempts to communicate with at least a minimal number of one hop super-node neighbors.



WO 2007/122620 A2