



Electrolux

**“IoT and Connectivity:
patent strategies and
issues”**

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Convegno Nazionale AIDB 2017



The digital transformation

Main pillars:

- **Digital consumer experience** (e-commerce, social media, after market, enhanced product experience, maintenance, add-on sales and so on)
- **Digital productivity** (use of big data, business intelligence, digitalization in internal activities, etc).
- **Digital manufacturing (industry 4.0)**
- **Digital supply chain**
- **IoT & Connectivity**



- 2020: more than 26 billions of «connected things» and more than 50 «connected things» per household
- Exponential growth of «connected things» and data to be processed
- Complex value chain:





IoT: competing alone is impossible



TECHNICAL OR COMMERCIAL PARTNERSHIPS

Ex: Visa & IBM, IBM & AT&T, Electrolux & Google, Renault and Nissan & Microsoft, GE & Huawei

JOINT VENTURES

Ex: Deutsche Telekom & China Mobile, Qualcomm & TDK, AT&T & China Telecom, Vodafone & Liberty Global, BMW & Sixt, Philips Lighting & Xiaomi

ACQUISITIONS

Ex: Intel acq. Mobileye, Samsung acq. Harman, Intel acq. Replay Technologies, Google acq. Almatter, Verizon acq. Fleetmatics, SoftBank acq. ARM Holdings

ALLIANCES & STANDARDS

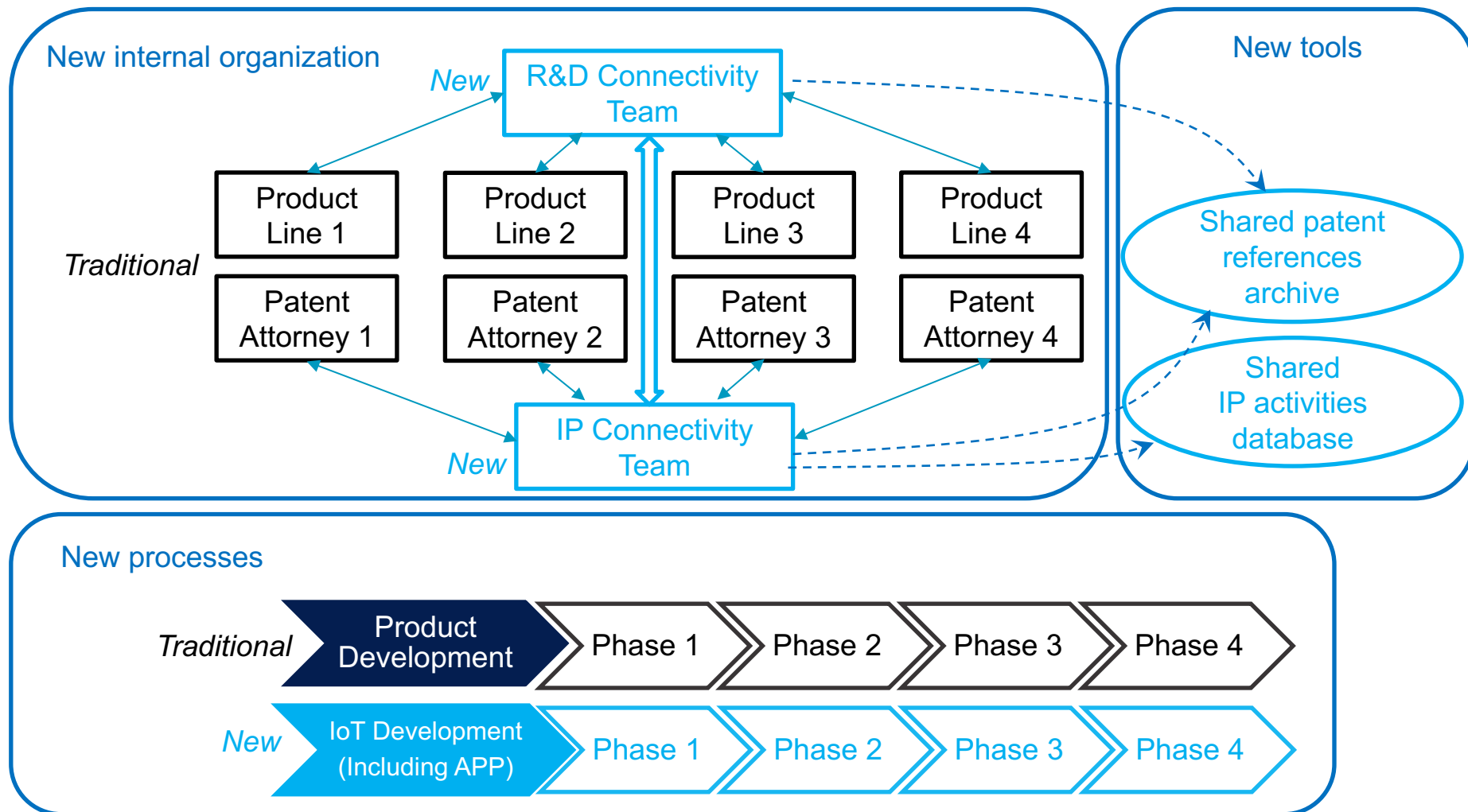
- OCF (Open Connectivity Foundation): Samsung, Intel, Microsoft, Qualcomm, Electrolux et al. (interoperability)
- IPSO: Bosch, Ericsson, Intel et al. (Internet Protocol)
- Wi-SUN: Cisco, Toshiba, ABB, Fujitsu, Huawei, Mitsubishi, Panasonic, Nec et al. (wireless standard)
- OMA (Open Mobile Alliance): AT&T, Motorola, Qualcomm, Nokia, Intel, Microsoft, T-Mobile et al. (mobile phones)
- IIC (Industrial Internet Consortium): Bosch, Huawei, GE, IBM, et al. (interconnected machines and devices)

OPEN INNOVATION

- Universities
- Start up



The need of new internal organization, tools and processes

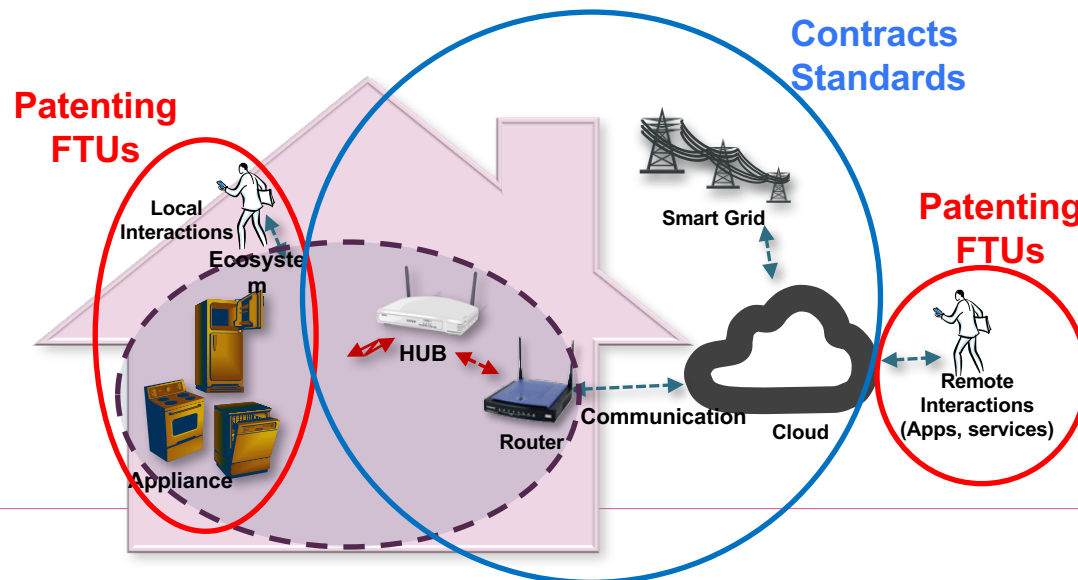




The importance of a strategy to secure access to relevant IoT technologies

In order to secure access to relevant technologies it's important to:

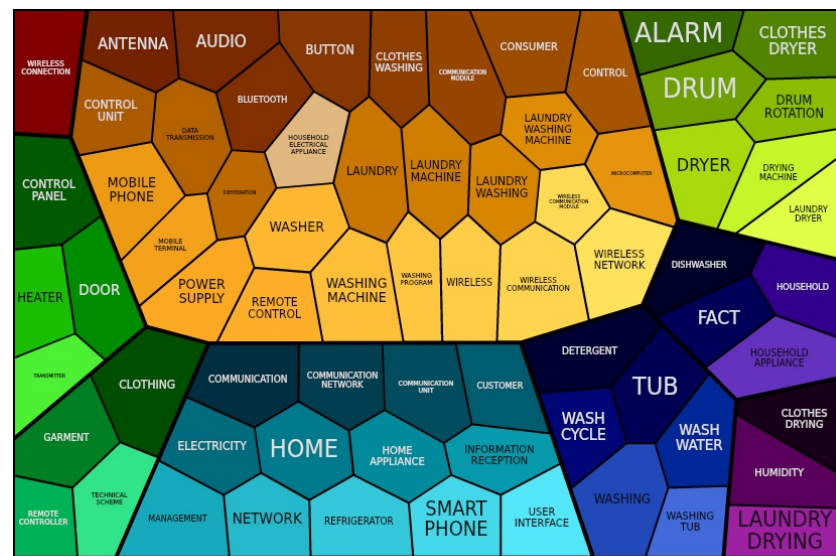
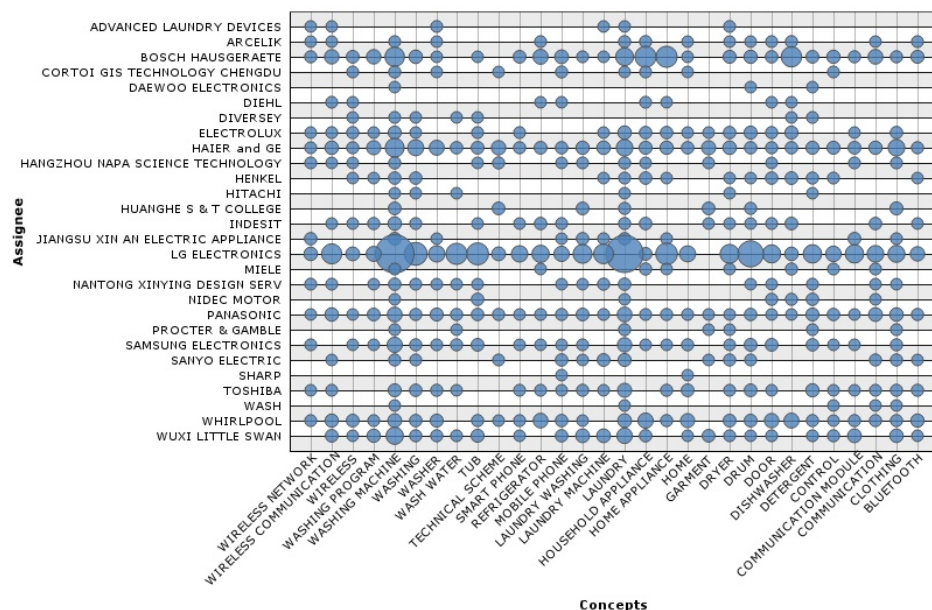
- Get a clear understanding of the patent scenario in the specific industry (Patent Landscapes)
- Assess the Freedom-To-Use of the new IoT technologies
- Build a relevant patent portfolio for possible cross-licenses
- Select the right business partners and properly regulate the IP aspects (contracts)
- Buy licences when needed (under FRAND terms in case of standards)
- Attack competitor's patents when necessary (it can be an options, but often the time needed is incompatible with the timing of business activities)





Patent Landscapes to assess the competition in the IoT arena

- Important to have the «big picture»
- Who is leading the run?
- What are the new trends?
- Who is investing more and on what technologies?
- What are the unexplored areas?
- Which are the most attractive partners?



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Assessing the Freedom-To-Use of new IoT technologies

Main issues:

- Very high number of references to analyze, in particular “prima facie” relevant
- High percentage of patent references still pending
- High level of complexity of internet/telecom technologies (different technical aspects: HW, SW, app, cloud, services, ...) and low familiarity with the same
- Relatively vague and broad patent claims (hard to predict final scope of protection)
- Use of unclear “made up words” or definitions created by the applicants
- High average length of patent documents
- High number of documents in non-english language (in particular german or chinese)
→ need to translate, slowing down of analyses
- Patents often extended in Countries with different rules on patentability of software or business related inventions (US vs. EP)
- Not sufficient to consider only direct competitors: relevant patents can come from Companies in very different business area
- High costs involved, difficult to estimate



Assessing the Freedom-To-Use of new IoT technologies

Main decisions to be taken:

- Since the technical solutions under development typically change in time, it's better to run a wide-range search or a narrow one?
- Always perform complete FTUs, or only in case of need (e.g. immediate risk)?
- Who should run the search: a patent documentalist (specialized in searches), an external patent attorney (less specialized but offering support also for the analysis) or the in-house patent attorney (poor time to dedicate)?
- Who should make the analysis: external patent attorney (high costs), in-house patent attorney (poor knowledge of the technology), R&D people (poor patent knowledge), or some of them together (high involvement of resources)?
- What R&D people to involve? (patents in IoT often relate to a wide range of technologies and are cross product line)
- Better to analyze only granted patents (and put pending applications simply under monitoring) or all patent documents?



Building the own patent portfolio

- Being the only one offering certain technical solution may be a great advantage
- With respect to traditional technological areas, IoT inventions are sometimes made not to satisfy existing needs, but to create new ones
- There is therefore the opportunity to generate disruptive inventions, also in traditional industries
- BUT
- Invention in the IoT area may be more difficult to patent, in particular if they relate to software, APPs, services, protocols, data management, etc.
- Sometimes it's better to limit the patent protection to the own industry, as there is often relevant prior art in completely different areas
- Sometimes it's better to allow access to third parties (for spreading the use of new technologies)



Electrolux & Connectivity

Electrolux is active in the IoT area with a lot of initiatives. Examples:

- ***Smart Oven:*** “control of your home appliances from your office has become a big area of growth for the Internet of Things. For example, users of Electrolux's CombiSteam oven (above) can turn the oven on, adjust the temperature and humidity, and watch their food cooking from their smartphone via an interior-mounted camera”
- ***A Uber model for washing machine:*** “Electrolux is assessing the feasibility of an IoT service project, based on a system of intelligent washing machines that can communicate with each other according to the Smart Home paradigms. A sort of "Uber Laundry", where appliance owners make them available to wash other people's clothes”
- ***Google's smart home platform:*** “Electrolux has signed on for early access to Google's Internet of Things platform for the manufacturer's smart appliances”
- ***Sous-Vide:*** “Electrolux to buy maker of internet-connected sous vide cookers Anova”





Examples of patents in the field of appliance connectivity

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

(19) World Intellectual Property
Organization
International Bureau



(10) International Publication Number
WO 2013/009683 A1

(43) International Publication Date
17 January 2013 (17.01.2013)

WIPO | PCT

(51) International Patent Classification:
H04L 12/16 (2006.01) H04L 12/12 (2006.01)

(21) International Application Number:
PCT/US2012/045923

(22) International Filing Date:
9 July 2012 (09.07.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
13/179,511 9 July 2011 (09.07.2011) US

(71) Applicant (for all designated States except US): **OPEN-PEAK INC.** [US/US]; 1750 Clint Moore Road, Boca Raton, FL 33487 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DARE, Robert, M.** [US/US]; 2401 E. Aragon Boulevard, Unit 3, Sunrise, FL 33313 (US); **KACHEROV, Vadim** [US/US]; 365 N.W. 35th Street, Boca Raton, FL 33431 (US); **KRZYŻANOWSKI, Paul** [US/US]; 13 Chamberlain Road, Flemington, NJ 08822 (US); **GITTLEMAN, Daniel** [US/US]; 9284 Hawk Shadow Lane, Delray Beach, FL 33446 (US).

(74) Agent: **BROWN, Larry, G.**; OpenPeak Inc., 1750 Clint Moore Road, Boca Raton, FL 33487 (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, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, 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, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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.

(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, SZ, TJ, 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, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

• 412 pages
• 171 figures
• Vague claims

(54) Title: PORTABLE COMPUTING DEVICE AND METHOD OF OPERATION OF SAME

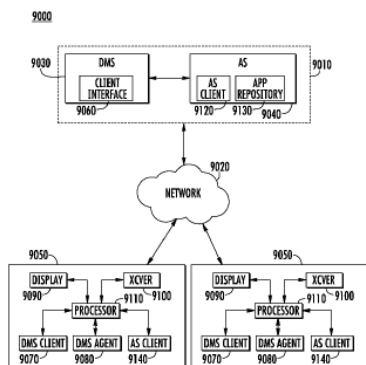


FIG. 86

(57) Abstract: A managed services platform and method of operation of same are described herein. The platform can include a device management service (DMS) server in which the DMS server can act as a gateway for communications with one or more computing devices, and the computing devices are associated with a first entity. The platform can also include an application service (AS) server in which the AS server is communicatively coupled with the DMS server. When a first computing device contacts the DMS server, the DMS server is operable to provide a bundle to the first computing device. As an example, the bundle contains content that at least includes one or more configuration messages and an application set that contains one or more predefined applications. The content of the bundle can be determined at least in part by the first entity.

Claims

1. A portable computing device (110, 9050), comprising:
 - a display (112, 9090) that is configured to display graphical user interface (GUI) elements that are associated with a client;
 - a transceiver (9100) that is configured to communicate with a managed services platform (9010); and
 - a processor (9110) that is communicatively coupled to both the display and the transceiver, wherein the processor is operable to:
 - instruct the transceiver to transmit an activation notice to the managed services platform; and
 - in response to the activation notice, receive from the managed services platform a first bundle that is associated with the client and that is arranged to cause the display to display GUI elements that are associated with the client;
 - wherein the first bundle includes predefined applications, wherein the content of the first bundle is determined at least in part by the client;
 - wherein the client is an enterprise and at least some of the content of the first bundle is based on the identification of the portable computing device;
 - wherein the identification of the portable computing device is related to a performance function of an intended user of the portable computing device such that at least some of the content of the first bundle is related to the performance function;
 - wherein the intended user is an employee of the client;
 - wherein the processor is further operable to switch between a first account associated with a first user and a second account associated with a second user, wherein the first bundle is assigned to the first account and the processor is further operable to, in response to a second activation notice associated with the second account, receive a second bundle assigned to the second account;
 - wherein the content of the first bundle assigned to the first account is related to a first performance function and the content of the second bundle is related to a second performance function.



Examples of patents in the field of appliance connectivity

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

(19) World Intellectual Property
Organization
International Bureau



(10) International Publication Number
WO 2013/158576 A1

(51) International Patent Classification:
G06F 17/00 (2006.01)

(21) International Application Number:
PCT/US2013/036673

(22) International Filing Date:
15 April 2013 (15.04.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/624,939 16 April 2012 (16.04.2012) US
13/485,900 31 May 2012 (31.05.2012) US

(72) Inventor: and

(71) Applicant: MINVIELLE, Eugenio [FR/US]; 310
Stuyvesant Avenue, Rye, New York 10580 (US).

(74) Agents: KREBS, Robert E. et al.; P.O. Box 60610, Palo
Alto, California 94306 (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, DK, DM,

DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, JP, KE, KG, KM, KN, KP,
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NL,
NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU,
RW, 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.

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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,
ML, MR, NE, SN, TD, TG).

Published:

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

— before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))

- Family (N. 54353595) with 163 applications, 95 of which used for priority claiming
- 7 broad and undefined independent claims
- Mix of technical and non-technical features

(54) Title: INI

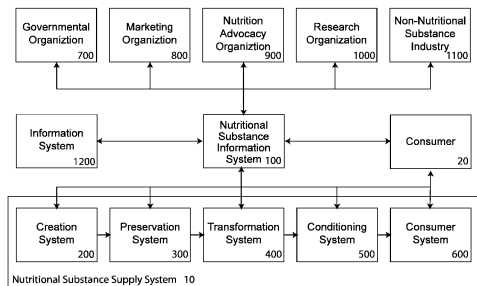


Figure 1

(57) Abstract: Disclosed herein is an information system regarding nutritional substances. The nutritional substance information system collects, stores, tracks, and transmits information regarding the creation, preservation, transformation, conditioning and consumption of nutritional substances, and correlates such information with various organizations, entities, industries, and governments outside the nutritional substance supply systems, so as to optimize the production of nutritional substances, as well as optimize the consumption of nutritional substances.

Claims

1. An information system for nutritional substances comprising:
an information storage system containing dynamically generated information regarding a particular nutritional substance; and
a unique identifier for identifying said dynamically generated information regarding the particular nutritional substance; and
a retriever for retrieving the information regarding a particular nutritional substance.
13. An information system for nutritional substances comprising an information storage system containing dynamically generated information regarding a particular nutritional substance operably connected to one, or more, of the following nutritional substance information systems:
a creation system for creation of the particular nutritional substance; and
a preservation system for the packaging and shipping the particular nutritional substance;
a transformation system for the processing of the particular nutritional substance; and
a conditioning system for the consumer preparation of the particular nutritional substance; and
a consumer system for the consumption of the particular nutritional substance;
and
one, or more, of the following non-nutritional substance information systems:
a government organization; and
a marketing organization; and
a nutritional advocacy organization; and
a research organization; and
a non-nutritional substance industry system; and
a non-nutritional substance information system,
wherein the information storage system receives and transmits the dynamically generated information regarding the particular nutritional substance between said nutritional substance information systems and said non-nutritional substance information systems.



Examples of patents in the field of appliance connectivity



Espacenet

Bibliographic data: CN105472699 (A) — 2016-04-06

Access method and system of smart home device

Inventor(s): LI JIANPING; YANG ZHENG; WAN KELIN ± (LI JIANPING, ; YANG ZHENG, ; WAN KELIN)

Applicant(s): ZMODO TECH CORP LTD; ZMODO (JIANGSU) DIGITAL TECH CO LTD ± (ZMODO TECHNOLOGY CORP., LTD, ; ZMODO (JIANGSU) DIGITAL TECHNOLOGY CO., LTD)

Classification: - international: [H04W48/08](#)
- cooperative: [H04W48/08](#) [more](#)

Application number: CN20151903763 20151208 [Global Dossier](#)

Priority number (s): CN20151903763 20151208

Abstract of CN105472699 (A)

The invention provides an access method and an access system of a smart home device. The method comprises the steps that: a service set identifier and a password of a router are obtained through an APP of a mobile terminal and the router is further connected; the APP of the mobile terminal generates a wireless message according to the service set identifier and the password and forwards the wireless message to a wireless environment through the router; and the home device grabs and analyzes the wireless message to obtain the service set identifier and the password and connects the router according to the service set identifier and the password until the connection is successful. The access method and the access system of the smart home device can be used for effectively connecting the home device to the Internet. Moreover, the method or the system is implemented without an input operation of the home device, and the Internet can be conveniently and quickly accessed.

MACHINE TRANSLATION

Claim 1. A method for accessing a smart home device is characterized by comprising the steps of:

Obtain the service set identifier and password of the router through the APP of the mobile terminal and connect to the router;

The APP of the mobile terminal generates a wireless message according to the service set identifier and the password, and forwards the wireless message to the wireless environment via the router;

The home device captures and parses the wireless packet to obtain the service set identifier and the password, and connects the router according to the service set identifier and the password until the connection succeeds.

- Only chinese language
- General abstract
- Broad claims
- Machine translation reliable?



Examples of patents in the field of appliance connectivity



Espacenet

Bibliographic data: DE102013214929 (A1) — 2015-02-05

Verfahren und Anordnung zum Steuern eines Gargeräts

Inventor(s): ABENDSCHOEN-SAWALL ZARAH [DE]; BAIER MARTIN [DE]; HEICKS WILHELM [DE] + (ABENDSCHOEN-SAWALL, ZARAH, ; BAIER, MARTIN, ; HEICKS, WILHELM, ; Abendschoen-Sawall, Zarah, ; Baier, Martin, ; Heicks, Wilhelm)

Applicant(s): E G O ELEKTRO GERÄTEBAU GMBH [DE] + (E.G.O. ELEKTRO-GERÄTEBAU GMBH, ; E.G.O. Elektro-Gerätebau GmbH)

Classification: - international: F24C7/08; G08C17/02; H04M1/00
- cooperative: F24C7/08; G08C17/02; G08C23/04; G08C2201/93; H04M1/72533

Application number: DE201310214929 20130730

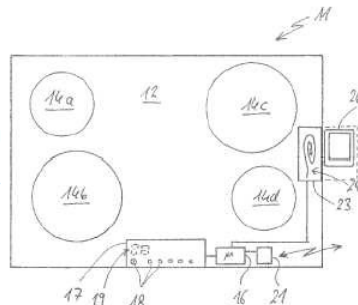
Priority number(s): DE201310214929 20130730

Also published as: DE102013214929 (B4)

- Only german language
- Deferred examination (7 years)

Abstract of DE102013214929 (A1)

Zum Steuern bzw. Bedienen eines Induktionskochfelds, das mehrere unterschiedlich betreibbare Induktions-Heizeinrichtungen aufweist, wird zusätzlich mit einer mobilen und abnehmbaren externen Bedieneinrichtung in Form eines Smartphone mindestens eine Induktions-Heizeinrichtung gesteuert. Das Gargerät und die externe Bedieneinrichtung weisen Kommunikationsmittel auf, und die externe Bedieneinrichtung wird in einem Kommunikationsbereich der Kommunikationsmittel des Gargeräts angeordnet. Eine mit der externen Bedieneinrichtung bedienbare Induktions-Heizeinrichtung ist frei wählbar.





THANK YOU !