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H01L 23/64 (2006.01) **G06K 19/077** (2006.01)
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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, 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,
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RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ,
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(54) Title: NETWORK OF ELECTRONIC DEVICES ASSEMBLED ON A FLEXIBLE SUPPORT AND COMMUNICATION METHOD

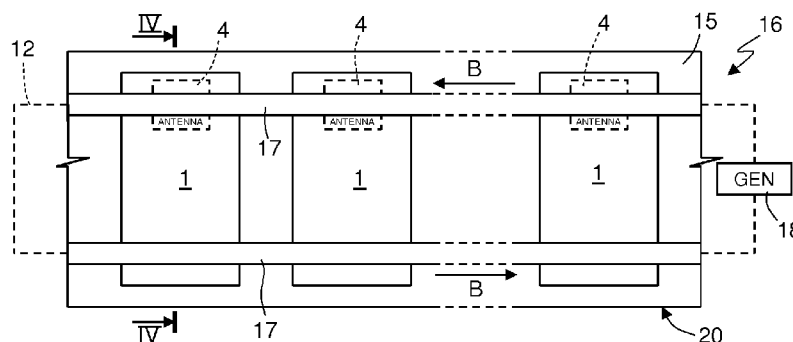


Fig.2

(57) Abstract: The network (100) of electronic devices is formed on a flexible substrate (15; 101) by a plurality of electronic devices (1; 104) assembled on the flexible substrate. The electronic devices have an embedded antenna for mutual coupling (4; 111) of a wireless type. Each electronic device (1; 104) is formed by a chip or a complex system integrating a transceiver circuit (3) connected to the embedded antenna (4; 11) and a functional part (12; 112) connected to the transceiver circuit and including at least one element chosen in the group comprising: a sensor, an actuator, an interface, an electrode, a memory, a control unit, a power-supply unit, a converter, an adapter, a digital circuit, an analog circuit, an RF circuit, a microelectromechanical system, an electrode, a well, a cell, a container for liquids. The flexible support may be a substrate (15) of plastic material that incorporates the electronic devices or a garment having smart buttons that house the electronic devices.

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER INV. H01Q1/22 H01L23/64 H01L23/538 H01L23/66 H01L25/065 H04B5/00 H02J5/00 G06K19/077 A61B5/00 H01Q7/00 H02J17/00																	
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) H01Q H01L H04B H02J G06K A61B																	
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) EPO-Internal, WPI Data																	
C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>US 2009/033467 A1 (FINOCCHIARO ALESSANDRO [IT] ET AL) 5 February 2009 (2009-02-05) paragraphs [0063], [0096]; figures 8,16,19 -----</td> <td>1-11,24</td> </tr> <tr> <td>Y</td> <td>US 2006/249754 A1 (FORMAN GLENN A [US] ET AL FORMAN GLENN ALAN [US] ET AL) 9 November 2006 (2006-11-09) paragraphs [0003], [0018], [0019]; figures 2,3 -----</td> <td>1-3,24</td> </tr> <tr> <td>A</td> <td></td> <td>4-11</td> </tr> <tr> <td>Y</td> <td>US 2009/218407 A1 (ROFOUGARAN AHMADREZA REZA [US]) 3 September 2009 (2009-09-03) paragraphs [0106] - [0112], [0117], [0142] - [0144]; figures 10,11,17,26,27 ----- -/-</td> <td>1-11,24</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	US 2009/033467 A1 (FINOCCHIARO ALESSANDRO [IT] ET AL) 5 February 2009 (2009-02-05) paragraphs [0063], [0096]; figures 8,16,19 -----	1-11,24	Y	US 2006/249754 A1 (FORMAN GLENN A [US] ET AL FORMAN GLENN ALAN [US] ET AL) 9 November 2006 (2006-11-09) paragraphs [0003], [0018], [0019]; figures 2,3 -----	1-3,24	A		4-11	Y	US 2009/218407 A1 (ROFOUGARAN AHMADREZA REZA [US]) 3 September 2009 (2009-09-03) paragraphs [0106] - [0112], [0117], [0142] - [0144]; figures 10,11,17,26,27 ----- -/-	1-11,24
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☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.																	
* Special categories of cited documents : <table border="0"> <tr> <td> "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 </td> <td> "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 </td> </tr> </table>			"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													
"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		Date of mailing of the international search report															
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer															
		Cousins, David															

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/060635

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2010/164671 A1 (PAGANI ALBERTO [IT] ET AL) 1 July 2010 (2010-07-01) cited in the application the whole document -----	1-11,24
A	WO 2005/106901 A2 (PHILIPS INTELLECTUAL PROPERTY [DE]; KONINKL PHILIPS ELECTRONICS NV [NL] 10 November 2005 (2005-11-10) the whole document -----	1-11,24
A	US 2010/297954 A1 (ROFOUGARAN AHMADREZA [US] ET AL) 25 November 2010 (2010-11-25) the whole document -----	1-11,24

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-11, 24

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-11, 24

A network of electronic devices comprising:
a flexible substrate, a plurality of electronic devices
assembled on the substrate, the electronic devices having
mutual coupling means, the latter being magnetic-coupling
means including at least one first near-field antenna,
whereby the flexible support of plastic material carries at
least one strip of magnetic material that extends over or in
the flexible substrate and is magnetically coupled to the
antenna of the electronic devices (claim 4). Corresponding
communication system (claim 24)

2. claims: 12-22

A network of electronic devices comprising:
a flexible substrate, a plurality of electronic devices
assembled on the substrate, the electronic devices having
mutual coupling means, the flexible substrate being a fabric
and carrying a plurality of connection nodes and at least
one electrical line electrically connecting the connection
nodes, each connection node comprising a network antenna
facing the antenna of a respective electronic device.

3. claim: 23

Smart button.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/060635

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