

**SUPPLEMENTARY
EUROPEAN SEARCH REPORT**

Application Number
EP 15 73 4856

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2013/106607 A2 (MAXIM INTEGRATED PRODUCTS [US]) 18 July 2013 (2013-07-18) * abstract; figures 1-8 * * page 2, line 22 - page 3, line 6 * * page 5, line 14 - page 8, line 26 * -----	1-4,7,8,10,15	INV. H04B1/38 A61B5/02 A61B5/024 G06F21/32 H04W12/06
X	US 2010/113950 A1 (LIN GLORIA [US] ET AL) 6 May 2010 (2010-05-06) * abstract; figures 1-6 * * paragraphs [0004] - [0011], [0020] - [0041], [0051] - [0057] * -----	1-4,15	ADD. A61B5/00 A61B5/117 H04L29/06 H04W4/00
A		5-10	
X	US 2011/150291 A1 (JUNG SUN-TAE [KR]) 23 June 2011 (2011-06-23) * abstract; figures 1-6 * * paragraphs [0009] - [0011], [0020] - [0047] * -----	1,4,5,15	
A		2,3,7-10	
X	US 2012/295589 A1 (ALEXANDER ZAVIER [US] ET AL) 22 November 2012 (2012-11-22) * abstract; figures 1-6 * * paragraphs [0013] - [0020], [0027] - [0030] * -----	1-4,15	
A		5-10	TECHNICAL FIELDS SEARCHED (IPC) A61B H04L G06F
X	US 8 172 761 B1 (RULKOV NIKOLAI [US] ET AL) 8 May 2012 (2012-05-08) * abstract; figures 1-5,9-12 * * column 4, line 35 - column 6, line 50 * * column 12, line 41 - column 15, line 35 * -----	1-11,15	
A		12-14	
X	US 2011/015496 A1 (SHERMAN LAWRENCE M [US] ET AL) 20 January 2011 (2011-01-20) * abstract; figures 3-8 * * paragraphs [0003] - [0015], [0028] - [0038] * -----	1-4,15	
A		5-10	
		-/--	
The supplementary search report has been based on the last set of claims valid and available at the start of the search.			
Place of search The Hague		Date of completion of the search 12 October 2017	Examiner Carta, Riccardo
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document			

2

EPO FORM 1503 03.82 (P04C04)

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application Number
EP 15 73 4856

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 330 468 B1 (SCHARF JOHN EDWARD [US]) 11 December 2001 (2001-12-11) * abstract; figures 1-8 * * column 4, line 14 - column 11, line 12 * -----	11-14	
X	WO 2013/148753 A1 (UNIV WAYNE STATE [US]) 3 October 2013 (2013-10-03) * abstract; figures 1,14,15 * * paragraphs [0033] - [0060] * -----	11-14	
X	US 2002/151775 A1 (KONDO YUTAKA [JP]) 17 October 2002 (2002-10-17) * abstract; figures 3,4 * * paragraphs [0065] - [0072] * -----	11-14	
X	US 4 163 447 A (ORR THOMAS [GB]) 7 August 1979 (1979-08-07) * abstract; figure 1 * * column 2, lines 15-24 * -----	11-14	
The supplementary search report has been based on the last set of claims valid and available at the start of the search.			TECHNICAL FIELDS SEARCHED (IPC)
Place of search The Hague		Date of completion of the search 12 October 2017	Examiner Carta, Riccardo
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

2

EPO FORM 1503 03.82 (P04C04)

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present (supplementary) European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present (supplementary) European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present (supplementary) European search report has been drawn up for those parts of the European patent application which relate to the first mentioned in the claims, namely claims:

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 15 73 4856

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-10, 15

Mobile electronic device comprising a HR sensor

2. claims: 11-14

HR sensing platform architecture

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 15 73 4856

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-10-2017

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2013106607 A2	18-07-2013	DE 112013000530 T5 US 2015011851 A1 WO 2013106607 A2	02-10-2014 08-01-2015 18-07-2013
US 2010113950 A1	06-05-2010	US 2010113950 A1 US 2014171776 A1	06-05-2010 19-06-2014
US 2011150291 A1	23-06-2011	KR 20110072427 A US 2011150291 A1	29-06-2011 23-06-2011
US 2012295589 A1	22-11-2012	CN 103702609 A EP 2709519 A1 JP 2014513628 A JP 2017047229 A TW 201304497 A US 2012295589 A1 US 2014210709 A1 WO 2012158457 A1	02-04-2014 26-03-2014 05-06-2014 09-03-2017 16-01-2013 22-11-2012 31-07-2014 22-11-2012
US 8172761 B1	08-05-2012	US 8172761 B1 US 8579827 B1 US 8992433 B1 US 9226669 B1	08-05-2012 12-11-2013 31-03-2015 05-01-2016
US 2011015496 A1	20-01-2011	US 2011015496 A1 WO 2011008838 A1	20-01-2011 20-01-2011
US 6330468 B1	11-12-2001	AU 5586998 A US 5830137 A US 6330468 B1 WO 9822018 A1	10-06-1998 03-11-1998 11-12-2001 28-05-1998
WO 2013148753 A1	03-10-2013	NONE	
US 2002151775 A1	17-10-2002	GB 2341233 A JP 3475427 B2 US 2002151775 A1 WO 9940843 A1	08-03-2000 08-12-2003 17-10-2002 19-08-1999
US 4163447 A	07-08-1979	CH 640683 A DE 2805202 A1 GB 1555062 A JP S5730008 B2 JP S53108692 A US 4163447 A	31-01-1984 17-08-1978 07-11-1979 25-06-1982 21-09-1978 07-08-1979

专利名称(译)	传感器装置和具有该装置的电子设备		
公开(公告)号	EP3092721A4	公开(公告)日	2017-11-22
申请号	EP2015734856	申请日	2015-01-06
[标]申请(专利权)人(译)	三星电子株式会社		
申请(专利权)人(译)	SAMSUNG ELECTRONICS CO. , LTD.		
当前申请(专利权)人(译)	SAMSUNG ELECTRONICS CO. , LTD.		
[标]发明人	LEE SEUNG HOON PARK MIN WOO CHOI SEUNG KI		
发明人	LEE, SEUNG-HOON PARK, MIN-WOO CHOI, SEUNG-KI		
IPC分类号	H04B1/38 A61B5/02 A61B5/00 A61B5/024 A61B5/117 G06F21/32 H04L29/06 H04W4/00 H04W12/06		
CPC分类号	A61B5/0022 A61B5/02427 A61B5/117 A61B5/6898 A61B2560/0266 A61B2560/0462 A61B2562/0233 A61B2562/185 G06F21/32 H04L63/0861 H04W4/80 H04W12/06		
优先权	61/924406 2014-01-07 US 1020140020848 2014-02-21 KR		
其他公开文献	EP3092721B1 EP3092721A1		
外部链接	Espacenet		

摘要(译)

提供了一种移动电子设备。移动电子设备包括至少一个处理器，与至少一个处理器电连接的显示模块，与至少一个处理器电连接的通信模块，配置成容纳显示模块的至少一部分的便携式电子设备外壳，至少一个处理器和通信模块，以及心率（HR）传感器（例如，心率监测器（HRM）传感器），其放置在壳体的一个表面上并且至少其部分暴露于外部，并且与至少一个处理器电连接。

European
Patent
Office
EPO

**SUPPLEMENTARY
EUROPEAN SEARCH REPORT**

Application Number:
EP 15 73 4856

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of documents with indication, where appropriate, of the part of the document considered to be relevant	Relevant to the search	Relevant to the classification of the application (IPC)
X	WO 2013/106607 A2 (MAXIM INTEGRATED PRODUCTS [US]) 18 July 2013 (2013-07-18) * abstract; figures 1-8 * page 6, line 22 - page 8, line 6 * * page 6, line 14 - page 8, line 26 *	1-4, 7, 8, 10, 15	INV. H04B1/38 A61B5/02 A61B5/004 G06F21/32 H04L29/06
X	US 2010/113950 A1 (LIN GLORIA [US] ET AL) 5 May 2010 (2010-05-06) * abstract; figures 1-6 * paragraphs [0004] - [0011], [0020] - [0041], [0051] - [0057]	1-4, 15 5-10	ADD. A61B5/00 A61B5/117 H04L29/06 H04W4/00
X	US 2011/100291 A1 (JUNG SUN-TAE [KR]) 23 June 2011 (2011-06-23) * abstract; figures 1-6 * paragraphs [0009] - [0011], [0020] - [0047]	1, 4, 5, 15 2, 3, 7-10	
X	US 2012/295589 A1 (ALEXANDER ZAVIER [US] ET AL) 22 November 2012 (2012-11-22) * abstract; figures 1-6 * paragraphs [0013] - [0020], [0027] - [0030]	1-4, 15 5-10	TECHNICAL FIELD BACKGROUND SUMMARY
X	US 8 172 761 B1 (BULKOV NIKOLAI [US] ET AL) 6 May 2012 (2012-05-08) * abstract; figures 1-5, 9-12 * * column 4, line 35 - column 6, line 50 * * column 12, line 41 - column 15, line 35 *	1-11, 15 12-14	A61B H04L G06F
X	US 2011/015496 A1 (SHEPHERN LAWRENCE M [US] ET AL) 20 January 2011 (2011-01-20) * abstract; figures 3-8 * paragraphs [0003] - [0013], [0028] - [0038]	1-4, 15 5-10	

- / -

The supplementary search report has been based on the last prior art state made available at the start of the search.

Date of report

The Hague

12 October 2017

Examiner

Carta, Riccardo

CATEGORY OF CITED DOCUMENTS

X = substantially relevant to the state of the art
A = partially relevant to the state of the art
Y = not relevant to the state of the art
* = document cited for other reasons
- / - = document not cited

Legend
1 = search or sample containing the invention
2 = document cited for other reasons
3 = document cited for other reasons
4 = document cited for other reasons
5 = document cited for other reasons