US009250701B2

(12) **United States Patent**
Kim

(10) **Patent No.: US 9,250,701 B2**
(45) **Date of Patent: Feb. 2, 2016**

(54) **FLEXIBLE PORTABLE DEVICE**

(71) Applicant: **LG ELECTRONICS INC.**, Seoul (KR)

(72) Inventor: **Yongsin Kim**, Seoul (KR)

(73) Assignee: **LG ELECTRONICS INC.**, Seoul (KR)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/137,123**

(22) Filed: **Dec. 20, 2013**

(65) **Prior Publication Data**

US 2014/0104166 A1 Apr. 17, 2014

Related U.S. Application Data

(63) Continuation of application No. 13/543,540, filed on Jul. 6, 2012.

(30) **Foreign Application Priority Data**

Jun. 14, 2012 (KR) 10-2012-0063793

(51) **Int. Cl.**
G06F 3/01 (2006.01)
G06F 1/16 (2006.01)

(52) **U.S. Cl.**
CPC ***G06F 3/01*** (2013.01); ***G06F 1/1694*** (2013.01); *G06F 2200/1614* (2013.01); *G06F 2200/1637* (2013.01)

(58) **Field of Classification Search**
CPC G06F 3/01; G06F 1/1652; G06F 2203/04102
USPC 345/156–157, 173–178; 178/18.01–18.11
See application file for complete search history.

(56) **References Cited**

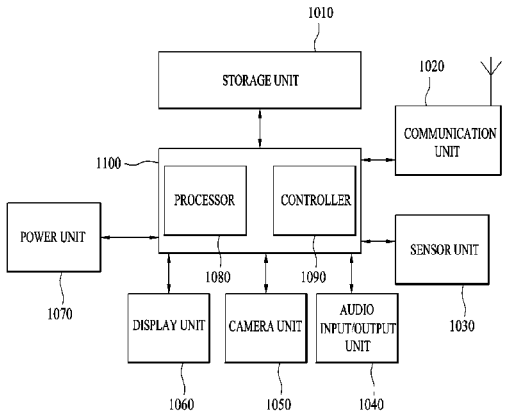
U.S. PATENT DOCUMENTS

7,443,380	B2	10/2008	Nozawa	
7,880,718	B2	2/2011	Cradick et al.	
2003/0227441	A1*	12/2003	Hioki et al.	345/156
2004/0008191	A1*	1/2004	Poupyrev et al.	345/184
2007/0242033	A1	10/2007	Cradick et al.	
2008/0303782	A1	12/2008	Grant et al.	
2009/0085866	A1	4/2009	Sugahara	
2009/0219247	A1	9/2009	Watanabe et al.	
2010/0011291	A1*	1/2010	Nurmi	715/702
2010/0030469	A1*	2/2010	Hwang et al.	701/209
2010/0117975	A1*	5/2010	Cho	345/173
2010/0141605	A1	6/2010	Kang et al.	
2010/0201615	A1*	8/2010	Tupman et al.	345/156
2011/0057873	A1	3/2011	Geissler et al.	
2011/0221667	A1*	9/2011	Lee	345/156
2011/0227822	A1*	9/2011	Shai	345/156
2012/0112994	A1	5/2012	Vertegaal et al.	
2012/0169609	A1	7/2012	Britton	
2012/0188153	A1*	7/2012	Tziortzis et al.	345/156
2013/0044240	A1	2/2013	Leskela et al.	
2013/0201115	A1	8/2013	Heubel	
2014/0002402	A1	1/2014	Kang et al.	
2014/0068473	A1	3/2014	Jano et al.	

* cited by examiner

Primary Examiner — Amare Mengistu
Assistant Examiner — Stacy Khoo
(74) *Attorney, Agent, or Firm* — Birch, Stewart, Kolasch & Birch, LLP

(57) **ABSTRACT**

A flexible portable device including a display unit for displaying an image, a communication unit for performing communication with an external device, a sensor unit for sensing user input or an environment of the flexible portable device, and a control unit for controlling the flexible portable device and the units of the flexible portable device. Further, the sensor unit includes a motion sensor unit for sensing motion of the flexible portable device and/or motion with respect to the flexible portable device, the flexible portable device has at least one flexible area which is bendable, and the motion sensor unit is located at a first area at which influence on the motion sensor unit when the flexible area is bent is avoided or minimized.

10 Claims, 10 Drawing Sheets