US009636596B2

(12) **United States Patent**
Baltus et al.

(10) **Patent No.: US 9,636,596 B2**
(45) **Date of Patent: May 2, 2017**

(54) **DYNAMIC BALLOON DISPLAY DEVICE AND METHOD FOR USE THEREOF**

(71) Applicants: **Gregory D. Baltus**, Pittsburgh, PA (US); **Nathan Michael Martin**, Pittsburgh, PA (US); **Matthew A. Pegula**, Pittsburgh, PA (US); **Michael B. Schwerin**, Pittsburgh, PA (US); **Justin C. Lacey**, Pittsburgh, PA (US); **Patrick Miller**, Pittsburgh, PA (US); **Zachary G. Olshenske**, North Huntingdon, PA (US)

(72) Inventors: **Gregory D. Baltus**, Pittsburgh, PA (US); **Nathan Michael Martin**, Pittsburgh, PA (US); **Matthew A. Pegula**, Pittsburgh, PA (US); **Michael B. Schwerin**, Pittsburgh, PA (US); **Justin C. Lacey**, Pittsburgh, PA (US); **Patrick Miller**, Pittsburgh, PA (US); **Zachary G. Olshenske**, North Huntingdon, PA (US)

(73) Assignee: **Deeplocal, Inc.**, Pittsburgh, PA (US)

(*) 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.: **14/808,591**

(22) Filed: **Jul. 24, 2015**

(65) **Prior Publication Data**

US 2016/0104432 A1 Apr. 14, 2016

Related U.S. Application Data

(60) Provisional application No. 62/063,182, filed on Oct. 13, 2014.

(51) **Int. Cl.**

A63H 27/10	(2006.01)
G09F 21/06	(2006.01)
G09F 27/00	(2006.01)

(52) **U.S. Cl.**
CPC ***A63H 27/10*** (2013.01); ***G09F 21/06*** (2013.01); ***G09F 27/00*** (2013.01); *A63H 2027/1033* (2013.01)

(58) **Field of Classification Search**
CPC G06F 3/016; F15B 15/103
(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,642,022 A	3/1925	Groh
4,892,500 A	1/1990	Lau

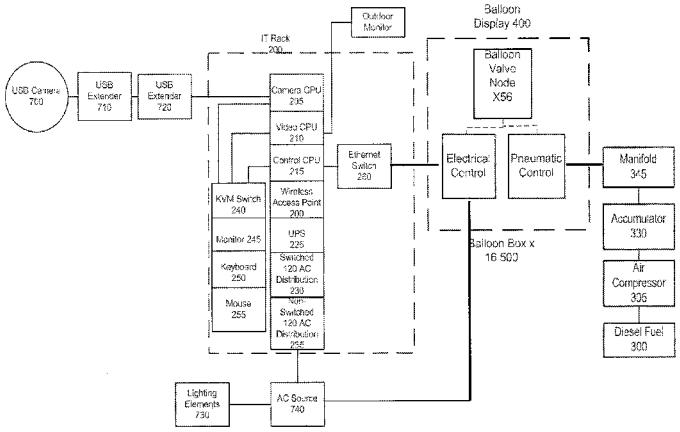
(Continued)

OTHER PUBLICATIONS

Orf, Darren,. How It Works: MIT's inFORM Dynamic Shape Display, published Dec. 2, 2013. Retrieved from internet, URL: http://www.popularmechanics.com/technology/design/a9847/how-mits-inform-dynamic-display-works-16222829/.*

Primary Examiner — Thomas Lett
(74) *Attorney, Agent, or Firm* — Tucker Arensberg, P.C.

(57) **ABSTRACT**

A balloon display device configured to create displays representative of digital images. The device may comprise a processor configured to transmit instructions for creating the display to a display panel, which comprises one or more balloon boxes. Each balloon box may comprise at least one balloon coupled to a pneumatic control. An electronic control can be configured to receive instructions for turning on or off specified valves to inflate or deflate the balloon. An associated method may comprise converting a digital image into readable instructions for creating a balloon display. The instructions, which may comprise commands for inflating or deflating a balloon, may then be transmitted to the display device and executed to create the display.

18 Claims, 6 Drawing Sheets