US008791984B2

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

(10) **Patent No.: US 8,791,984 B2**
(45) **Date of Patent: Jul. 29, 2014**

(54) **DIGITAL SECURITY CAMERA**

(75) Inventors: Peter W. J. Jones, Belmont, MA (US); Ellen Cargill, Norfolk, MA (US); Dennis W. Purcell, Medford, MA (US)

(73) Assignee: Scallop Imaging, LLC, Boston, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 523 days.

(21) Appl. No.: 13/030,960

(22) Filed: Feb. 18, 2011

(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation-in-part of application No. 12/384,209, filed on Mar. 31, 2009, now abandoned, which is a continuation-in-part of application No. 12/313,274, filed on Nov. 17, 2008, now Pat. No. 8,564,640.

(60) Provisional application No. 61/305,847, filed on Feb. 18, 2010, provisional application No. 61/072,673, filed on Mar. 31, 2008, provisional application No. 61/137,002, filed on Jul. 25, 2008, provisional application No. 61/003,350, filed on Nov. 16, 2007.

(51) **Int. Cl.**
H04N 7/00 (2011.01)

(52) **U.S. Cl.**
USPC 348/36

(58) **Field of Classification Search**
USPC 348/36
See application file for complete search history.

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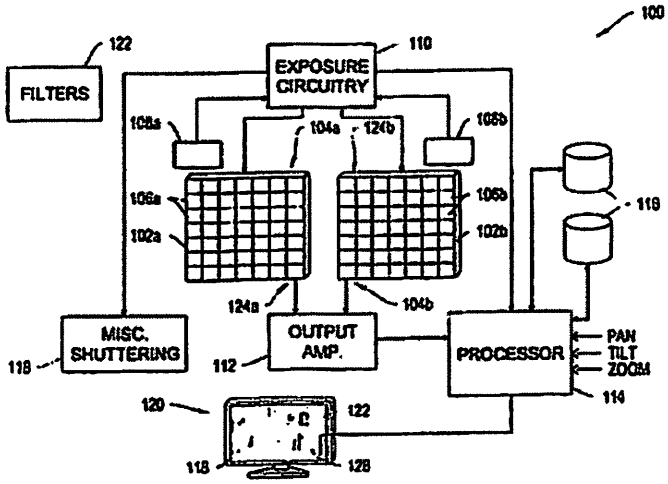
(74) *Attorney, Agent, or Firm* — Schmeiser, Olsen & Watts LLP

(57) **ABSTRACT**

The systems and methods described herein provide imaging systems for imaging a scene. The imaging system includes an optical head, a processor, and an analog communication port. The processor receives captured digital image data from the optical head. The processor sends the image data to the analog communication port to generate an analog video stream that is protocol compatible with typical closed-circuit television (CCTV) networks, such as PAL or NTSC. The imaging system has a physical interface that allows the system to plug into a conventional CCTV network. To generate a video stream that is protocol compatible with the CCTV network, the analog communication port may down sample the digital image data to generate a PAL or NTSC compatible image. The down sampled digital image data is converted to a compliant analog signal and delivered over the physical layer of the CCTV network for display on a conventional television monitor.

20 Claims, 17 Drawing Sheets



US008896662B2

(12) **United States Patent**
Jones

(10) **Patent No.: US 8,896,662 B2**
(45) **Date of Patent: *Nov. 25, 2014**

(54) **METHOD OF CREATING A VIRTUAL WINDOW**

(75) Inventor: Peter W. J. Jones, Belmont, MA (US)

(73) Assignee: Scallop Imaging, LLC, Boston, MA (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.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: 13/619,388

(22) Filed: Sep. 14, 2012

(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation of application No. 11/891,928, filed on Aug. 13, 2007, now Pat. No. 8,269,818, which is a continuation of application No. 10/350,900, filed on Jan. 23, 2003, now Pat. No. 7,262,789.

(60) Provisional application No. 60/351,083, filed on Jan. 23, 2002.

(51) Int. Cl.

H04N 7/00	(2011.01)
H04N 17/00	(2006.01)
F41H 11/00	(2006.01)
F41H 13/00	(2006.01)
G06F 1/16	(2006.01)
H04N 5/232	(2006.01)
H04N 5/262	(2006.01)

(52) U.S. Cl.

CPC *H04N 17/004* (2013.01); *F41H 11/00* (2013.01); *F41H 13/00* (2013.01); *G06F 1/1601* (2013.01); *H04N 5/23238* (2013.01); *H04N 5/2628* (2013.01); *H04N 17/002* (2013.01)

USPC 348/36; 348/39; 348/38; 348/48; 348/43; 382/194; 382/199; 382/154

(58) Field of Classification Search

USPC 348/36, 39, 38, 48, 43; 382/194, 199, 382/154

See application file for complete search history.

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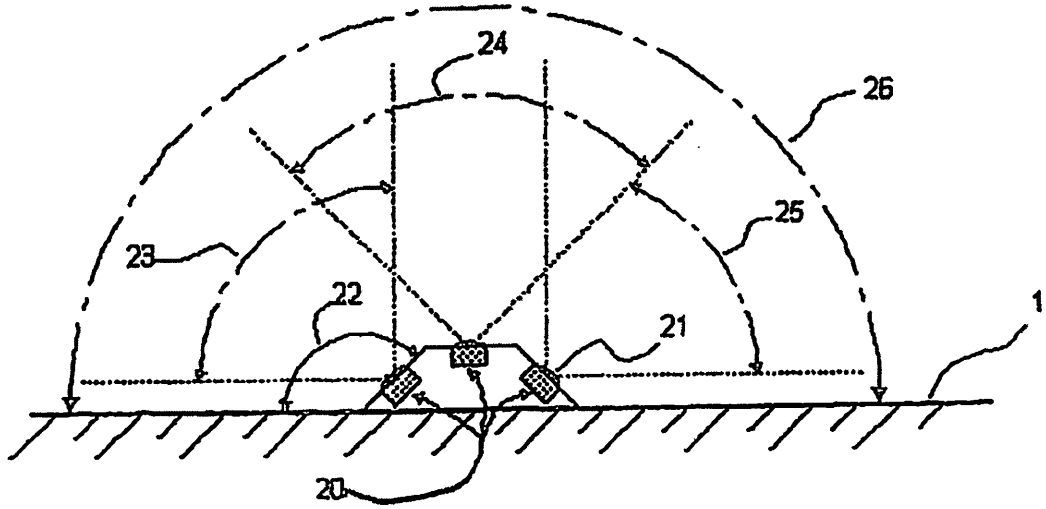
Primary Examiner — Shawn An

(74) *Attorney, Agent, or Firm* — Schmeiser, Olsen & Watts LLP

(57) **ABSTRACT**

The systems and methods described herein include, among other things, a technique for calibrating the outputs of multiple sensors, such as CCD devices, that have overlapping fields of view and mapping the pixels of those outputs to the pixels of a display screen by means of a lookup table so that a user can see a selected field of view within the larger fields of view that are seen by the sensors.

5 Claims, 18 Drawing Sheets



Schedule 6(k)(A)

Schedule 6(k)(A)

Patents

App. No.	Patent/Pub No.	Jurisdiction	Filing Date	Title
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