



US007190882B2

(12) **United States Patent**  
**Gammenthaler**

(10) **Patent No.:** **US 7,190,882 B2**  
(45) **Date of Patent:** **Mar. 13, 2007**

(54) **IN-CAR DIGITAL VIDEO RECORDING WITH MPEG-4 COMPRESSION FOR POLICE CRUISERS AND OTHER VEHICLES**

(75) Inventor: **Robert S. Gammenthaler**, Princeton, TX (US)

(73) Assignee: **Applied Concepts, Inc.**, Plano, TX (US)

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1428 days.

5,689,442 A	11/1997	Swanson et al.
5,764,769 A	6/1998	Bennett et al.
6,028,528 A *	2/2000	Lorenzetti et al. .... 348/143
6,330,025 B1	12/2001	Arazi et al.
6,389,340 B1	5/2002	Rayner
6,518,881 B2	2/2003	Monroe
6,606,115 B1	8/2003	Alicandro et al.
6,677,858 B1 *	1/2004	Faris et al. .... 340/573.1
6,934,461 B1 *	8/2005	Strub et al. .... 386/46
6,970,183 B1 *	11/2005	Monroe .... 348/143

\* cited by examiner

(21) Appl. No.: **09/812,412**

(22) Filed: **Mar. 19, 2001**

(65) **Prior Publication Data**

US 2002/0131768 A1 Sep. 19, 2002

(51) **Int. Cl.**

**H04N 5/91** (2006.01)

(52) **U.S. Cl.** ..... **386/107**; 386/117; 348/143; 380/281

(58) **Field of Classification Search** ..... 386/1, 386/46, 107, 117; 348/143, 148; 380/23, 380/201, 281, 282, 285, 203; 360/5; 713/176, 713/194

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,789,904 A *	12/1988	Peterson	386/46
4,866,438 A	9/1989	Knisch	
4,949,186 A	8/1990	Peterson	
5,012,335 A	4/1991	Cohodar	
5,111,289 A	5/1992	Lucas et al.	
5,121,200 A	6/1992	Choi et al.	
5,225,768 A	7/1993	Reaves, III	
5,408,330 A *	4/1995	Squicciarini et al.	386/107
5,491,511 A	2/1996	Odle	
5,497,419 A	3/1996	Hill	
5,508,736 A	4/1996	Cooper	

OTHER PUBLICATIONS

U.S. Appl. No. 10/056,537, filed Feb. 23, 2005, Robert Gammenthaler.

Primary Examiner—James J. Groody

Assistant Examiner—Christopher Onuaku

(74) Attorney, Agent, or Firm—Scott T. Griggs; Griggs Bergen LLP

(57) **ABSTRACT**

An in-car video system with inputs for one or more analog or digital video cameras, one or more of which may be wireless, and having inputs for one or more microphones, one or more of which may be wireless. The system includes circuitry to digitize the input signals, if necessary, merge the data with system status data and compress the resulting data with any algorithm, preferably MPEG 4. A digital data cassette recorder records the compressed data, and a decompression circuit and active matrix display and audio channel provide monitoring capability of live video and audio. In some embodiments, a hard disk continuously records all data and archives previously recorded data to tape when so ordered to provide after-the-fact recording capability. In some embodiments, anti-tampering circuitry renders the recorded data tamper-proof, and a local playback circuit allows local playback of either live or previously recorded video.

22 Claims, 8 Drawing Sheets

