

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOTOROLA SOLUTIONS, INC.
Petitioner

v.

STELLAR, LLC
Patent Owner

Case No. – Not Yet Assigned
U.S. Patent No. 9,485,471

**PETITION FOR *INTER PARTES* REVIEW
OF U. S. PATENT NO. 9,485,471**

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I. INTRODUCTION

Motorola Solutions, Inc. (“Petitioner” or “Motorola”) requests *inter partes* review of U.S. Patent No. 9,485,471. The ’471 patent is directed to surveillance devices that use loop recording to constantly record video data to a buffer in memory. In such devices, when the end of the buffer is reached, data is then recorded to the beginning of the buffer—hence the term “loop” recording—erasing the earliest-recorded data. Loop recording techniques were well-known years before the ’471 patent, including in patents and literature, consumer devices (*e.g.*, TiVo DVRs of the late 1990s), and law enforcement applications (*e.g.*, mounted in police cruisers).

The ’471 patent also describes write protecting a portion of the buffer in response to an event occurrence, with the write-protected portion including data from before and after the event. Protecting both pre- and post-event data helps to ensure that unexpected moments—*e.g.*, a speeder going through a redlight and a police officer’s subsequent pursuit—are preserved and not overwritten in the next recording loop. But this technique was likewise well-known, and the Applicant of the ’471 patent conceded this in prosecuting a related patent. EX1013, 95, 101, 107-08. In fact, the Applicant admitted that *the majority* of the features claimed in the ’471 patent were known in the art. *Id.*, 89-112; EX1003, ¶¶30-44. And the few ’471 patent features that Applicant did not concede as conventional were also known in the art, as detailed herein.

Motorola requests institution of IPR and cancellation of claims 1-13.

II. BACKGROUND

A. Summary Of The '471 Patent

The '471 patent is directed to an “apparatus, systems, and methods in which a surveillance apparatus processes images by (1) continuously recording a stream of imaged data, (2) write protecting segments of the recorded stream, and (3) sending write protected segments from a local memory to a remote memory using a wireless transmitter.” EX1001, 2:12-17. Figure 1 of the '471 patent, reproduced below, illustrates one such system in which a camera 120 is coupled to a belt-worn recorder 160 via a data and power cord 140. Also depicted is a remote memory 170 and a ring-shaped signaling device 150, both of which “cooperate” with the recorder 160. *Id.*, 3:61-64.

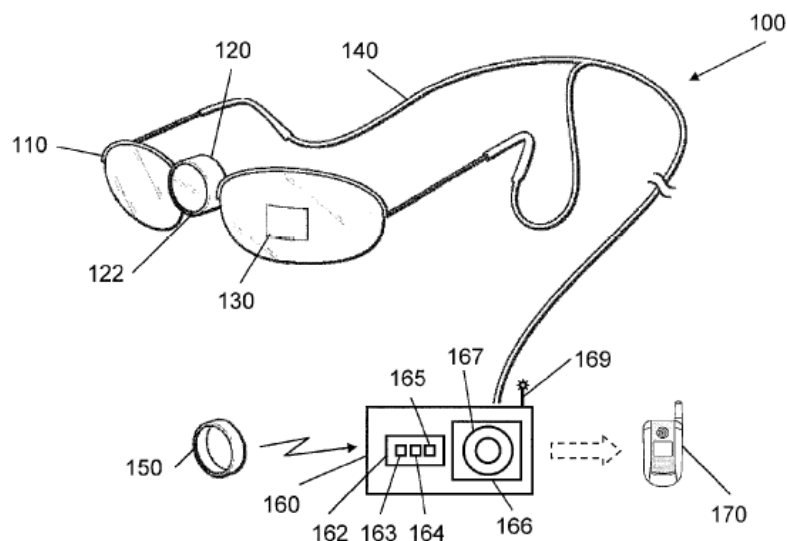


FIG. 1

Recorder 160 is described as “any recording device that records video and/or audio/video data, including conventional recorders,” and “preferably includes a

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processor 162 with software or hardware that accomplishes the functions described herein, or one or more physical memories that are collectively referred to herein as memory 166.” *Id.*, 4:59-64. .

“In preferred embodiments, image data received by recorder 160 is stored in a circular buffer 167 on memory 166.” *Id.*, 5:64-67. Figure 3 of the ’471 patent shows a “diagram representation of circular buffer 167 [misabeled in Figure 3 with reference numeral 169] in memory 166, with unprotected segment 320 and write-protected segment 330.” *Id.*, 7:39-41. “The recording facility 163 continuously records [a] data stream 310 [from the recorder 160] into circular buffer 167.” *Id.*, 7:43-44. “The recording facility 163 records over unprotected segment 320 of circular buffer 167, while skipping over protected segments 330 of circular buffer 167.” *Id.*, 7:44-47. “It is contemplated that the portion of the circular buffer that is marked as write-protected data cannot be overwritten once the recorder loops back to the beginning of the media.” *Id.*, 7:47-50.

“The circular buffer is preferably organized into a series of memory segments that loops back on itself,” and receipt of a “record signal” causes “a segment of the circular buffer to be write-protected to prevent that segment from being overwritten during the next recording loop.” EX1001, Abstract, 2:27-30, 2:41-44. An example of a circular buffer with write-protected segment 330 is shown in Figure 3:

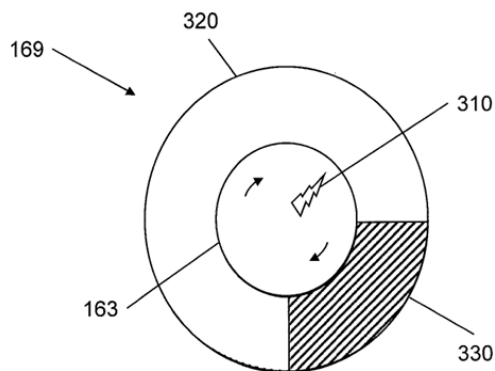


FIG. 3

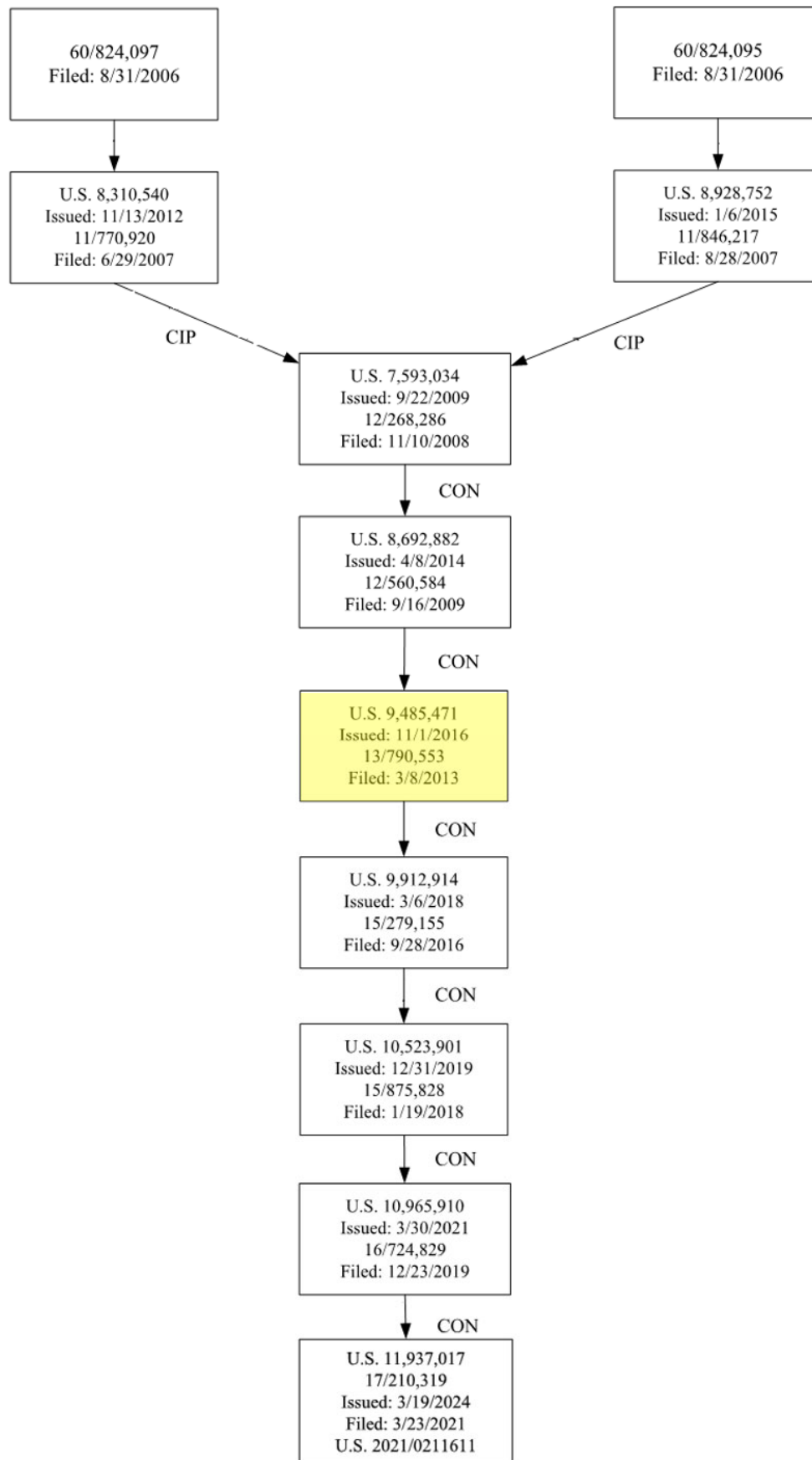
Id., Fig. 3. The write-protected segment includes video data from both before and after the record signal. *Id.*, 2:40-48.

As detailed in the declaration of Dr. Nabil Sarhan, all of these features were widely known and used at the time of the '471 patent, including in real-world situations (*e.g.*, video recording systems in police cars). EX1003, ¶¶45-112; EX1007, 2; EX1024.

B. Patent Family And Relevant File Histories

The '471 patent is one of several patents in a family of related patents:

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As seen above, the '471 patent claims priority back to USP 7,593,034 (the '034 patent, EX1010), filed November 10, 2008, as a continuation application. EX1001, 1:3-20. The '034 patent, in turn, claims priority as a continuation-in-part to U.S. App. No. 11/770,920 (the '920 application, EX1011), filed on June 29, 2007, and U.S. App. No. 11/846,217 (the '217 application, EX1012), filed August 28, 2007.

In the district court litigation, Patent Owner Stellar, LLC (“Stellar”) asserts that the claims of the '471 patent are entitled to claim priority to the June 29, 2007 filing date of the '920 application. EX1006, 4. Without conceding its propriety, Petitioner applies June 29, 2007 as the priority date of the challenged claims in this petition. Petitioner reserves its right to challenge priority in this or other proceedings.

1. '034 Patent File History

The file history of the '034 patent contains admissions relevant to the unpatentability of the '471 patent claims. Specifically, Applicant filed a document (i) identifying the prior art allegedly most relevant to the claimed subject matter, and (ii) conceding that many claim limitations were disclosed in these references. EX1013, 89-112. As relevant to this proceeding, many of the features conceded by Applicant as being known in the prior art are recited in the claims of the '471 patent. *Id.*; EX1003, ¶¶30-44. Applicant's document also included a “Statement of the Utility” of the purported invention. EX1013, 112.

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2. '471 Patent File History

Application No. 13/790,553, which eventually issued as the '471 patent, was filed on March 8, 2013 with 25 claims. EX1002, 236-260. The Office's examination was not rigorous: It rejected all claims on the basis of non-statutory double patenting over the '034 patent and other commonly-owned patents but never applied any prior art against the claims. *Id.*, 310-16. Claims 14-25 were rejected "as being a substantial duplicate of claims 1-13." *Id.*, 332.

After a response and a subsequent final rejection, the applicant submitted a terminal disclaimer and canceled claims 14-25. *Id.*, 328-334, 375-384, 396-402. The examiner then allowed claims 1-13. *Id.*, 406-418.

C. Level Of Skill In The Art

For purposes of this proceeding, Petitioner maintains a person having ordinary skill in the art (POSITA) at the time of the '471 patent would have been a person having at least a Bachelor's Degree in electrical engineering, computer science, or computer engineering, or undergraduate training in an equivalent field and at least two years of relevant experience in electronics technology. EX1003, ¶¶24-25. Additional graduate education could substitute for professional experience, and significant work experience could substitute for formal education. *Id.*

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**III. REQUIREMENTS FOR *INTER PARTES* REVIEW
UNDER 37 C.F.R. § 42.104**

A. Grounds For Standing Under 37 C.F.R. § 42.104(a)

Petitioner certifies that the '471 patent is available for IPR and that the Petitioner is not barred or estopped from requesting IPR challenging the claims of the '471 patent on the grounds identified herein.

**B. Identification Of Challenge Under 37 C.F.R. § 42.104(b) And
Relief Requested**

Ground 1a: Claims 1, 2, 4-7, 10, 12, and 13 would have been obvious under 35 U.S.C. § 103 over USP 7,158,167 to Yerazunis ("Yerazunis") (EX1017) alone or as combined with U.S. 2002/191952 to Fiore ("Fiore") (EX1009).

Ground 1b: Claims 3, 8, and 9 would have been obvious under 35 U.S.C. § 103 over Yerazunis alone or as combined with Fiore, in further view of U.S. 2004/008255 to Lewellen ("Lewellen") (EX1019).

Ground 1c: Claim 11 would have been obvious under 35 U.S.C. § 103 over Yerazunis alone or as combined with Fiore, in further view of European Patent No. 1,064,783 to Mann ("Mann") (EX1015).

Ground 2a: Claims 1-2, 4-7, 10 and 12-13 would have been obvious under 35 U.S.C. § 103 over USP 5,982,418 to Ely ("Ely") (EX1020) alone or as combined with Fiore.

Ground 2b: Claims 3, 8 and 9 would have been obvious under 35 U.S.C. § 103 over Ely alone or as combined with Fiore, in further view of Lewellen.

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Ground 2c: Claim 11 would have been obvious under 35 U.S.C. § 103 over Ely alone or as combined with Fiore, in further view of Mann.

C. Claim Construction Under 37 C.F.R. § 42.104(b)(3)

In this proceeding, claims are interpreted under the same standard applied by Article III courts. Under this standard, words in a claim are given their plain meaning, which is the meaning understood by a POSITA in view of the patent and file history. In this Petition, all of the claim terms are given their plain meaning, as understood by a POSITA, unless otherwise noted below.

1. “a local memory functionally coupled to the sensor”

The term “a local memory functionally coupled to the sensor” appears in independent claim 1 of the ’471 patent. The ’471 patent specification expressly defines this term: “As used herein, the term ‘a local memory functionally coupled to the camera’ means that the memory that is distanced less than 20 cm from the camera, and is coupled to the camera using entirely physical connectors (e.g., wires, pins, conductive paths, etc.).” EX1001, 2:18-27.

Petitioner thus proposes the claim term “a local memory functionally coupled to the sensor” be construed to mean “a memory that is distanced less than 20 cm from the camera and is coupled to the camera using entirely physical connectors.” In the corresponding district court litigation, the parties have agreed to this construction, EX1021, 1, and it is expected that the district court will adopt this construction.

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2. “file”

Independent claim 1 of the '471 patent recites “indexing the write-protected segment as a *file* in the buffer.”¹ EX1001, 12:13-27. The term “file” should be given its plain and ordinary meaning as of June 2007, which was “an identifiable collection of data.” EX1003, ¶122-128.

Intrinsic Evidence: The '471 patent describes its purported invention as utilizing a file-based approach for the circular buffer. The patent states that the entire circular buffer can be treated as a file. EX1001, 6:14-22. The patent further states that write-protected portions of the circular buffer can be stored as files within the circular buffer. *Id.*, 2:35-58, 9:45-53. Thus, in Figure 3, for example, the entire circular buffer 167 (misabeled with reference numeral 169) is treated as a file, and the write-protected segment 330 is also treated as a file stored in the circular buffer:

¹ All emphasis is added herein unless otherwise noted.

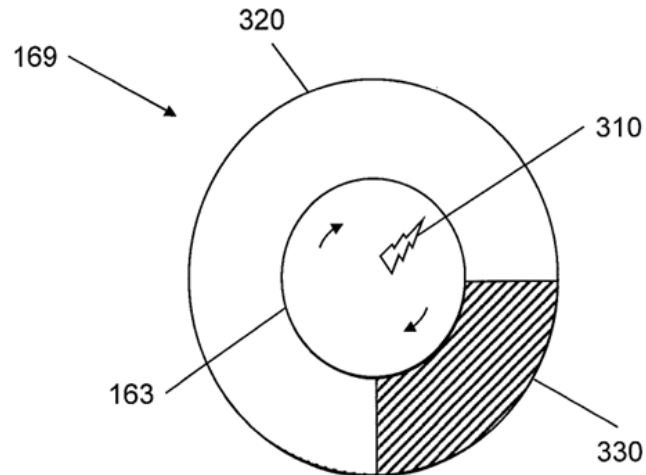


FIG. 3

Id., Fig. 3. In this example, the circular buffer 167 and write-protected portion 330 are “files” inasmuch as they comprise identifiable collections of data, although the patent does not describe any particular file type or structure for these files.

Figure 4H of the ’471 patent depicts a “C data stream ... saved as a physically dis-contiguous file” (*id.*, 9:45-53):

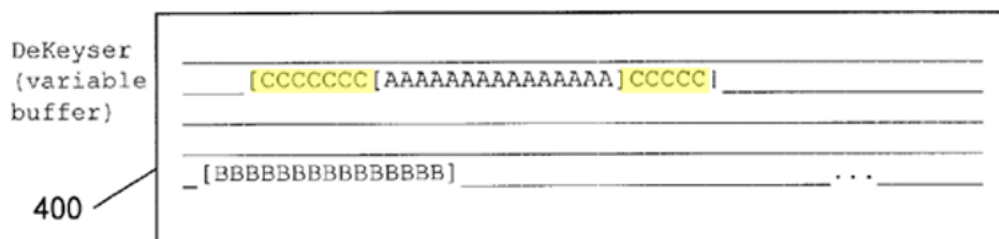


FIG. 4H

Id., Fig. 4H (color added). The file shown in this figure collects together the physically dis-contiguous “C” portions to form an identifiable collection of data. After being

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identified as such, the data making up the file can be used in various ways (*e.g.*, the file can be offloaded to a remote memory or played back). *Id.*, 9:54-64.

In sum, the '471 patent uses the term “file” in a manner consistent with its plain and ordinary meaning as of June 2007, *i.e.*, “an identifiable collection of data.” EX1003, ¶122. The patent does not suggest that any particular type of file is required and thus provides no basis for departing from this plain and ordinary meaning. *Id.*

The prosecution histories of the patent family likewise do not compel a narrower construction. During prosecution, Applicant reiterated what was recited in the various pending claims but did not otherwise limit the claimed “files” to any particular types of files. EX1011, 77; EX1013, 285-86.

Extrinsic Evidence: Both general-purpose and technical dictionaries confirm the plain and ordinary meaning of “file” as “an identifiable collection of data.” EX1003, ¶127. The American Heritage Dictionary defined “file” as “[a] collection of related data or program records stored as a unit with a single name” (EX1025, 518), and Merriam-Webster’s Collegiate Dictionary defined it as “a collection of related data records (as for a computer)” (EX1026, 467). A technical dictionary, the Wiley Electrical and Electronics Engineering Dictionary, defined “file” as “[a] collection of information which is stored as a unit.” EX1027, 283.

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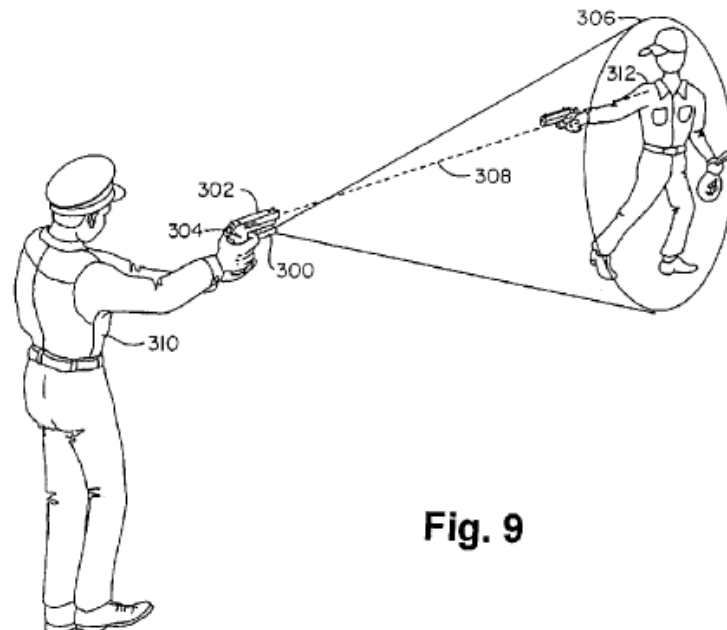
IV. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. Ground 1a: Claims 1, 2, 4-7, 10, 12, And 13 Would Have Been Obvious Over Yerazunis Alone Or As Combined With Fiore

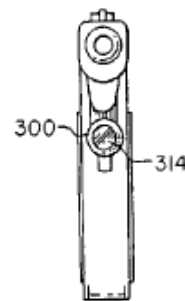
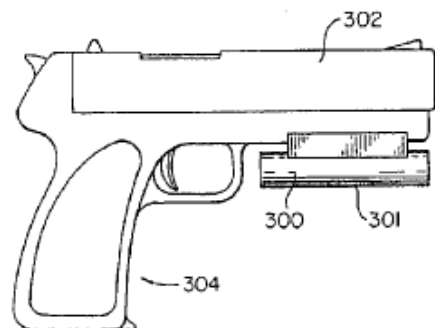
1. Summary Of Yerazunis

Yerazunis, EX1017, entitled “Video Recording Device for a Targetable Weapon,” was filed on September 9, 1998, and issued on January 2, 2007. Yerazunis is therefore prior art to the ’471 patent under at least pre-AIA 35 U.S.C. §§ 102(a) and (e).

Yerazunis discloses a “compact video image recording device” that can be utilized in a number of different applications. EX1017, Abstract, 1:21-31, 3:5-10, 9:8-16. “In one application, a video recording device as described above is mounted to a targetable weapon, such as a gun,” and used “for recording video images before and after the firing of the gun.” *Id.*, Abstract, 3:9-10, 4:28-30, 8:8-25, 9:60-10:11, 16:4-8, 16:43-17:38.



Id., Fig. 9.



Id., Figs. 10a, 10b.

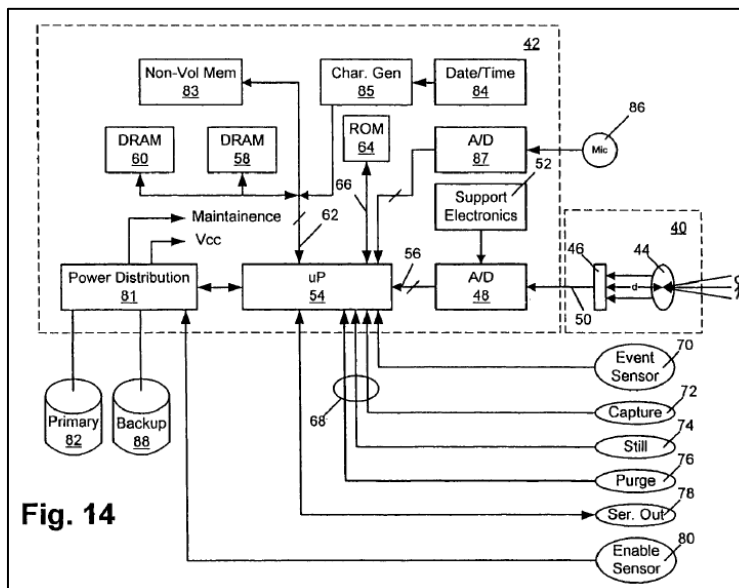
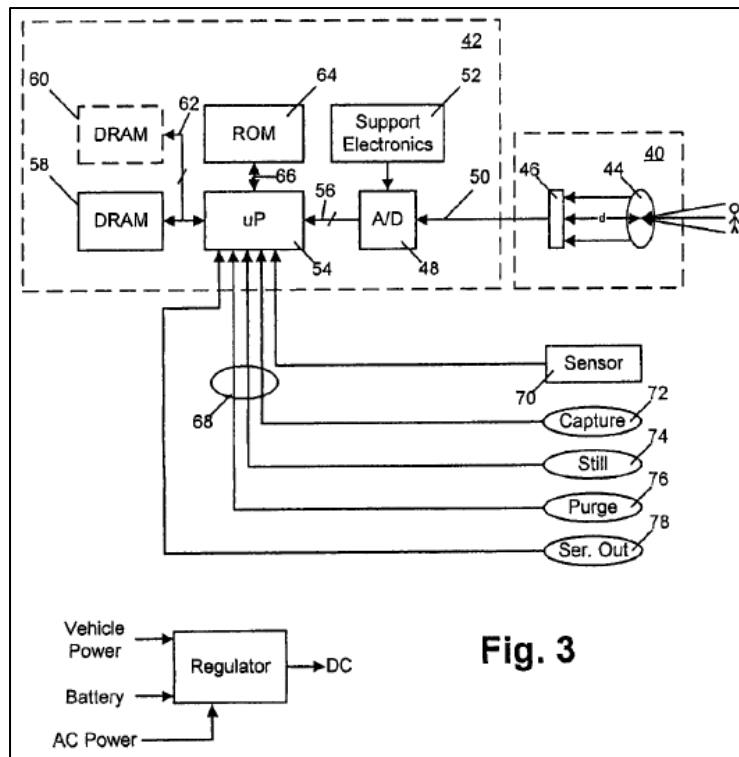
Yerazunis's video recording device "records video frames successively in at least one circular buffer memory organized as a continuous loop overwriting the oldest frame within the respective buffer memory with a more recently received frame." *Id.*, 2:19-23. When the video recording device is used with a gun, Yerazunis discloses that a "gun firing signal is generated upon discharge of the gun," and "specified frame

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data associated with that firing event both before and after the event is preserved and cannot be overwritten as a result of further use of the gun or subsequent firing events.”

Id., 3:19-31. “Frame data associated with each subsequent firing event[] is stored within an unused portion of the circular buffer memory.” *Id.*, 3:31-33.

Figure 3 of Yerazunis depicts an “electrical block diagram of a video recording device” (*id.*, 3:55-56), and Figure 14 likewise illustrates “a video recording device in accordance with the present invention for use with a gun” (*id.*, 4:28-30).



Id., Figs. 3, 14; *id.* at 16:4-8 (“[t]he operation of the [Figure 14] recording device is generally in accord with the description provided with respect to FIG. 3”), 17:34-38.

Figure 4a of Yerazunis depicts a circular memory buffer formed in DRAM memory of the device (*id.*, 7:9-11), and Figure 4b shows “a representation of

a semiconductor memory buffer employed in the video recording device of FIG. 3 to implement a circular memory buffer and associated head and tail pointers” (*id.*, 3:60-63).

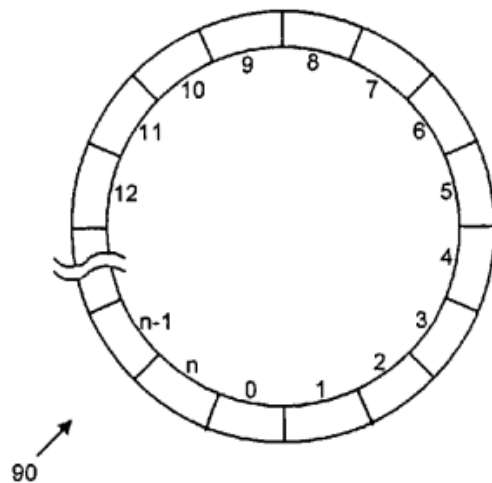


Fig. 4a

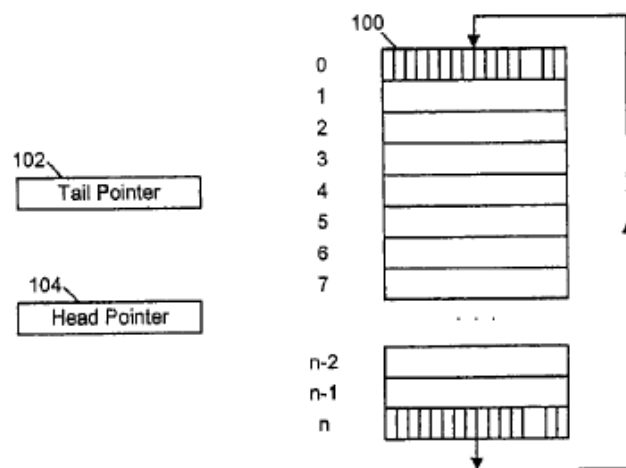


Fig. 4b

As illustrated in Figures 3 and 14, the recording device includes a camera 40 and video electronics 42. *Id.*, 5:41-43; *id.*, 16:4-8. The device further includes local memory (DRAMs 58, 60) coupled to the camera 40 via a microprocessor 54. *Id.*, 6:24-26. The microcontroller 54 has “a number of inputs 68 which permit activation of the video recording device and control of the device by a user.” *Id.*, 6:40-42. The inputs include a capture button 72 that causes video data in the local memory’s circular buffer to be write protected. *Id.*, 6:43-44, 7:11-22, 8:8-61, 9:17-26.

The microcontroller’s inputs further include an event sensor 70 configured to detect gun firings and other events. *Id.*, 8:8-61, 16:43-17:61. Upon detection of an

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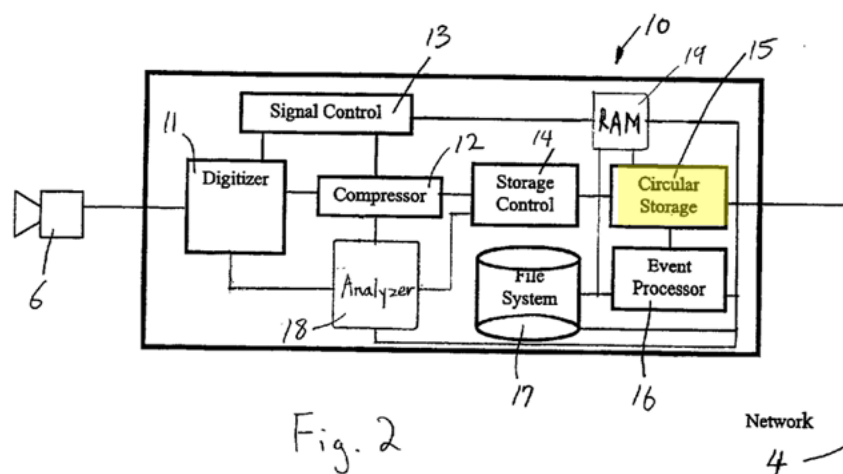
event, the microprocessor 54 preserves video data for the event by write protecting it in the circular buffer. *Id.*; *see also id.*, 9:34-42. In embodiments of Yerazunis's video recording devices, a microprocessor "tag[s] protected frame locations containing captured still frames and check[s] to determine whether a frame location is protected prior to writing to the frame location." *Id.*, 9:39-42. In Yerazunis's gun-camera embodiment, illustrated in Figures 9-14, "recording of data continues [after a gun-firing event] since a subsequent firing event may occur," and this is accomplished by storing pointers "defining the area(s) of the circular buffer memory" to be write protected in a table. *Id.*, 17:45-61. The storing of such pointers "allow[s] later retrieval of the video data pertaining to each firing of the gun." *Id.*; *see also id.*, 17:9-12.

Yerazunis was neither cited nor applied during prosecution of the '471 patent. While the '471 patent lists on its face U.S. 2002/005895 to Freeman (EX1028), an application to which Yerazunis is a continuation-in-part, Yerazunis includes significant additional disclosures not included in Freeman. For example, Yerazunis discloses the above-described gun-camera embodiment that is not described in Freeman. This petition relies on these additional disclosures of Yerazunis that are not present in Freeman.

2. Summary Of Fiore

Fiore, EX1009, entitled “Data Recording and Playback System and Method,” was filed on April 9, 2002, and published on December 19, 2002. Fiore incorporates by reference and claims priority to U.S. Provisional Application No. 60/282,162, filed April 9, 2001 (EX1030). Fiore is therefore prior art to the ’471 patent under at least pre-AIA 35 U.S.C. § 102(a), (b), and (e).

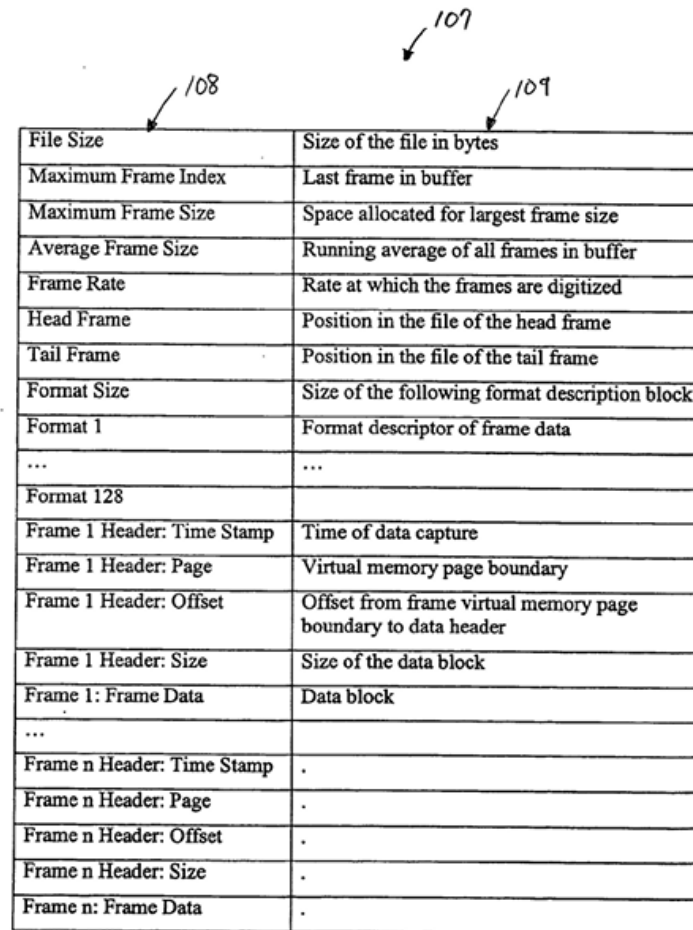
Fiore relates generally to “data recording and playback systems for monitoring processes or occurrences of events which allows the replay and/or analysis of a time sampled signal.” EX1009, [0003]. Fiore’s data recording and playback system uses a circular storage buffer 15 to store data frames of an input signal from a monitoring device 6 (which may be a video camera, *id.*, [0040]):



Id., Fig. 2 (color added); *id.*, [0048]. The circular storage buffer 15 “may be implemented as a reserved area in memory, a disk file, or as a storage in a looped media.” *Id.*, [0065].

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Fiore discloses that the circular storage buffer 15 is implemented as a memory-mapped file. *Id.*, [0047], [0068]. In the context of Fiore, a memory-mapped file is a file “having the same address space as the memory device for storing the input signal data” to allow “the input signal data” to be “swapped between the RAM” and “the file system,” “as needed.” *Id.*, Abstract, [0047]; EX1003, ¶143. POSITAs at the time of the '471 patent recognized the advantages provided by memory-mapped files, including increased input/output (I/O) performance. EX1009, [0065]. Figure 9 of Fiore “shows details of a file format in a table 107 suitable for implementing the circular storage buffer 15” (EX1009, [0064]), noting the file size and other details of the file:



The diagram shows a table with two columns. Handwritten label 107 points to the top of the table. Handwritten label 108 points to the first column header 'File Size'. Handwritten label 109 points to the second column header 'Size of the file in bytes'.

File Size	Size of the file in bytes
Maximum Frame Index	Last frame in buffer
Maximum Frame Size	Space allocated for largest frame size
Average Frame Size	Running average of all frames in buffer
Frame Rate	Rate at which the frames are digitized
Head Frame	Position in the file of the head frame
Tail Frame	Position in the file of the tail frame
Format Size	Size of the following format description block
Format 1	Format descriptor of frame data
...	...
Format 128	
Frame 1 Header: Time Stamp	Time of data capture
Frame 1 Header: Page	Virtual memory page boundary
Frame 1 Header: Offset	Offset from frame virtual memory page boundary to data header
Frame 1 Header: Size	Size of the data block
Frame 1: Frame Data	Data block
...	
Frame n Header: Time Stamp	.
Frame n Header: Page	.
Frame n Header: Offset	.
Frame n Header: Size	.
Frame n: Frame Data	.

Fig. 9

Id., Fig. 9.

Fiore further discloses indexing data frames associated with events as files within the circular storage buffer 15. Fiore's Background section describes conventional approaches that do not differentiate event data as files in the circular buffer. EX1009, [0005]-[0006]. In contrast to these prior-art approaches, Fiore describes indexing identifiable collections of data (*i.e.*, files) for respective events in its circular storage buffer 15. *Id.*, [0022]-[0023], [0051], [0059]-[0060].

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Specifically, when an external event occurs (as indicated via an event signal generated by a sensor, *id.*, [0041]), time stamps associated with the event are stored in an event database 23, and “the input signal data being stored in the circular storage buffer 15 [is marked] ... to thereby flag the location of an occurrence of an external event in the circular storage buffer.” *Id.*, [0048], [0050]-[0051]. Further, an event processor copies data frames associated with the event—including “frames before, during, and after the event”—to a file system 17. *Id.*, [0048], [0051]. Thus, the use of files in the circular storage buffer 15 for indexing event data enables such data to be offloaded to the file system 17 for permanent preservation. *Id.*, [0022], [0051].

Fiore’s use of files in the circular storage buffer 15 also enables data for an event to be played back directly from the circular storage buffer 15 “without interrupting simultaneous recording of new input signal data into the circular storage buffer.” *Id.*, Abstract, [0023], [0057]-[0060], [0065], [0068], [0072], Fig. 6; EX1003, ¶148. Fiore’s disclosure (in December 2002) of a file-based approach for enabling playback and offloading of data from the circular buffer without interrupting recording of new data to the circular buffer predates by many years the similar description in the ’471 patent. EX1001, 9:54-64.

Fiore was neither cited nor applied during prosecution of the ’471 patent.

3. Motivation To Combine

A POSITA would have been motivated to combine Yerazunis and Fiore for multiple reasons. EX1003, ¶¶168-172.

As one example, because Yerazunis and Fiore both disclose data recording systems that store data in a circular buffer and preserve data associated with an event—both before and after an event trigger—a POSITA would have been aware of and motivated to combine the two references.

As another example, a POSITA would have been motivated to implement Yerazunis’s video recording device with Fiore’s file-based approach for the circular storage buffer and event data stored therein. Fiore provides a fulsome description of its file-based approach, which includes (i) implementing the circular storage buffer 15 as a memory-mapped file, and (ii) indexing event data for events as respective files within the memory-mapped file. EX1009, [0022]-[0023], [0051], [0059]-[0060]. Fiore also describes numerous benefits of its file-based approach, including that it “combines the access speed of the RAM memory with large storage capacity of a disk file” (*id.*, [0065]), “mak[es] the indexing of data in the memory mapped file 110 transparent to the circular storage buffer’s 15 access objects” (*id.*, [0067]), and “avoid[s] issues of switching between Random Access Memory (RAM) and disk files” (*id.*, [0068]); *id.*, [0072] (describing approach as providing “significant performance gains” and

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allowing “playback from the circular storage buffer without interrupting recording into the circular storage buffer”).

In view of these exemplary benefits, and other reasons discussed herein, a POSITA implementing Yerazunis would have been motivated to utilize Fiore’s teachings regarding (i) the circular storage buffer implemented as a memory mapped file, and (ii) indexing of event data as files within the circular storage buffer. A POSITA would have had a reasonable expectation of success because Fiore provides a detailed disclosure of its file-based approach, and applying those techniques to Yerazunis would have been routine and well within a POSITA’s skill. EX1003, ¶¶168-172.

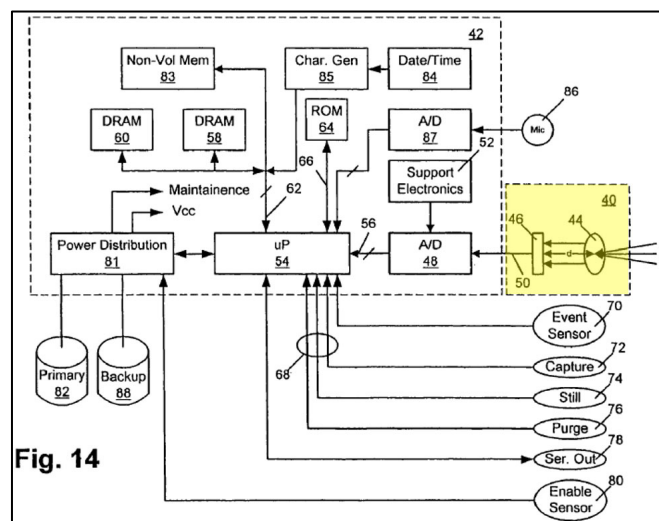
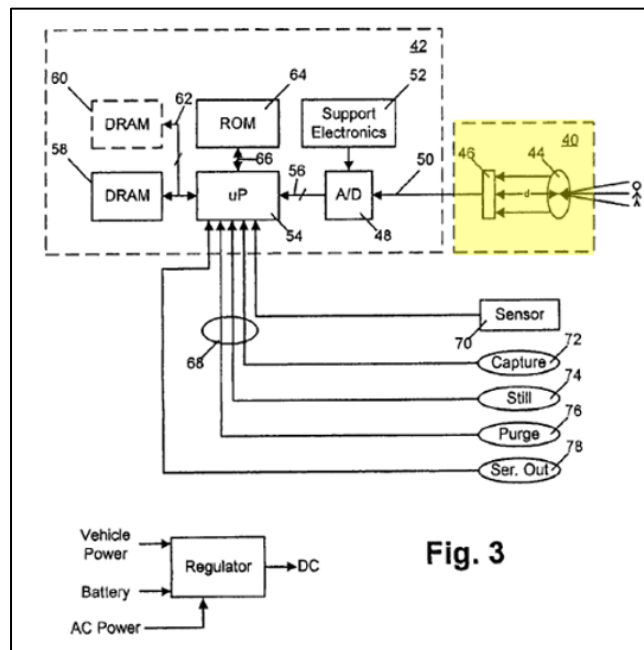
4. Claim 1

a) Preamble: An apparatus, comprising:

To the extent limiting, Yerazunis discloses the preamble of claim 1. EX1003, ¶173. Yerazunis discloses “a video recording device” that “is contained within a compactly sized housing.” EX1017, 2:12-14. Yerazunis thus discloses “an apparatus.” Further, Applicant admitted that this limitation is known in the art. EX1013, 94, 100, 107.

b) Element 1: a sensor having a data capturing component that captures sensor data;

Yerazunis discloses this claim element. EX1003, ¶467. Yerazunis's video recording device includes a camera 140 that discloses the claimed "sensor having a data capturing component that captures sensor data":



EX1017, Figs. 3, 14 (color added); *see also id.*, 2:33-41.

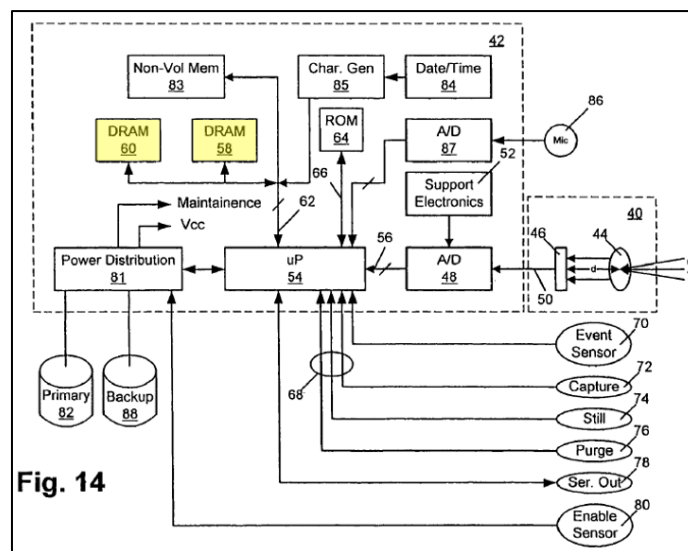
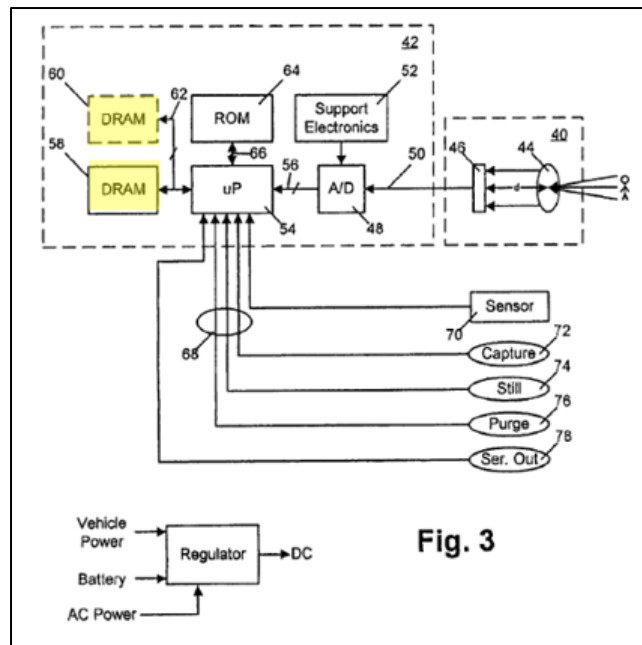
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The camera 140 is “comprised of a lens 44 which is disposed a predetermined distance *d* from the surface of an image sensor 46.” *Id.*, 5:43-45. “The image sensor 46, as described above, may comprise a [CCD] array, an artificial retina, or any other suitable image sensor operative to provide an output signal representative of a video image which impinges upon the sensor.” *Id.*, 5:45-49. The output signal is “an analog signal which is coupled to one or more A/D converters” that “generate a digital representation of the video image.” *Id.*, 2:37-41. The camera 140 thus discloses the claimed “sensor” because it has an image sensor 46 (*i.e.*, a “data capturing component,” as claimed) that captures video images that impinge on it (*i.e.*, “sensor data,” as claimed).

Yerazunis’s camera 140 also discloses the claimed “sensor having a data capturing component that captures sensor data” because its disclosure is similar to that of the ’471 patent referring to cameras as being sensing devices. EX1001, 4:10-37.

c) Element 2: a local memory functionally coupled to the sensor;

Yerazunis discloses this claim element. EX1003, ¶470. As explained in Section III.C.1 above, the term “a local memory functionally coupled to the sensor” should be construed to mean “a memory that is distanced less than 20 cm from the camera and is coupled to the camera using entirely physical connectors.” Yerazunis’s video recording device includes video electronics 42 with DRAMs 58, 60 that disclose the claimed “local memory” (EX1017, 5:40-43, 6:24-36):



Id., Figs. 3, 14 (color added).

As seen in the figures above, the DRAMs 58, 60 (*i.e.*, the “local memory”) are coupled to the camera 40 using entirely physical connectors. Yerazunis discloses that the “microprocessor 54 and the DRAM 58 may be obtained as a single integrated circuit [IC]” (*id.*, 6:24-29), meaning that their connection would be via one or more

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physical connectors on the IC (*e.g.*, conductive lines and/or vias, etc.). Yerazunis further discloses that the DRAM 60 is “coupled to the microprocessor 54 via a bus 62,” which is also a physical connector. *Id.*, 6:30-36. The microprocessor 54, in turn, is coupled to analog-to-digital converter (ADC) 48 “via signal path 56 which comprises a parallel signal bus,” another physical connector. *Id.*, 6:14-23.

Finally, the ADC 48 is coupled to the camera 40 “via a signal path 50” to enable the ADC 48 to sample the output of the camera’s image sensor 46 at predetermined intervals. *Id.*, 5:40-67. A POSITA would have understood the signal path 50 between the camera 40 and ADC 48 as using a physical connector. EX1003, ¶472. Accordingly, the DRAMs 58, 60 (*i.e.*, the “local memory”) are coupled to the camera 40 “using entirely physical connectors,” as required by the parties’ agreed-upon construction.

A POSITA would have further understood that the DRAMs 58, 60 are distanced less than 20 cm from the camera 40 (and image sensor 46 within camera 40). Yerazunis discloses “a video recording device” that “is contained within a compactly sized housing” (EX1017, 2:12-14; Figs. 2a, 2b) and in an embodiment is “mountable to a gun and useful for recording video images before and after the firing of the gun” (*id.*, Abstract). As illustrated in Figures 10a and 10b, the video recording device 300 is mounted below the barrel of the gun 302 and includes a lens 314 provided at the forward end. *Id.*, 15:24-36.

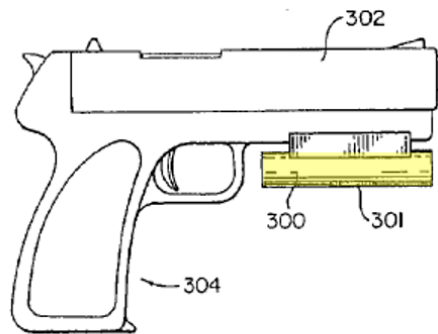


Fig. 10a

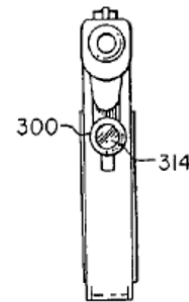


Fig. 10b

Id., Figs. 10a, 10b (color added). A POSITA would have understood that for the video recording device to be compact and mountable to a gun, it would necessitate that the memory be located near—certainly less than 20 cm from—the camera/sensor. In Figure 10a, for example, the entire video recording device (highlighted in yellow above) is shown attached to a portion of the gun barrel that is less than 20 cm in length. The DRAMs 58, 60 and camera 40 contained within the video recording device would therefore necessarily be distanced less than 20 cm apart in this example.

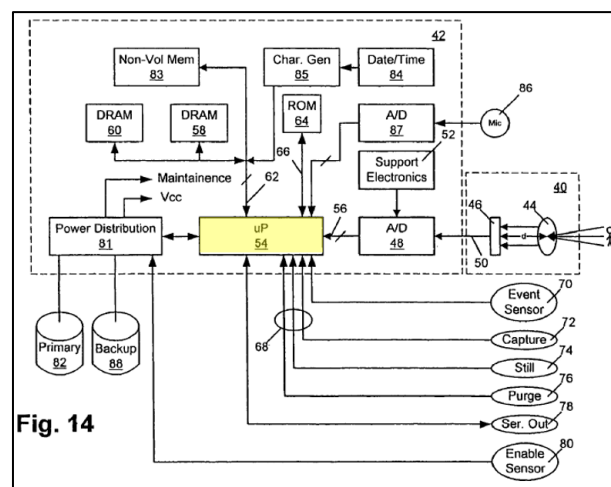
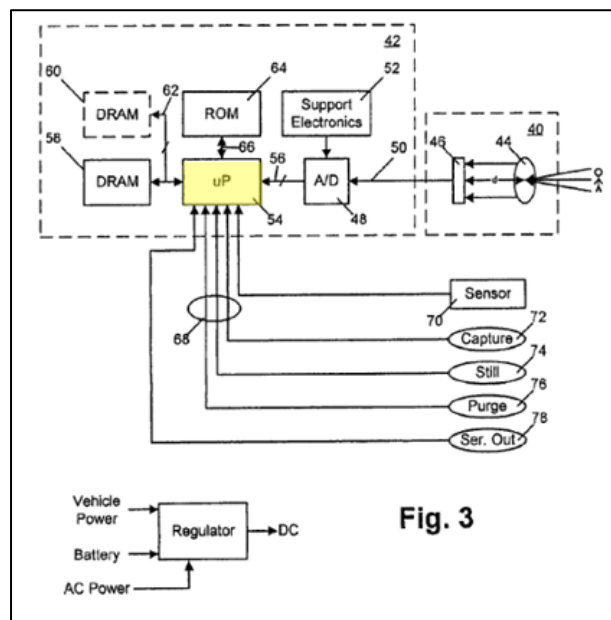
Further, Applicant has conceded that this limitation is known in the art. EX1013, 101, 107.

d) Element 3: a recording facility that records the sensor data into available portions of a buffer in the local memory; and

Yerazunis discloses this claim element. EX1003, ¶475. Yerazunis's video recording device "records video frames successively in at least one circular buffer memory organized as a continuous loop overwriting the oldest frame within the respective buffer memory with a more recently received frame." EX1017, 2:19-23,

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17:9-20, 17:50-59. Specifically, Yerazunis's camera 40 captures video, and the aforementioned ADC 48 converts the captured video into a digital signal. *Id.*, 5:40-67. The digital signal is provided to inputs of the microprocessor 54, and the microprocessor 54 "compresses the digitized frame data and stores the compressed frame data in the next sequential location of [a] circular buffer." *Id.*, 2:45-47, 6:24-26, 6:52-7:6, 10:55-67, 17:50-59; *see also id.*, 11:50-14:44, Figs. 6-8.



Id., Figs. 3, 14 (color added).

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Yerazunis's circular buffer is formed in the DRAM 58. *Id.*, 7:7-61, 18:7-12. Thus, the microprocessor 54 includes "a recording facility" that "records the sensor data into available portions of a buffer in the local memory," as claimed. Yerazunis's disclosure of the recording facility is similar to that of the '471 patent. Like Yerazunis, the '471 patent describes a recorder 160 that uses a processor 162 to perform various "facilities" or "functions." EX1001, 4:59-64, 5:31-48.

Further, Applicant has conceded that this limitation is known in the art. EX1013, 94-95, 101, 107.

- e) **Element 4: a protecting facility that responds to a signal to record the sensor data by designating a segment of the buffer as a write-protected segment and by indexing the write-protected segment as a file in the buffer, wherein the write-protected segment includes a pre-recorded subset recorded before the signal is received and a post-recorded subset to be recorded after the signal is received.**

Yerazunis alone or as combined with Fiore discloses this claim element. EX1003, ¶478.

In Yerazunis's gun-camera embodiment, the event sensor 70 is "responsive to the discharge of [a] gun" and thus generates a "gun firing signal" "upon discharge of the gun." EX1017, 3:20-33, 8:8-25, 14:55-61. Upon detection of the gun firing signal from the event sensor 70, the microprocessor 54 causes "specified frame data associated with [the] firing event both before and after the event" to be "preserved," such that it "cannot be overwritten as a result of further use of the gun or subsequent

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firing events.” *Id.*, 3:25-38, 8:26-30, 15:9-13. With the specified frame data being write protected, “[f]rame data associated with each subsequent firing event[] is stored within an unused portion of the circular buffer memory.” *Id.*, 3:31-33.

Yerazunis discloses that the write protecting performed by its microprocessor 54 may include storing pointers that define areas of the circular buffer that are not to be overwritten:

It is noted that while storage of video frame data terminates in the case of a single trigger event such as in the situation in which the recording device is employed to preserve a record of a car crash, in the present application, recording of data continues since a subsequent firing event may occur. *To accommodate this objective, after the conclusion of data storage associated with one firing event, the head pointer 104 and the tail pointer 102 (or pointers in the event multiple buffer groups are employed as discussed above) defining the area(s) of the circular buffer memory, are stored in a table to allow later retrieval of the video data pertaining to each firing of the gun.* The head and the tail pointers are then reset to allow continued recording into another portion of the circular buffer memory without overwriting the previously stored and preserved data. This process continues as each trigger event occurs until the buffer memory is full.

Id., 17:45-61.

In sum, Yerazunis’s microcontroller 54 responds to a “gun firing signal” generated by the event sensor 70 by designating a segment of the buffer—*i.e.*, the portion of the buffer containing video data associated with the firing of a gun—as

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being write-protected. Further, the write-protected segment includes “frame data associated with [the] firing event both before and after the event.” *Id.*, 3:25-35.

Further, Yerazunis’s protecting facility “responds to a signal to record the sensor data ... by indexing the write-protected segment as a file in the buffer.” Yerazunis’s tagging, use of pointers to identify a collection of data for write protection, and storage of such pointers in a table “to allow later retrieval” of video data for gun-firing events (EX1017, 17:45-61) discloses “indexing the write-protected segment as a file in the buffer.” A POSITA would have understood that retrieving video data for gun-firing events necessitates an ability to locate the video data within the buffer, such that Yerazunis necessarily discloses the claimed “indexing.” Thus, while Yerazunis does not *expressly* refer to “indexing” write-protected segments as “files,” a POSITA would have understood Yerazunis as describing—or at minimum, rendering obvious—this limitation. *Id.*, 6:1-13, 6:33-36, 7:23-32, 10:37-39, 10:63-67, 11:31-43; EX1003, ¶482.

Indeed, a POSITA would have recognized the claimed “indexing the write-protected segment as a file in the buffer” as being one of a finite number of identified solutions for storing and retrieving data in Yerazunis, further evidencing its obviousness. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (when “there are a finite number of identified, predictable solutions, a [POSITA] has good reason to pursue the known options within his or her technical grasp”). A POSITA would have

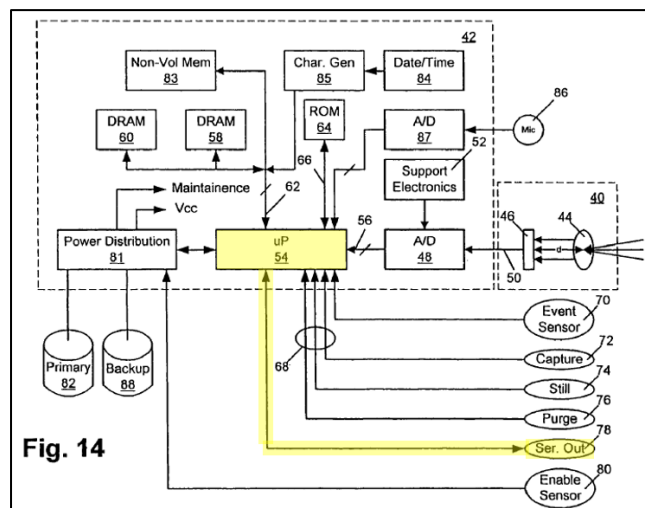
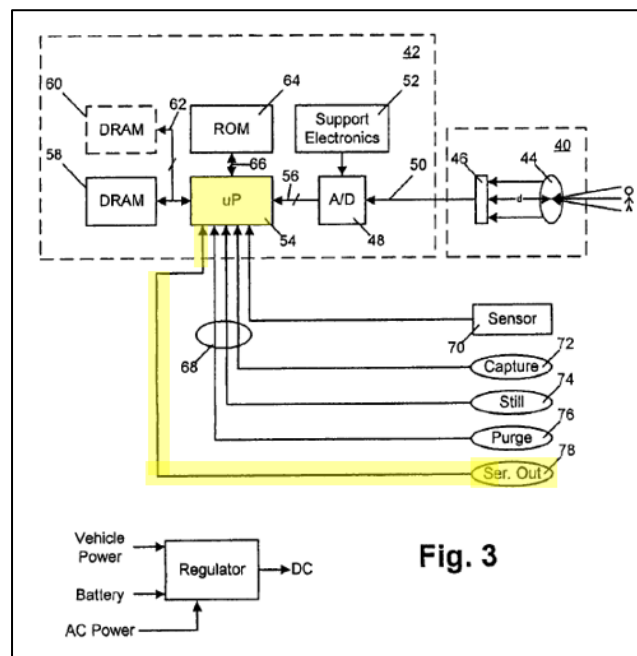
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recognized that the Yerazunis's event data must be stored and retrieved in some way, and indexing such data as a file was a well-known approach for doing so. EX1003, ¶483. Storing and retrieving event data using this conventional approach was not innovative but rather a straightforward application of ordinary skill or common sense. *See KSR*, 550 U.S. at 421.

To the extent, however, that a POSITA wanted further guidance as to particular methods for indexing of event data as files in Yerazunis's buffer, a POSITA would have been motivated to turn to Fiore. EX1003, ¶484. As explained in Section IV.A.2 above, Fiore implements its circular storage buffer 15 as a memory-mapped file and describes indexing collections of frame data for respective events as files within the memory-mapped file. EX1009, [0022]-[0023], [0051], [0059]-[0060]. Fiore also describes the benefits of its file-based approach, including that it enables playback of video data for a specific event from the circular buffer without interrupting simultaneous recording of new video data into the buffer. *Id.*, [0065], [0067]-[0068], [0072]. In view of these exemplary benefits and the additional reasons explained in Section VIII.B.1 above, a POSITA would have been motivated to implement Yerazunis's microcontroller 54 to "respond[] to a signal to record the sensor data" by "indexing the write-protected segment as a file in the buffer" in the manner disclosed in Fiore.

5. Claim 2

Claim 2 depends from claim 1 and recites “a sending facility configured to transmit the file from the local memory to a remote memory.” Yerazunis discloses this limitation. EX1003, ¶486. The reference’s microprocessor 54 includes a serial output channel 78 that is “provided to permit recorded frame data to be downloaded to a computer for viewing.” EX1017, 3:1-2, 6:45-51, 18:60-66.



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Id., Figs. 3, 14 (color added). Although the output channel 78 is a serial output channel, Yerazunis states that “any appropriate data transfer link and protocol may be employed.” *Id.*, 3:3-4, 18:64-66.

Because the microprocessor’s serial output channel 78 (or other appropriate data transfer link) “is employed to download captured and stored video images” from the circular buffer of DRAM 58 “to an external Personal Computer (PC)” (*id.*, 9:60-62), the microprocessor 54 includes the claimed “sending facility configured to transmit the file from the local memory to a remote memory.” As detailed above, Yerazunis’s video recording device stores files containing recorded frame data in the circular buffer of DRAM 58. The microprocessor 54 with serial output channel 78 transmits write-protected files stored in the DRAM 58 (*i.e.*, “local memory,” as claimed) to an external computer having “remote memory” for storing such files. The microprocessor 54 therefore includes the claimed “sending facility” of claim 2.

6. Claim 4

Claim 4 depends from claim 1 and recites “a sensor that automatically triggers the signal to record upon detecting identified content in at least one of the captured images.” Yerazunis discloses this limitation. EX1003, ¶489. The reference’s video recording device includes the event sensor 70 that

provides a trigger output signal in response to a condition which is desired to initiate the capture of the video image or images occurring prior to and

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following the occurrence of the trigger output signal.... The trigger output signal may [be any] ... signal indicative of a specified event.

EX1017, 8:8-25; *see also id.*, 16:43-65.

As seen above, Yerazunis's event sensor 70 automatically triggers the signal to record, as claimed. In Yerazunis, when the event sensor 70 detects certain "condition[s]," it provides a trigger output signal that "activate[s] the capture of video images by the present video recording device," thereby causing them to be write-protected. EX1017, 8:8-25; *see also id.*, 3:25-38, 8:26-30, 15:9-13, 17:45-61. Accordingly, Yerazunis's event sensor 70 discloses the claimed "sensor that automatically triggers the signal to record" because it automatically causes video data to be write protected upon detection of certain conditions.

The conditions that automatically trigger the write protecting in Yerazunis include "detecting identified content in at least one of the captured images," as claimed. Specifically, Yerazunis discloses that "[t]riggering events may include" a "signal representing a recognized change in a video image or acoustic signal," "or any other suitable activation signal known in the art." EX1017, 2:58-64. A POSITA would have understood that recognizing a change in a video image would have involved detecting identified content in at least one of the captured images. EX1003, ¶491. And a POSITA would have been motivated to implement this triggering event with Yerazunis's gun-mountable device to, for instance, capture video data when a target is in the gun's sights. *Id.* As another example, a POSITA would have been motivated to implement this

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triggering event with Yerazunis's gun-mounted device such that if an officer points the gun at a suspected criminal (*e.g.*, before the officer pulls the gun trigger), the mounted camera system would detect that the suspect has drawn a weapon and begin recording upon such detection. The recording could advantageously be used as evidence/justification for the officer subsequently firing his own weapon. *Id.*, ¶492; *see* EX1017, 1:32-43. Thus, Yerazunis discloses the "sensor" of claim 4. Further, Applicant admitted that this limitation is known in the art. EX1013, 89, 96.

7. Claim 5

Claim 5 depends from claim 1 and recites "an interface through which a tactile switch triggers the signal." Yerazunis discloses this limitation. EX1003, ¶494. The '471 patent discloses that a button is a type of switch (EX1001, 8:55-57), and that the term "interface" refers to an input mechanism for receiving user input. *Id.*, 2:49-51, 6:27-37, 8:55-59, 8:67-9:12. Yerazunis discloses an input mechanism (*i.e.*, an interface) through which a tactile button (*i.e.*, a type of switch) triggers a write-protecting signal.

Yerazunis discloses that "[t]riggering events may include," among other things, "a button actuated by a user." EX1017, 2:58-64; *see also id.*, 9:17-18 (describing a "capture button 72 which serves as a user activatable trigger event"), Fig. 14 (depicting capture button 72). When the user pushes this button, "a trigger signal is provided to and detected by the central control processor 54." *Id.*, 9:19-22. Yerazunis's button is

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a “tactile” switch because the user touches the button to actuate it. *Id.*, 2:58-64, 9:19-22.

Yerazunis further describes a video recording device mountable to a gun, where “the video recording device may be interfaced directly to the trigger of the gun such that the actuation of the trigger is employed to generate a switching action or signal which is used to indicate a trigger event.” *Id.*, 16:59-62. The gun trigger is “an interface through which a tactile switch triggers the signal” for reasons similar to those explained above for Yerazunis’s capture button: The video recording device is “interfaced directly to the trigger of the gun,” such that a switch (*i.e.*, the trigger itself, which has two states, as is characteristic of switches) triggers the signal to write protect video data. *Id.* The trigger is a “tactile” switch because it is actuated by human touch. Further, Applicant admitted that this limitation is known in the art. EX1013, 96, 102.

8. Claim 6

Claim 6 depends from claim 1 and recites “an interface through which an audio receiver triggers the signal when an audio command is recognized.” Yerazunis discloses this limitation. EX1003, ¶498; EX1017, 8:17-19. For example, in Yerazunis’s gun-camera embodiment, “the event sensor 70 is operative to generate a trigger signal in response to the discharge of the gun,” and preferably comprises “a microphone, or any other suitable sensor which can detect a characteristic associated with the firing of the gun.” EX1017, 16:43-50. “In the case of a microphone, the event

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sensor 70 is operative to detect the sound associated with the firing of the gun.” *Id.*, 16:53-55. Thus, Yerazunis discloses the claimed “interface through which an audio receiver triggers the signal when an audio command is recognized.”

9. Claim 7

Claim 7 depends from claim 1 and recites “an interface through which a human can designate a length of time of at least one of the pre-recorded subset, the post-recorded subset, and the segment.” Yerazunis discloses this limitation. EX1003, ¶500. Yerazunis teaches that “the number of frames that are recorded before and after [a trigger event] are a matter of design choice, the only limitation being that the total number of frames to be recorded not exceed the frame capacity of the semiconductor memory.” EX1017, 8:51-55; *see also id.*, 6:11-13, 10:42-46, 12:37-42. Because a human can set the number of frames recorded before and after a trigger event by “design choice,” Yerazunis necessarily discloses the “interface” of claim 7.

Yerazunis also teaches that if the memory will be able to hold 14.9 seconds of video data, and “[i]f the trigger is adjusted so as to provide for approximately one half of the frames to be recorded prior to the trigger event and one half of the frames subsequent to the trigger event, it is evident that only approximately 7.5 seconds of record time is achieved surrounding the event of interest.” *Id.*, 11:31-43. Again, because the human can “adjust” the length of time recorded before and after the trigger

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event, Yerazunis necessarily discloses the claimed “interface.” Further, Applicant admitted that this limitation is known in the art. EX1013, 90, 96, 99, 111.

10. Claim 10

Claim 10 depends from claim 1 and recites “a mount for the sensor.” Yerazunis discloses this limitation. EX1003, ¶503. Yerazunis’s video recording device is “contained within a compactly sized housing” and includes “[o]ne of more video image sensors” that “are mounted to the housing.” EX1017, 2:12-15. These video image sensors are contained within Yerazunis’s camera 40 (*i.e.*, the claimed “sensor”), such that the reference discloses “a mount for the sensor,” as claimed. *Id.*, 5:40-45. Further, in Yerazunis’s gun-camera embodiment, the compact video image recording device with camera “is mountable to a gun.” *Id.*, Abstract; *see also id.*, 3:9-17, 14:45-50, 15:24-30, 15:37-38, 15:56-57.

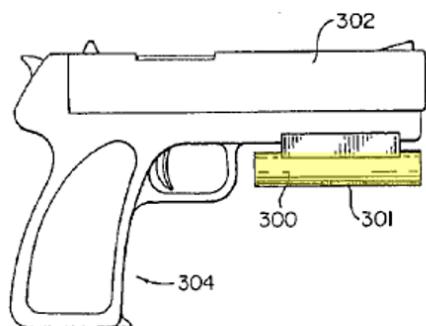


Fig. 10a

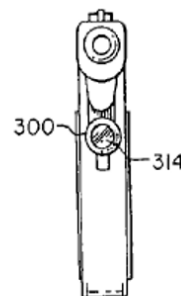


Fig. 10b

Id., Figs. 10a, 10b (color added); *see also id.*, Figs. 9, 11a, 11b, 12a, 12b, 13.

Further, Applicant admitted that this limitation is known in the art. EX1013, 90, 97, 103.

11. Claim 12

Claim 12 depends from claim 1 and recites “an electronic index that provides a directory to the file within the buffer.” Yerazunis alone or in combination with Fiore discloses this limitation. EX1003, ¶506. Yerazunis discloses that the write protecting performed by its microprocessor 54 includes storing pointers that define areas of the circular buffer that are not to be overwritten, thus providing an electronic index to the write-protected segments “to allow later retrieval.” EX1017, 17:45-61. Yerazunis therefore discloses the claimed “electronic index that provides a directory to the file within the buffer.”

To the extent that a POSITA wanted further guidance as to particular methods for indexing of event data as files in Yerazunis’s buffer, a POSITA would have been motivated to turn to Fiore. EX1003, ¶507. As explained above for claim 1, Fiore implements its circular storage buffer 15 as a memory-mapped file and describes indexing collections of frame data for respective events as files within the memory-mapped file. EX1009, [0022]-[0023], [0051], [0059]-[0060]. A POSITA would have been motivated to employ Fiore’s indexing of video data for the reasons stated above in Section IV.A.3. Thus, Yerazunis in view of Fiore renders obvious the claimed “electronic index.”

12. Claim 13

Claim 13 depends from claim 1 and recites “wherein the protecting facility automatically overwrites at least some of the sensor data when the memory capacity is full.” Yerazunis discloses this limitation. EX1003, ¶509. Yerazunis’s video recording device “records video frames successively in at least one circular buffer memory organized as a continuous loop overwriting the oldest frame within the respective buffer memory with a more recently received frame.” EX1017, 2:19-23. This occurs automatically “absent receipt of some trigger event from the sensor 54 or activation of other input by the user.” *Id.*, 7:11-22. This is also true of Yerazunis’s gun-mounted devices, which likewise record continuously into the circular buffer memory and thus overwrite sensor data when the memory is full. *Id.*, 15:56-16:3, 18:4-12;

B. Ground 1b: Claims 3, 8, And 9 Would Have Been Obvious Over Yerazunis Alone Or As Combined With Fiore, In Further View of Lewellen

1. Summary Of Lewellen

Lewellen, EX1019, entitled “Vehicle Video System and Method” was filed on July 11, 2002, and published on January 15, 2004. Lewellen is therefore prior art to the ’471 patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

Lewellen describes a “vehicle video system” that “records video information on a digital video recorder that uses digital media such as a hard disk drive.” EX1019, Abstract. “[T]he digital video information collected by the vehicle video system is

automatically transferred” via a wireless interface to a “database when the vehicle is parked, removing the need for any human intervention for the logging and cataloging of video tapes.” *Id.*, [0010] Figure 3 of Lewellen depicts a vehicle video system 300 having long-distance and local wireless interfaces (380, 390, respectively):

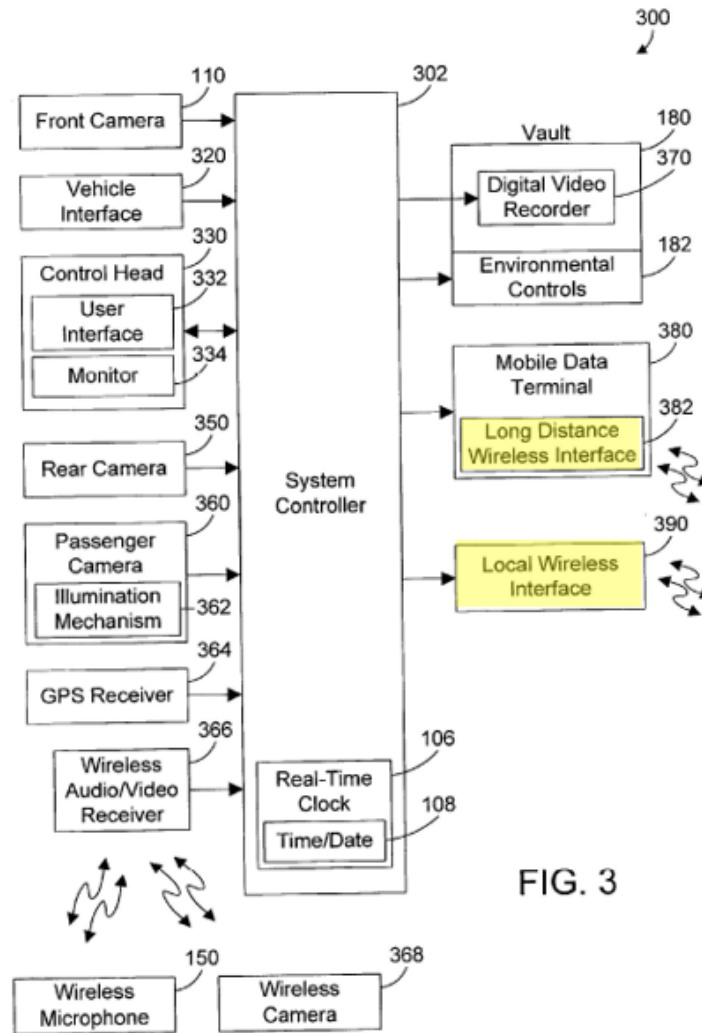


FIG. 3

Id., Fig. 3 (color added).

The long-distance wireless interface 382 enables communication with police headquarters, whereas the local wireless interface 390 enables communication with

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devices located in the nearer vicinity via short-range wireless communications. *Id.*, [0030]-[0031]. “The local wireless interface of the vehicle video system ... allows other devices, such as a handheld device or a vehicle video system in a different vehicle, to access the stored digital video information.” *Id.*, Abstract. The local wireless interface 390 may be “a Bluetooth-compatible interface, which can communicate with other Bluetooth-compatible devices,” including mobile phones. *Id.*, [0031], [0037], [0041]. Lewellen explains that the “benefit of providing the local wireless interface 390 is that digital information recorded by the digital video recorder 370 may be automatically transmitted and received to and from compatible devices.” *Id.*, [0043].

Lewellen was neither cited nor applied during prosecution of the '471 patent.

2. Motivation To Combine

A POSITA would have been motivated to combine Lewellen with the Yerazunis/Fiore system described above. EX1003, ¶¶234-238, 511. All three references disclose video recording systems, and Yerazunis and Lewellen in particular disclose video recording systems specifically for law enforcement applications. EX1017 (Yerazunis), 1:32-43, 9:60-10:11; EX1019 (Lewellen), [0002]-[0009], [0024]-[0026], [0042].

Further, a POSITA would have been motivated to implement Yerazunis's video recording device with Lewellen's local wireless interface 390. In an embodiment,

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Yerazunis describes using a radio transmitter, “such as found in a police cruiser,” to “transmit RF signals to a base station for viewing.” EX1017, 9:63-10:3. Likewise, Yerazunis describes a serial output channel permitting recorded data to be read out of memory and downloaded to a computer for viewing or cleared. *Id.*, 3:1-4, 6:45-51, 9:60-63, 18:60-66. A POSITA would recognize, however, that RF transmitters or serial outputs may not be available at all times. For example, when a police officer is using Yerazunis’s gun-camera out in the field, away from his police cruiser or a computer, the police officer would not be able to offload critical video evidence for safe storage on another device. The police officer would also not be able to free up space in the buffer for preserving additional video evidence in the buffer.

For these reasons and others discussed herein, a POSITA would have been motivated to implement Yerazunis’s video recording device with the local wireless interface 390 of Lewellen. Lewellen’s local wireless interface 390 provided “significant advantage[s] over the prior art vehicle video systems,” including “removing the need for any human intervention for the logging and cataloging of video tapes” and providing a “low power, and very inexpensive” means for offloading data, among others. EX1019, Abstract, [0031], [0042]-[0043], [0045].

In view of these exemplary advantages, a POSITA would have been motivated to implement Yerazunis’s video recording device with Lewellen’s local wireless interface 390. A POSITA would have also been motivated to use the interface 390 to

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automatically transmit a file in the Yerazunis/Fiore video recording device to a mobile phone, with the mobile phone then automatically forwarding the file to a remote memory, as disclosed in Lewellen. EX1019, [0010], [0031], [0037], [0041]. Bluetooth-compatible mobile phones were ubiquitous as of June 2007 and carried by many police officers on a daily basis. A POSITA would have recognized that using these mobile phones to offload files from the video recording device for subsequent forwarding to a remote memory would have been a simple and low-cost method for preserving important video. Lewellen expressly recognizes the significant advantages of Bluetooth technology, including that it is “very inexpensive.” EX1019, [0032], [0034], [0042].

A POSITA would have had a reasonable expectation of success in implementing the Yerazunis/Fiore video recording device with the local wireless interface 390 and related techniques described in Lewellen. EX1003, ¶238. Bluetooth-compatible interfaces were well-known and commercially available as of June 2007, and the addition of such an interface in the Yerazunis/Fiore video recording system would have been routine and well within a POSITA’s skill. *Id.* In fact, this combination is merely a combination of familiar elements according to known methods to yield predictable results, further evidencing its obviousness. *KSR*, 550 U.S., 414-418.

3. Claim 3

Claim 3 depends from claim 2 and recites “wherein the sending facility comprises a wireless transmitter.” Yerazunis alone or as combined with Fiore, in further view of Lewellen, renders obvious this limitation. Yerazunis discloses that the serial channel 78 (*i.e.*, the “sending facility”) can be coupled to “a radio transmitter to transmit RF signals to a base station.” EX1017, 9:63:10:3. A POSITA would have recognized that Yerazunis’s radio transmitter is a “wireless transmitter,” as claimed. EX1003, ¶512. Should the Board determine otherwise, Lewellen discloses a local wireless interface 390 that wirelessly transmits data to Bluetooth-compatible devices, including mobile phones. EX1019, [0022], [0031], [0042]-[0048]. A POSITA would have been motivated to incorporate Lewellen’s local wireless interface 390 into the Yerazunis/Fiore system for the reasons explained above.

4. Claim 8

Claim 8 depends from claim 1 and recites “wherein the local memory is configured to provide access to the file to a mobile phone.” Yerazunis alone or as combined with Fiore, in further view of Lewellen, renders obvious this limitation. EX1003, ¶514. As explained above, Lewellen discloses a local wireless interface 390 that “provides a means of communicating via short-range wireless communications.” EX1019, [0031]. The local wireless interface 390 enables access to the local memory to nearby devices. *Id.*, Abstract. In embodiments, the “local wireless interface 390 is

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a Bluetooth-compatible interface, which can communicate with other Bluetooth-compatible devices,” including mobile phones. *Id.*, [0031], [0037], [0041].

In the Yerazunis/Fiore system, files are stored in local memory (*e.g.*, DRAM 58), and the addition of Lewellen’s local wireless interface 390 would have advantageously enabled access to the local memory using Bluetooth-enabled devices, including mobile phones. A POSITA would have been motivated to implement the Yerazunis/Fiore video recording system with these features for the reasons explained above in Section IV.B.2.

5. Claim 9

Claim 9 depends from claim 1 and recites “wherein a mobile phone automatically receives the file and automatically forwards the file to a remote memory.” Yerazunis alone or as combined with Fiore, in further view of Lewellen, renders obvious this limitation. EX1003, ¶517. As discussed above for claim 8, the combination of Yerazunis, Fiore, and Lewellen would have included the local wireless interface 390 for enabling a mobile phone to access a write-protected file stored in the DRAM 58 (*i.e.*, “local memory,” as claimed). The mobile phone would have automatically received the file as required by claim 9: Lewellen discloses that the local wireless interface 390 “automatically transmit[s]” digital video to compatible devices, including mobile phones. EX1019, [0043].

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Lewellen further discloses that the mobile phone “automatically forwards the file to a remote memory,” as claimed. Lewellen specifically discloses that after the vehicle video system connects to a Bluetooth-enabled device, “the digital video information collected ... is automatically transferred to the database.” *Id.*, Abstract, [0010]. Specifically, Lewellen’s vehicle video system automatically transmits digital video to a “compatible device ... that is coupled to a database,” and the compatible device then “automatically transfer[s]” the video “to the database” (*i.e.*, a remote memory). *Id.*; *see also id.*, [0043]. The compatible devices include various Bluetooth-compatible mobile phones (*id.*, [0031], [0037], [0041]), and a POSITA would have been motivated to implement the Yerazunis/Fiore video recording system with these features for the reasons explained above in Section IV.B.2.

C. Ground 1c: Claim 11 Would Have Been Obvious Over Yerazunis Alone Or As Combined With Fiore, In Further View Of Mann

1. Summary Of Mann

Mann, EX1015, entitled “Wearable Camera System with Viewfinder Means,” was filed on March 25, 1999, and issued on June 4, 2003. Mann is therefore prior art to the ’471 patent under at least pre-AIA 35 U.S.C. § 102(a) and (b).

Mann describes a body-worn portable electronic camera system with wearable viewfinder means, particularly as built into eyeglass frames, as illustrated in Figure 1. EX1015, [0001], [0056].

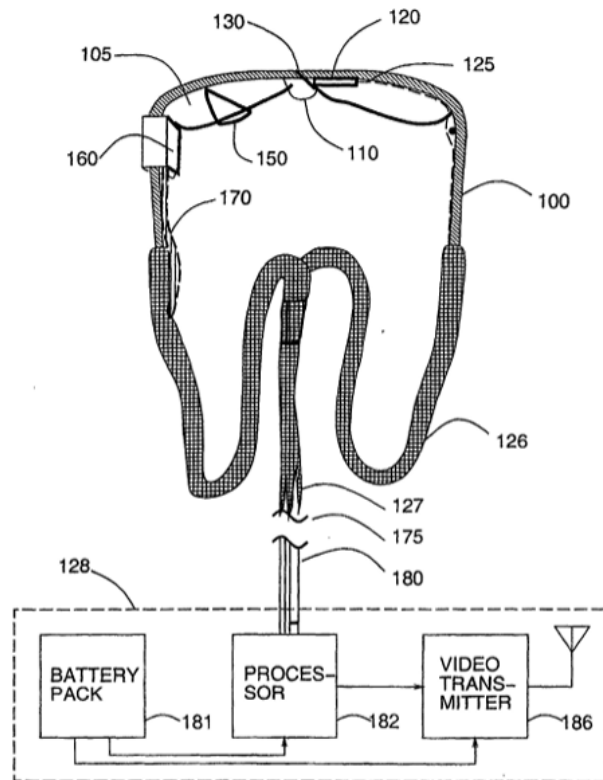


FIG. 1 - FOVEATED EMBODIMENT OF WEARABLE CAMERA SYSTEM

Id., Fig. 1. This figure depicts eyeglasses with frames 100, lenses 105, cameras 110 and 120, electronic display 160 that acts as a viewfinder screen. *Id.*, [0056]-[0058]. Figure 1 further depicts a belt pack or body-worn pack 128 connected to the eyeglasses via wiring harness 180 and cable harness 127. *Id.*

Mann's system includes a "chording keyboard" with letter keys, one of which can be pressed by a user to begin recording via the cameras. *Id.*, [0064]-[0065]. "Recording is typically retroactive, in the sense that the wearable camera system, by default, always records into a 5-minute circular buffer, so that pressing [the letter key] begins recording starting from 5 minutes ago, e.g. starting from 5 minutes before [the letter key] is pressed." *Id.*, [0065].

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Mann is admitted prior art to the '471 patent, with the Applicant conceding that “Mann describes a camera mountable to a pair of eyeglasses.” *See* EX1001, 1:62-2:3. Further, during prosecution of U.S. Patent App. No. 12/268,286 (the '034 patent), the Applicant admitted that Mann discloses many of the claim limitations, including “a mount for the camera,” and wherein the “mount is a pair of wearable glasses.” EX1013, 103.

In addition to Mann, wearable cameras including cameras mounted to eyeglasses and using circular buffers to record pre-event data were well-known by June 2007. EX1029.

2. Motivation To Combine

A POSITA would have been motivated to combine Mann with Yerazunis and Fiore. EX1003, ¶¶244, 520. Because all three of Yerazunis, Fiore, and Mann disclose video recording systems—and Yerazunis and Mann in particular disclose compact, mountable systems—a POSITA would have been aware of and motivated to combine these references. Mann also describes why a POSITA would have been motivated to implement the Yerazunis/Fiore system in an eyeglasses-mounted apparatus: Among other reasons, Mann’s wearable viewfinder system advantageously “allows the user to record a portion of his or her eye’s visual field of view.” EX1015, [0044].

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3. Claim 11

Claim 11 depends from claim 10² and recites “wherein the mount is selected from the group consisting of: a pair of wearable glasses, a lapel pin, a collar button, a hat, a visor, a hair pin, a pen, and a front of a purse.” Mann discloses this limitation. EX1003, ¶521. Mann describes a body-worn portable electronic camera system with wearable viewfinder means, particularly as built into eyeglass frames 100 with lenses 105 and cameras 110 and 120, as illustrated in Figure 1. EX1015, [0001], [0056]-[0058], Fig. 1. Further, Applicant admitted that Mann discloses this limitation. EX1013, 90, 103.

D. Ground 2a: Claims 1, 2, 4-7, 10, 12, And 13 Would Have Been Obvious Over Ely Alone Or As Combined With Fiore

1. Summary Of Ely

Ely, EX1020, entitled “Distributed Video Data Storage in Video Surveillance System,” was filed on April 22, 1996, and issued on November 9, 1999. Ely is therefore prior art to the ’471 patent under at least pre-AIA 35 U.S.C. § 102(a), (b), and (e).

² As printed, claim 11 of the ’471 patent refers to the “apparatus of claim 9,” but this appears to be a typographical error. Claim 11 recites “wherein *the mount* is selected from the group consisting of [various wearable mounts],” and the antecedent basis for “the mount” is found in claim 10 (“*a mount* for the sensor”), not claim 9.

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Figure 2 of Ely, reproduced below, is “a block diagram of a video surveillance system provided in accordance with the present invention.” *Id.*, 5:21-22.

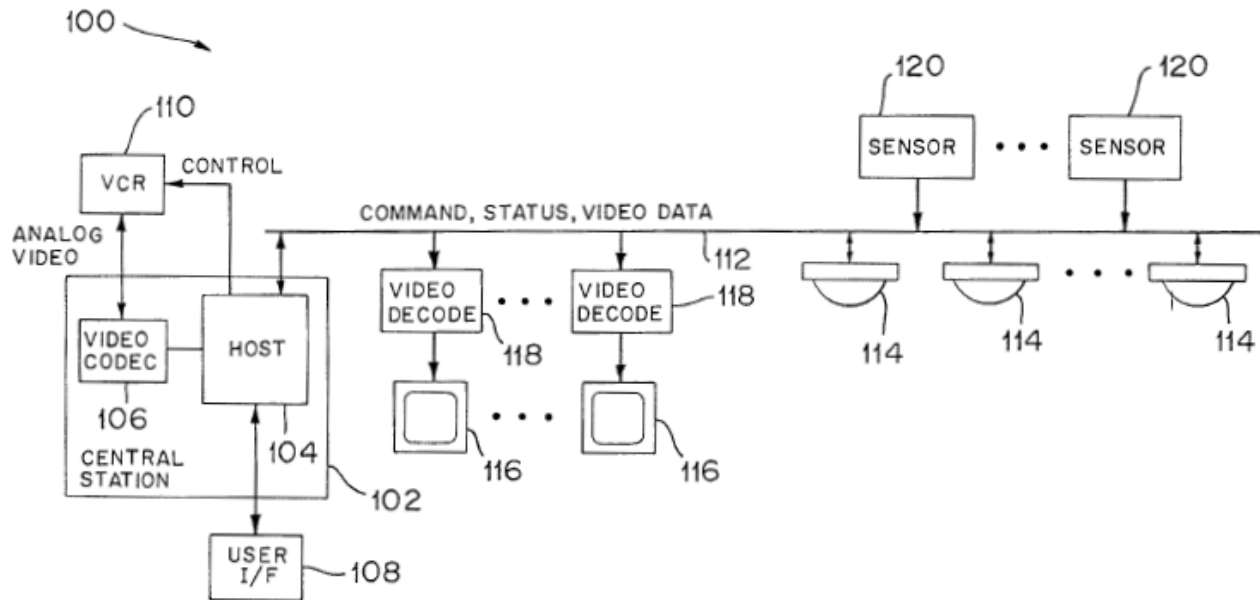


FIG. 2

Id., Fig. 2. This figure depicts a plurality of camera units 114 and sensor devices 120, the latter of which “are preferably of conventional types that detect, for example, unauthorized opening of doors, windows and display cases and the like and generate alarm signals indicative of these occurrences.” *Id.*, 5:46-53. These system components are connected to the host computer 104 at the central station 102 via a network, which in Figure 3 is a local area network (LAN) 112. *Id.*, 5:36-53.

The camera units 114 are described with respect to Figure 3:

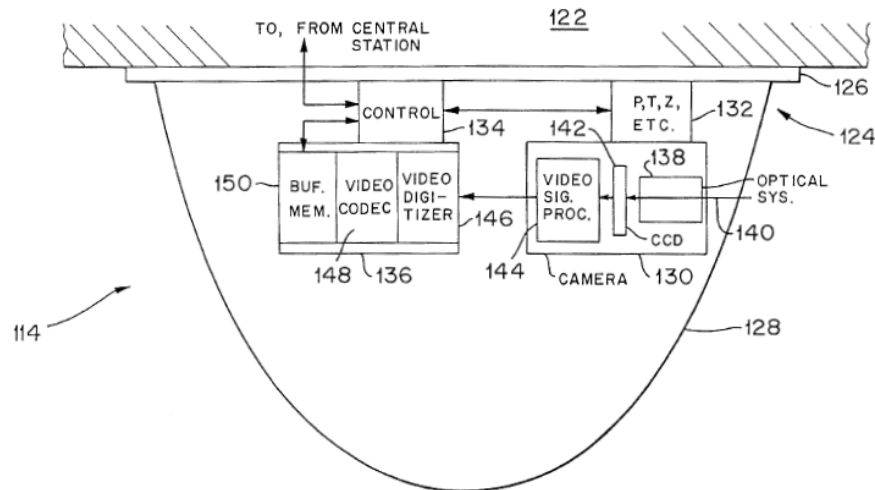


FIG. 3

Id., Fig. 3. As seen above, the camera unit 114 includes a video camera 130 and memory board 136. *Id.*, 6:17-21, 6:48-51. The memory board 136 includes a memory device 150 that “functions as a buffer for the video signal generated by the camera 130, and is controlled by the control circuit 134.” *Id.*, 6:51-53, 6:61-65. Ely states that the buffer is preferably a “ring buffer.” *Id.*, 7:28-34. A POSITA would have understood the “ring buffer” to mean a “circular buffer” of the type disclosed in the ’471 patent.

Ely discloses that “over-writing of the oldest data [in the ring buffer] is subject to inhibition in response to alarm commands.” *Id.*, 7:34-35. “On such occasions, the live compressed video data is written into a portion of the memory device 150 which does not hold video data that is to be preserved.” *Id.*, 7:35-39. “When an alarm command is received, a process (indicated by block 160) is carried out in which the control circuit 134 protects from over-writing compressed digital video data

previously stored in the memory 150, and corresponding to a time interval beginning at a predetermined time prior to receipt of the alarm command, and continuing for a predetermined time after receipt of the alarm command.” *Id.*, 7:48-55. The write protecting carried out in response to an alarm command, step 160 is highlighted below:

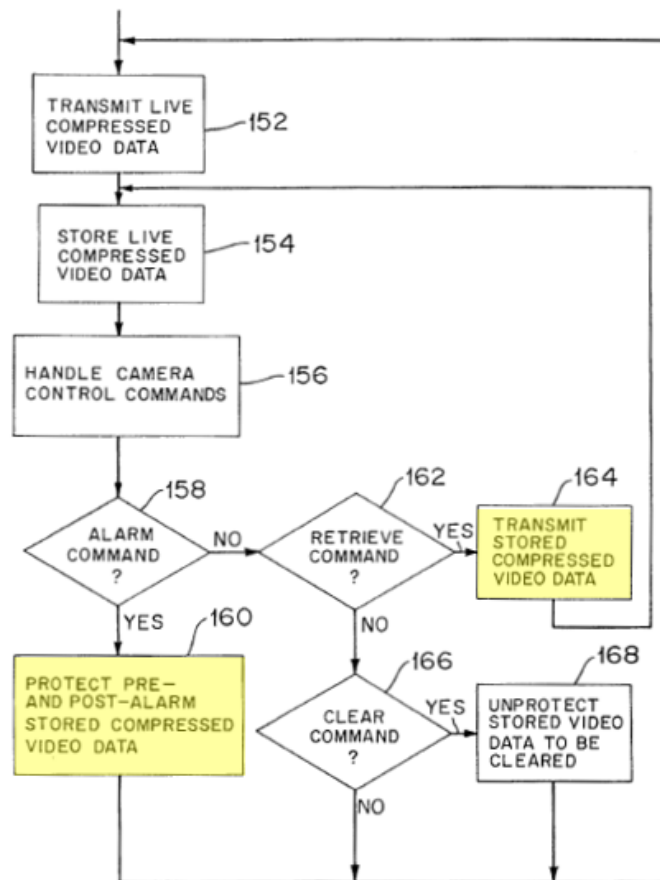


FIG. 4
CAMERA UNIT OPERATION

Id., Fig. 4 (color added).

This figure illustrates “processes carried out by the control circuit 134 under the control of a stored program.” *Id.*, 7:12-16. As seen above, if a “retrieve” command

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is received, then at step 164 (highlighted above) the control circuit 134 causes video data previously stored in the ring buffer of the memory device 150 to be transmitted to a remote central station. *Id.*, 7:56-8:6. “The stored data to be retrieved may be data that was previously protected from over-writing in response to an alarm command, or may be other data that has previously been stored in the buffer memory 150.” *Id.*, 7:59-63; *see also id.*, 8:7-12.

2. Motivation To Combine

A POSITA would have been motivated to combine Ely and Fiore for multiple reasons. EX1003, ¶¶257-260, 523.

As one example, both references describe similar technologies and solve similar problems. Ely describes a surveillance system that uses a ring buffer to continuously record a video signal generated by a camera 130, and portions of the ring buffer are write protected in response to an alarm command. EX1020, 6:48-53, 6:61-65, 7:28-39. The write-protected portions include video data recorded both before and after the alarm command. *Id.*, 7:48-55. Fiore similarly discloses a “data recording and playback system” that uses “a circular storage buffer having a memory mapped file with same address space as the memory device for storing the input signal data.” EX1009, Abstract. In Fiore, “data frames before, during, and after [an] event” are preserved, similar to what is disclosed in Yerazunis. *Id.*, [0048].

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As another example, a POSITA would have been motivated to implement Ely's video surveillance system with Fiore's file-based approach for the circular storage buffer and event data stored therein. Fiore's file-based approach includes (i) implementing a circular storage buffer as a memory-mapped file, and (ii) indexing event data for events as respective files within the memory-mapped file. EX1009, [0022]-[0023], [0051], [0059]-[0060]. As detailed in Section IV.A.2 above, Fiore also describes numerous benefits of its file-based approach. *Id.*, [0065], [0067]-[0068], [0072]. In view of these exemplary benefits, and other reasons discussed herein, a POSITA implementing Ely would have been motivated to utilize Fiore's teachings on the circular storage buffer implemented as a memory mapped file and the indexing of event data as files within the circular storage buffer. EX1003, ¶¶257-260. A POSITA would have had a reasonable expectation of success because Fiore provides a detailed disclosure of its file-based approach, and applying those techniques to Ely's surveillance system would have been routine and well within a POSITA's skill. *Id.*

3. Claim 1

a) Preamble: An apparatus, comprising:

To the extent limiting, Ely discloses the preamble of claim 1. EX1003, ¶524. Ely discloses a "video surveillance system" that "includes a central control station and a plurality of video cameras each mounted inside a dome housing unit." EX1020, Abstract. Thus, Ely discloses "[a]n apparatus."

b) Element 1: a sensor having a data capturing component that captures sensor data;

Ely discloses this claim element. EX1003, ¶525. Ely’s video surveillance system includes a camera 130 with the claimed “sensor having a data capturing component that captures sensor data”:

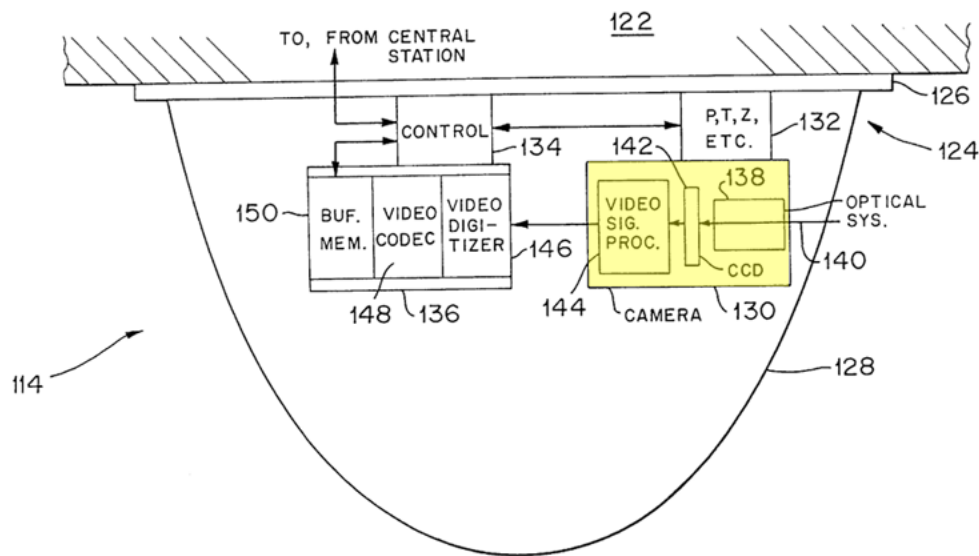


FIG. 3

EX1020, Fig. 3 (color added).

In the camera 130, an “image formed by the optical system 138 is converted into an electrical signal at CCD 142 and the resulting signal is subjected to conventional analog signal processing at video signal processing circuit 144.” *Id.*, 6:21-28. The camera 130 thus discloses the claimed “sensor” because it has a CCD 142 (*i.e.*, a “data capturing component”) that captures video images that impinge on it (*i.e.*, “sensor data”).

c) **Element 2: a local memory functionally coupled to the sensor;**

Ely discloses this claim element. EX1003, ¶528. Ely's video surveillance system includes a memory board 136 having a memory device 150 that discloses the claimed "local memory" (EX1020, 6:17-21, 6:48-53, 6:61-65):

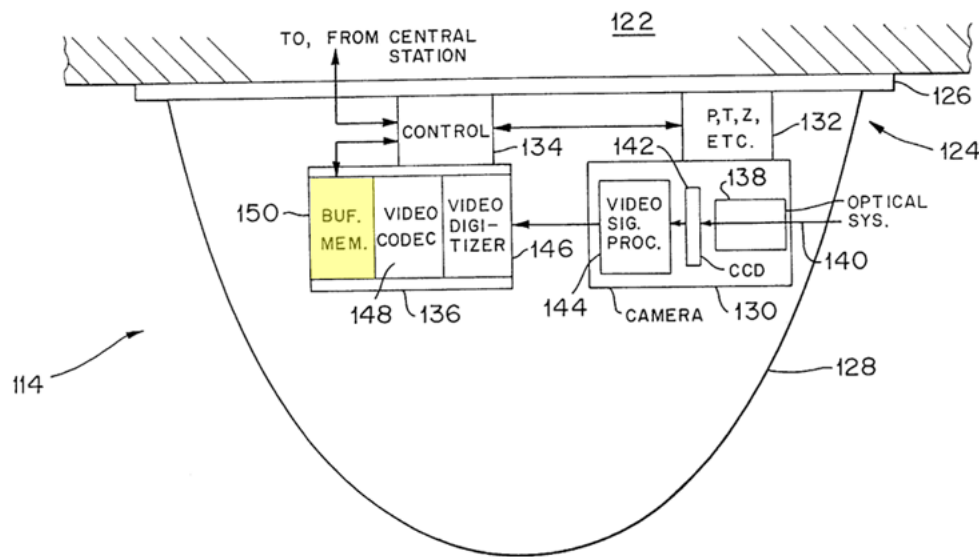


FIG. 3

Id., Fig. 3 (color added).

A POSITA would have understood that the memory device 150 (*i.e.*, the "local memory") is coupled to the camera 130 using entirely physical connectors. EX1003, ¶529. As seen above, the camera 130 is coupled to the memory board 136, with the memory board 136 being configured "to receive an analog video signal output from the camera 130 and to digitize, compress and store the video signal" in the memory device 150. EX1020, 6:48-65. A POSITA would have understood the coupling between the camera 130 and memory device 150 as using only physical connectors.

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Accordingly, the memory device 150 is coupled to the camera 130 “using entirely physical connectors,” as required by the parties’ agreed upon construction.

A POSITA would have further understood that the memory device 150 is distanced less than 20 cm from the camera 130 (and CCD image sensor 142 within camera 130). EX1020, ¶530. Ely discloses that the memory device is “provided adjacent to the camera” (EX1020, 4:17-25), and “may be constituted by one or more of RAM, EEPROM, flash memory, and so forth.” *Id.*, 6:61-63. A POSITA would have understood that the memory device 150, being located adjacent to the camera within the housing of the surveillance video camera “dome unit,” as shown, for example, in Figure 3, is located near (less than 20 cm from) the camera/sensor.

d) Element 3: a recording facility that records the sensor data into available portions of a buffer in the local memory; and

Ely discloses this claim element. EX1003, ¶532. Ely’s video surveillance system includes a “video data buffer memory, storing compressed video data generated by the camera,” which “is mounted with each camera in the respective dome unit.” EX1020, Abstract. “The memory device 150 may be constituted by one or more of RAM, EEPROM, flash memory, and so forth,” and “functions as a buffer for the video signal generated by the camera 130, and is controlled by the control circuit 134.” *Id.*, 6:61-65. More particularly, “the memory 150 serves as a ring buffer, in which currently

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generated compressed video data is written over the oldest compressed video data that had previously been stored in the memory 150.” *Id.*, 7:28-34.

Thus, the control circuit 134 includes “a recording facility” that “records the sensor data into available portions of a buffer in the local memory,” as claimed.

- e) **Element 4: a protecting facility that responds to a signal to record the sensor data by designating a segment of the buffer as a write-protected segment and by indexing the write-protected segment as a file in the buffer, wherein the write-protected segment includes a pre-recorded subset recorded before the signal is received and a post-recorded subset to be recorded after the signal is received.**

Ely alone or as combined with Fiore discloses this claim element. EX1003, ¶534.

First, Ely discloses that “[w]hen an alarm command is received, a process (indicated by block 160) is carried out in which the control circuit 134 protects from over-writing compressed digital video data previously stored in the memory 150.” EX1020, 7:48-55. The write-protected video data “correspond[s] to a time interval beginning at a predetermined time prior to receipt of the alarm command, and continu[es] for a predetermined time after receipt of the alarm command.” *Id.*; *see also id.*, 10:11-15.

Second, Ely discloses that “[a]fter the compressed video data stored at one of the camera units has been protected pursuant to an alarm command, the data (which will sometimes be referred to as ‘alarm data’) can be selectively retrieved in response to user instruction either for display (block 180) or directly for taperecording

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(block 182).” EX1020, 10:17-23. While Ely never expressly refers to its alarm data as a “file,” a POSITA would have understood that selectively retrieving alarm data associated with an alarm command necessitates an ability to locate the alarm data within the buffer. EX1003, ¶536. A POSITA would have therefore understood that Ely necessarily discloses—or at minimum, renders obvious—the claimed “indexing.” *Id.* Ely’s alarm data must be stored in the buffer in some way, and a POSITA would have understood that indexing data as files was a well-known approach for doing so, further evidencing the obviousness of this limitation. *Id.*

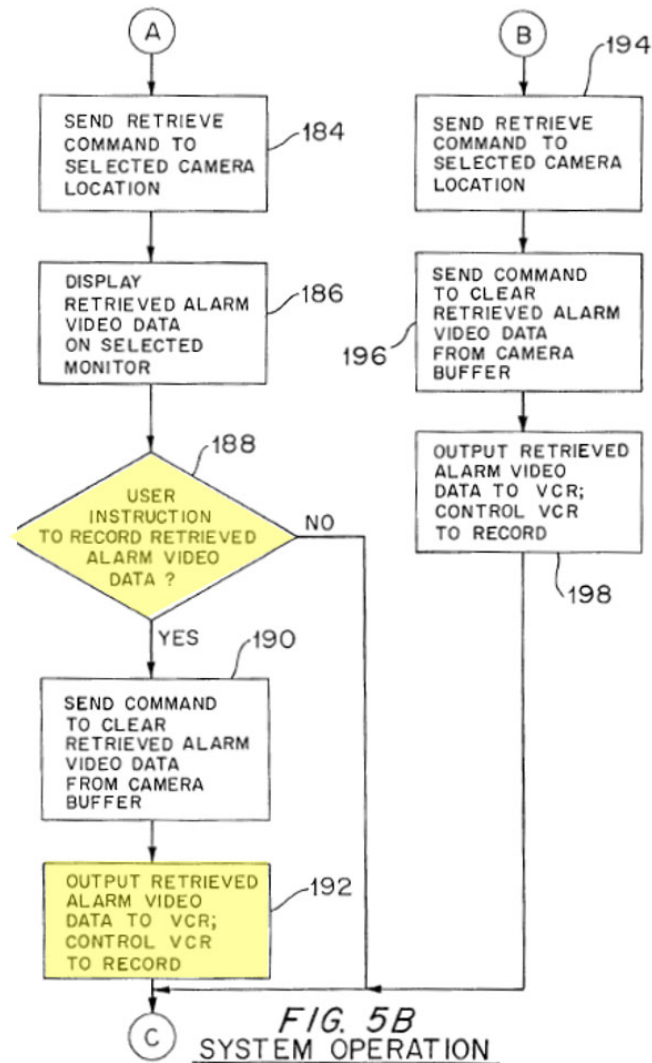
To the extent, however, that a POSITA wanted further guidance on the indexing of alarm data as files in Ely’s ring buffer, a POSITA would have been motivated to turn to Fiore. *Id.*, ¶537. Specifically, a POSITA would have been motivated to implement Ely’s protecting facility such that it “responds to a signal to record the sensor data ... by indexing the write-protected segment as a file in the buffer” in the manner disclosed in Fiore. As explained in Section IV.A.2 above, Fiore implements its circular storage buffer 15 as a memory-mapped file and describes indexing collections of frame data for respective events as files within the memory-mapped file. EX1009, [0022]-[0023], [0051], [0059]-[0060]. Fiore also describes the benefits of its file-based approach, including that it enables playback of video data for a specific event from the circular buffer without interrupting simultaneous recording of new video data into the buffer. *Id.*, [0065], [0067]-[0068], [0072]. In view of these

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exemplary benefits and the additional reasons explained in Section IV.D.2 above, a POSITA would have been motivated to implement Ely's control circuit 134 to index write-protected data in the manner disclosed in Fiore.

4. Claim 2

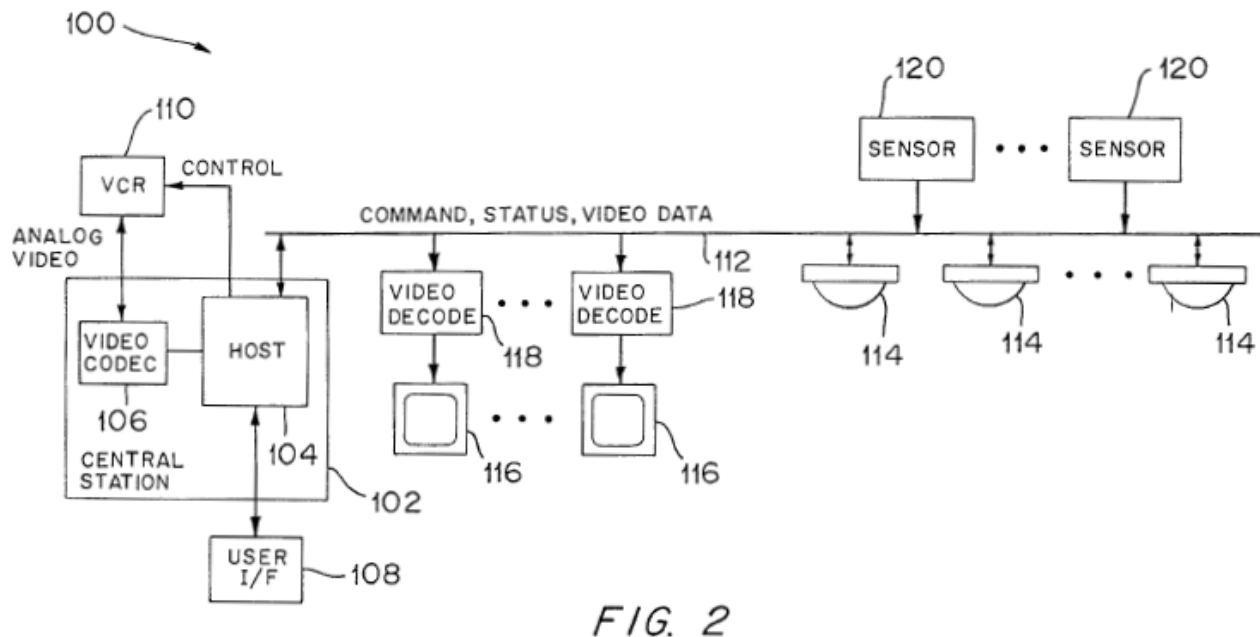
Claim 2 depends from claim 1 and recites “a sending facility configured to transmit the file from the local memory to a remote memory.” Ely discloses this limitation. EX1003, ¶540. Ely discloses that the “[d]ata buffered at the dome units may be selectively protected from over-writing in response to alarm signals and then retrieved for display or tape-recording by the central control station.” EX1020, Abstract. As illustrated in Figure 5B, below, “[a]fter the alarm data has been retrieved, the user has the option, indicated at block 188, of recording the retrieved alarm data” on a VCR as shown at block 192. *See id.*, 10:24-47. The VCR (or, alternatively, a digital video tape recorder (*see id.*, 9:51-58)) at the central command station is a “remote memory,” as claimed.



“If a user indicates that a block of alarm video data is to be displayed, the host 104 sends a retrieve command (via LAN 112) to the selected camera unit 114 (block 184, FIG. 5B (color added)). The desired alarm data is then read out from the buffer memory in the designated camera unit and transmitted via the LAN 112.” *Id.*, 10:24-30. LAN 112 is a “sending facility.”

5. Claim 4

Claim 4 depends from claim 1 and recites “a sensor that automatically triggers the signal to record upon detecting identified content in at least one of the captured images.” Ely discloses this limitation. EX1003, ¶543. Ely’s video surveillance system comprises one or more sensor devices 120, which “are preferably of conventional types that detect, for example, unauthorized opening of doors, windows and display cases and the like and generate alarm signals indicative of these occurrences.” EX1020, 5:50-53. “The sensors 120 may also include conventional motion and/or heat sensing devices.” *Id.*, 5:54-55.



Further, “in addition to or in place of sensor-generated alarms, an alarm condition can be generated by a system operator via the user interface, or an alarm condition can

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be detected by machine analysis of the content of live video signals generated by one or more of the camera units.” *Id.*, 11:42-47. Thus, Ely discloses the claimed “sensor.”

6. Claim 5

Claim 5 depends from claim 1 and recites “an interface through which a tactile switch triggers the signal.” Ely discloses this limitation. EX1003, ¶546. Ely discloses that “an alarm condition can be generated by a system operator via the user interface.” EX1020, 11:42-47. The reference further describes the user interface as responding to inputs from common computer peripherals (*e.g.*, a mouse, keyboard) and a “TOUCHTRACKER” control module. *Id.*, 5:60-6:3.

7. Claim 6

Claim 6 depends from claim 1 and recites “an interface through which an audio receiver triggers the signal when an audio command is recognized.” Ely in view of Fiore renders obvious this limitation. EX1003, ¶¶549-551. Fiore’s data recording and playback system includes a signal processor connected to a monitoring device. EX1009, [0040]. The monitoring device “may be any type of a device for monitoring such as a video camera, microphone, a sensor, etc., that functions as a signal source for providing an input signal data to the signal processor.” *Id.* Fiore’s data recording and playback system further comprises an analyzer that “applies various pattern recognition algorithms automatically to the data.” *Id.*, [0046]. In “the case of an audio signal the analyzer may trigger an event on the sudden change of amplitude.” *Id.*

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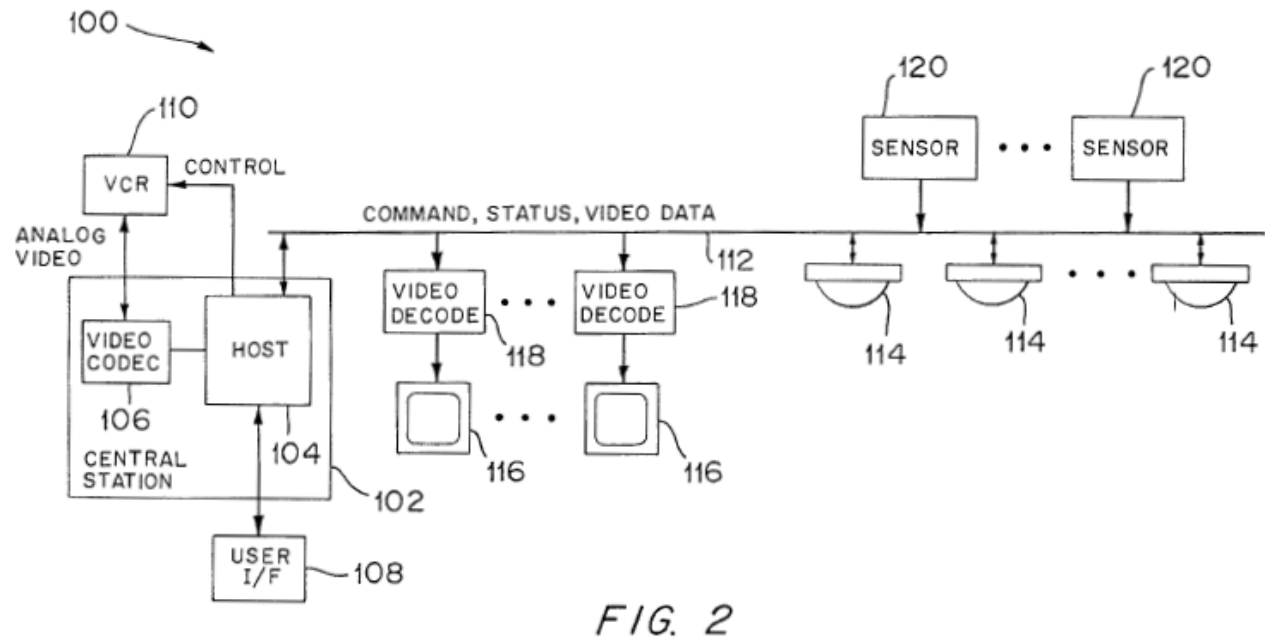
A POSITA would have been motivated to implement the Ely/Fiore system with Fiore's teachings regarding a microphone or an audio sensor for triggering an alarm signal. Ely discloses various sensor devices 120 that generate alarm signals causing data to be write protected in the circular buffer (EX1020, 5:46-53, 7:48-55), and a POSITA would have been motivated to utilize a microphone as an alarm sensor as taught by Fiore in Ely's video surveillance system. EX1003, ¶550. A POSITA would have recognized this audio sensing as complementing Ely's other sensor types and advantageously enabling a wider variety of events to be detected.

8. Claim 7

Claim 7 depends from claim 1 and recites "an interface through which a human can designate a length of time of at least one of the pre-recorded subset, the post-recorded subset, and the segment." Ely discloses this limitation. EX1003, ¶552. As explained above for claim 1, when an alarm command is received, Ely's video surveillance system protects from overwriting video data previously stored in the memory that "correspond[s] to a time interval beginning at a *predetermined time prior to receipt of the alarm command*, and continuing for a *predetermined time after receipt of the alarm command*." EX1020, 7:45-55; *see also id.*, 10:11-23. Ely thus discloses that each of the pre-alarm and post-alarm intervals are predetermined. *See also id.*, 10:60-65. In order for a human to "predetermine" the amounts of time to be protected

before and after the alarm command, Ely necessarily discloses the “interface” of claim 7.

Ely further discloses a user interface 108 for providing instructions input by users of the system, as illustrated in Figure 1, below. See EX1020, 5:60-64, 8:16-27.



Id., Fig. 2.

9. Claim 10

Claim 10 depends from claim 1 and recites “a mount for the sensor.” Ely discloses this limitation. EX1003, ¶555. Ely discloses that “[e]ach camera unit may be *mounted* at a ceiling 122 or at another appropriate location, and includes a housing 124 constituted, at least in part, by a base portion 126 and a dome portion 128.” EX1020, 6:7-15.

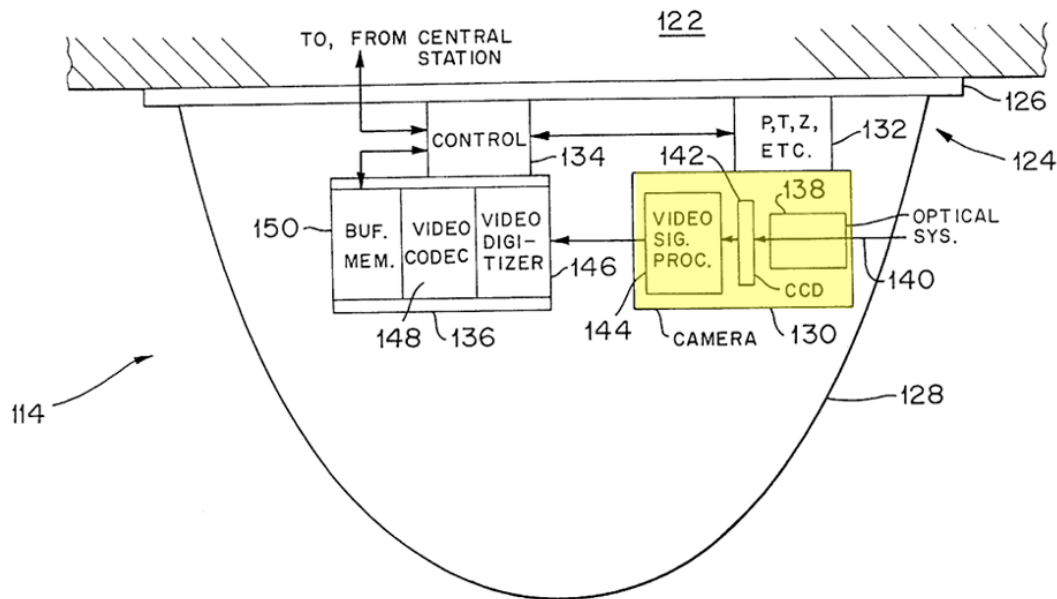


FIG. 3

Id., Fig. 3 (color added).

10. Claim 12

Claim 12 depends from claim 1 and recites “an electronic index that provides a directory to the file within the buffer.” Ely alone or in combination with Fiore discloses this limitation. EX1003, ¶¶557-559. Ely discloses that “[a]fter the compressed video data stored at one of the camera units has been protected pursuant to an alarm command, the data (which will sometimes be referred to as ‘alarm data’) can be selectively retrieved in response to user instruction either for display (block 180) or directly for tape recording (block 182).” EX1020, 10:17-23. A POSITA would have understood that the selective retrieval of alarm data from the buffer necessitates an ability to locate the alarm data within the buffer, such that Ely necessarily discloses “an electronic index that provides a directory to the file within the buffer.”

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To the extent that a POSITA wanted further guidance as to particular methods for indexing of alarm data as files in Ely's buffer, a POSITA would have been motivated to turn to Fiore. EX1003, ¶558. As explained in Section IV.A.2 above, Fiore implements its circular storage buffer 15 as a memory-mapped file and describes indexing collections of frame data for respective events as files within the memory-mapped file. *See, e.g.*, EX1009, [0022]-[0023], [0051], [0059]-[0060]. A POSITA would have been motivated to employ Fiore's indexing of video data to achieve this ability for the reasons stated above in Section IV.D.2.

11. Claim 13

Claim 13 depends from claim 1 and further recites: "wherein the protecting facility automatically overwrites at least some of the sensor data when the memory capacity is full." Ely discloses this limitation. EX1003, ¶560. Ely's control circuit 134 controls memory addressing and writing of data into the memory so that memory 150 "serves as a ring buffer, in which currently generated compressed video data is written over the oldest compressed video data that had previously been stored in the memory 150." EX1020, 7:28-34.

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E. Ground 2b: Claims 3, 8, And 9 Would Have Been Obvious Over Ely Alone Or As Combined With Fiore, In Further View Of Lewellen

1. Motivation To Combine

A POSITA would have been motivated to combine the Ely/Fiore system described above with Lewellen. EX1003, ¶¶256-265, 562. All three references disclose video recording systems, such that a POSITA would have been aware of and motivated to combine them. Moreover, a POSITA would have recognized the advantages of modifying the Ely/Fiore system to implement Lewellen’s local wireless interface for transmitting alarm data preserved with the file-based circular buffer approach of the Ely/Fiore system. Ely discloses a “data communication network used for transmission of command and status data between the system central station and the video cameras,” which “may be provided with sufficient capacity to handle transmission of compressed video data buffered or currently generated at the video camera units, in which case separate video signal transmission cabling can be dispensed with.” EX1020, 4:63-5:9. Ely further discloses that it is an “object of the invention to provide a video surveillance system which requires less cabling than conventional systems.” *Id.*, 2:52-54.

As detailed in Section IV.B.1 above, Lewellen’s local wireless interface is low power and very inexpensive. EX1019, [0042]. “The benefit of providing the local wireless interface 390 is that digital information recorded by the digital video recorder

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370 may be automatically transmitted and received to and from compatible devices.” *Id.*, [0043]. In view of these exemplary advantages, and other reasons discussed herein, a POSITA would have been motivated to implement the Ely/Fiore system with Lewellen’s local wireless interface to further reduce the amount of cabling required, *i.e.*, by enabling wireless—rather than wired—transmission of signals and data. EX1003, ¶¶256-265.

A POSITA would have also been motivated to use the local wireless interface to automatically transmit a file in the Ely/Fiore video recording device to a mobile phone, with the mobile phone then automatically forwarding the file to a remote memory, as disclosed in Lewellen. *Id.*, ¶264; EX1019, [0010], [0031], [0037], [0041]. Bluetooth-compatible mobile phones were ubiquitous as of June 2007 and carried by many security professionals on a daily basis. A POSITA would have recognized that using these mobile phones to offload files from the video recording device for subsequent forwarding to a remote memory would have been a simple and low-cost method for monitoring and preserving important video. Lewellen expressly recognizes the significant advantages of Bluetooth technology, including that it is “very inexpensive.” EX1019, [0032], [0034], [0042]. Further, Lewellen’s techniques for preserving video would have advantageously been available whenever a mobile phone is within range of the video recording system, including enabling a security

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professional to view or preserve recorded video when the professional is not in the vicinity of the VCR or host computer.

A POSITA would have had a reasonable expectation of success in implementing the Ely/Fiore system with the local wireless interface 390 and related techniques described in Lewellen. Local wireless interfaces (including Bluetooth-compatible interfaces) were well-known and commercially available as of June 2007, and the addition of such an interface in the Ely/Fiore system would have been routine and well within a POSITA's skill. EX1003, ¶265.

2. Claim 3

Claim 3 depends from claim 2 and recites "wherein the sending facility comprises a wireless transmitter." As explained above for Ground 1b, Lewellen discloses this limitation. Further, a POSITA would have been motivated to implement the Ely/Fiore system with Lewellen's local wireless interface for the reasons explained above.

3. Claim 8

Claim 8 depends from claim 1 and recites "wherein the local memory is configured to provide access to the file to a mobile phone." As explained above for Ground 1b, Lewellen discloses this limitation. Further, a POSITA would have been motivated to implement the Ely/Fiore system with Lewellen's teaching of providing access to a local memory to a mobile phone for the reasons explained above.

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4. Claim 9

Claim 9 depends from claim 1 and recites “wherein a mobile phone automatically receives the file and automatically forwards the file to a remote memory.” As explained above for Ground 1b, Lewellen discloses this limitation. Further, a POSITA would have been motivated to implement the Ely/Fiore system with Lewellen’s teaching of a mobile phone that automatically receives the file and then automatically forwards the file to a remote memory for the reasons explained above.

F. Ground 2c: Claim 11 Would Have Been Obvious Over Ely Alone Or As Combined With Fiore, In Further View Of Mann

1. Motivation To Combine

A POSITA would have been motivated to combine Mann with Ely and Fiore. EX1003, ¶¶317-318, 566. Ely discloses a “video surveillance system” that “includes a central control station and a plurality of video cameras each mounted inside a dome housing unit.” EX1020, Abstract. Like Ely, Mann discloses an electronic camera system that can be used for surveillance or public safety. EX1015, [0041]-[0042]. Because all three of Ely, Fiore, and Mann disclose video recording systems, a POSITA would have been aware of and motivated to combine these references.

Moreover, Mann also provides reasons why a POSITA would be motivated to implement the Ely/Fiore surveillance system (or components thereof) in an eyeglasses-mounted apparatus. For instance, Mann teaches that, “[a]lthough there are a growing number of video surveillance cameras installed in the environment

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allegedly for ‘public safety’, there have been recent questions as to the true benefit of such centralized surveillance infrastructures,” noting that such systems can be abused by their owners, whereas an eyeglasses-based application places the system in the hands of the individual user. EX1015, [0041]. Mann further discloses that its wearable viewfinder system “allows images to be captured in a natural manner, without giving an unusual appearance to others (such as a potential assailant).” *Id.*, [0042]. Mann’s wearable viewfinder also “allows the user to record a portion of his or her eye’s visual field of view” where, “the device will tend to cause the wearer to want to place the recording zone over top of whatever is most interesting in [a] scene.” *Id.*, [0044]. A POSITA would have been motivated to implement the Ely/Fiore surveillance system and/or components thereof (*e.g.*, the camera unit 114) in an eyeglasses-mounted apparatus for several reasons, including to give more control to the wearer over what is recorded and how that recorded data may later be used.

2. Claim 11

Claim 11 depends from claim 9 and further recites: “wherein the mount is selected from the group consisting of: a pair of wearable glasses, a lapel pin, a collar button, a hat, a visor, a hair pin, a pen, and a front of a purse.” As explained above for Ground 1c, Mann discloses this limitation. A POSITA would have been motivated to implement Mann’s eyeglasses-mounted apparatus with the file-based circular buffer approach of the Ely/Fiore system for the reasons explained above.

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V. CONCLUSION

For the forgoing reasons, Petitioner respectfully requests *inter partes* review of claims 1-13 of the '471 patent.

VI. MANDATORY NOTICES PURSUANT TO 37 C.F.R. § 42.8(a)(1)

Pursuant to 37 C.F.R. § 42.8(a)(1), the mandatory notices identified in 37 C.F.R. § 42.8(b) are provided below as part of this petition.

A. 37 C.F.R. § 42.8(b)(1): Real Parties-In-Interest

The real parties-in-interest are Motorola Solutions, Inc. and WatchGuard Video, Inc.

B. 37 C.F.R. § 42.8(b)(2): Related Matters

Pursuant to 37 C.F.R. § 42.8(b)(2), Petitioner is aware of the following patent infringement lawsuit involving the '471 patent: *Stellar, LLC v. Motorola Solutions, Inc. et al.*, Case No. 4:23-cv-750 (U.S. District Court, Eastern District of Texas).

C. 37 C.F.R. § 42.8(b)(3), (4): Lead And Back-Up Counsel And Service Information

Petitioner provides the following designation of counsel:

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Pursuant to 37 C.F.R. § 42.10(b), a Power of Attorney for Petitioner accompanies this petition. Please address all correspondence to lead and back-up counsel at the addresses above. Petitioner also consents to electronic service by email at the email addresses listed above.

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Dated: July 22, 2024

Respectfully submitted,

/ Joshua R. Nightingale /

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PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,485,471

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing petition for *Inter Partes* Review of U.S. Patent No. 9,485,471, including all Exhibits, was served on July 22, 2024 via Express Mail delivery directed to the attorney of record for the patent at the following address:

Fish IP Law, LLP
Attn: Tomas Prieto
19900 MacArthur Blvd, Suite 810
Irvine, CA 92612
United States

In addition, a courtesy copy of the foregoing petition for *Inter Partes* Review of U.S. Patent No. 9,485,471, including all Exhibits, was served on litigation counsel for patent owner Stellar LLC at the following address:

Devlin Law Firm
Attn: Jim Lennon
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Date: July 22, 2024

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CERTIFICATE OF WORD COUNT UNDER 37 C.F.R. § 42.24(a)

I, the undersigned, do hereby certify that the attached petition contains 13,578 words, as measured by the Word Count function of Microsoft Word. This is less than the limit of 14,000 words as specified by 37 C.F.R. § 42.24(a)(1)(i).

Date: July 22, 2024

By: / Joshua R. Nightingale /

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LIST OF PETITIONER EXHIBITS

EXHIBIT NO.	TITLE
1001	USP 9,485,471 ('471 patent)
1002	File History of '471 Patent
1003	Declaration of Nabil J. Sarhan
1004	USP 8,928,752 ('752 patent)
1005	USP 5,996,023 (Winter)
1006	Stellar's First Amended Infringement Contentions
1007	Special Report – The Patrol Video Project
1008	USP 6,167,186 (Kawasaki)
1009	US 2002/191952 (Fiore)
1010	USP 7,593,034 ('034 patent)
1011	File History of '540 Patent
1012	File History of '752 Patent
1013	File History of '034 Patent

1014	WO 2006/044476 (Vanman)
1015	EP 1,064,783 (Mann)
1016	USP 5,523,799 (Hattori)
1017	USP 7,158,167 (Yerazunis)
1018	USP 8,310,540 ('540 patent)
1019	US 2004/008255 (Lewellen)
1020	USP 5,982,418 (Ely)
1021	Joint Claim Construction and Prehearing Statement
1022	RESERVED
1023	USP 6,163,338 (Johnson)
1024	Digital Mobile Witness Recording System
1025	American Heritage Dictionary, 4th Ed. 2007
1026	Merriam-Webster's Collegiate Dictionary, 11th Ed. 2006
1027	Wiley Electrical and Electronics Engineering Dictionary (2004)
1028	US 2002/005895 (Freeman)

1029	US 2004/0033058 (Reich)
1030	U.S. App. No. 60/282,162 (Fiore provisional)
1031	USP 9,912,914 ('914 patent)
1032	File History of '914 Patent
1033	USP 8,692,882 ('882 patent)
1034	USP 6,831,556 (Boykin)
1035	USP 7,348,895 (Lagassey patent)
1036	US 2006/092043 (Lagassey publication)
1037	US 6,804,638 (Fiedler)
1038	Chart Comparing Independent Claims 1 and 12 of the '034 Patent
1039	File History of '882 Patent
1040	Chart Comparing Independent Claims 1 and 12 of the '882 Patent
1041	Appendix to Declaration of Nabil J. Sarhan
1042	Declaration of Joshua R. Nightingale