

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. 8,928,752

**PETITION FOR *INTER PARTES* REVIEW
OF U. S. PATENT NO. 8,928,752**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	BACKGROUND	2
	A. Summary Of The '752 Patent.....	2
	B. Patent Family And Relevant File Histories.....	3
	1. '034 Patent File History	5
	2. '752 Patent File History	5
	C. Level Of Skill In The Art	6
III.	REQUIREMENTS FOR <i>INTER PARTES</i> REVIEW UNDER 37 C.F.R. § 42.104	6
	A. Grounds For Standing Under 37 C.F.R. § 42.104(a)	6
	B. Identification Of Challenge Under 37 C.F.R. § 42.104(b) And Relief Requested.....	6
	C. Claim Construction Under 37 C.F.R. § 42.104(b)(3)	7
IV.	THE CHALLENGED CLAIMS ARE UNPATENTABLE.....	9
	A. Ground 1a: Claims 1-11 And 14 Would Have Been Obvious Over Yerazunis Alone Or As Combined With Fiedler	9
	1. Summary Of Yerazunis.....	9
	2. Summary Of Fiedler.....	13
	3. Motivation To Combine.....	15
	4. Claim 1	17
	5. Claim 2	41
	6. Claim 3	43
	7. Claims 4 and 5.....	44
	8. Claim 6	45
	9. Claims 7 and 8.....	45
	10. Claim 9	46
	11. Claims 10 and 11.....	47
	12. Claim 14.....	48

TABLE OF CONTENTS

(continued)

B.	Ground 1b: Claims 12, 13, And 15-18 Would Have Been Obvious Over Yerazunis Alone Or As Combined With Fiedler, In Further View of Strub	48
C.	Ground 2a: Claims 1-11 Would Have Been Obvious Over Ely Alone Or As Combined With Fiedler	55
1.	Summary Of Ely	55
2.	Motivation To Combine.....	56
3.	Claim 1	58
4.	Claim 2	73
5.	Claim 3	74
6.	Claims 4 and 5.....	74
7.	Claim 6	74
8.	Claims 7 and 8.....	75
9.	Claim 9	76
10.	Claims 10 and 11.....	76
D.	Ground 2b: Claim 14 Would Have Been Obvious Over Ely Alone Or As Combined With Fiedler, In Further View Of Yerazunis.....	78
E.	Ground 2c: Claims 12, 13, And 15-18 Would Have Been Obvious Over Ely Alone Or As Combined With Fiedler, In Further View Of Strub.....	79
V.	CONCLUSION.....	82
VI.	MANDATORY NOTICES PURSUANT TO 37 C.F.R. § 42.8(a)(1).....	82
A.	37 C.F.R. § 42.8(b)(1): Real Parties-In-Interest.....	82
B.	37 C.F.R. § 42.8(b)(2): Related Matters	82
C.	37 C.F.R. § 42.8(b)(3), (4): Lead And Back-Up Counsel And Service Information.....	82

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

I. INTRODUCTION

Motorola Solutions, Inc. (“Petitioner” or “Motorola”) requests *inter partes* review of U.S. Patent No. 8,928,752. The ’752 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 ’752 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 ’752 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 ’752 patent conceded this in prosecuting a related patent. EX1013, 95, 101, 107-08. In fact, the Applicant admitted that many of the features claimed in the ’752 patent were known in the art. *Id.*, 89-112; EX1051, ¶¶33-48. And the few ’752 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 1-18.

II. BACKGROUND

A. Summary Of The '752 Patent

The '752 patent discloses “apparatus, systems and methods in which a memory stores multiple data streams, each of which includes pre-start signal and post-start signal data.” EX1004, 2:21-24. Figure 4, below, illustrates one such system in which camera 42 is coupled to recorder 46 via data and power cord 44. *Id.*, 4:46-52. Also depicted is a “ring-shaped” signaling device 45 and an off-line docking station 47. *Id.*

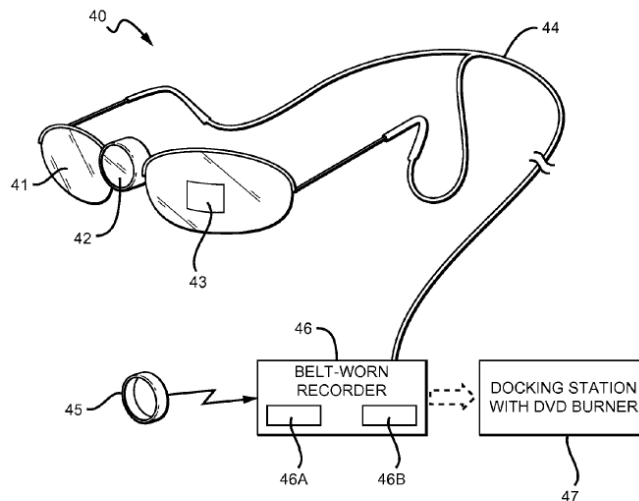


FIG. 4

The recorder is described as “any recording device that records video and/or audio data” and includes a processor 46A “that runs software to accomplish the functions described.” *Id.*, 4:65-5:1. Figure 5, which illustrates “recording multiple events without overwriting or offloading the memory, and including potentially lengthy portions of data streams prior to start signal events,” depicts functions contemplated to be performed by the software running on processor 46A (*id.*, 5:35-38):

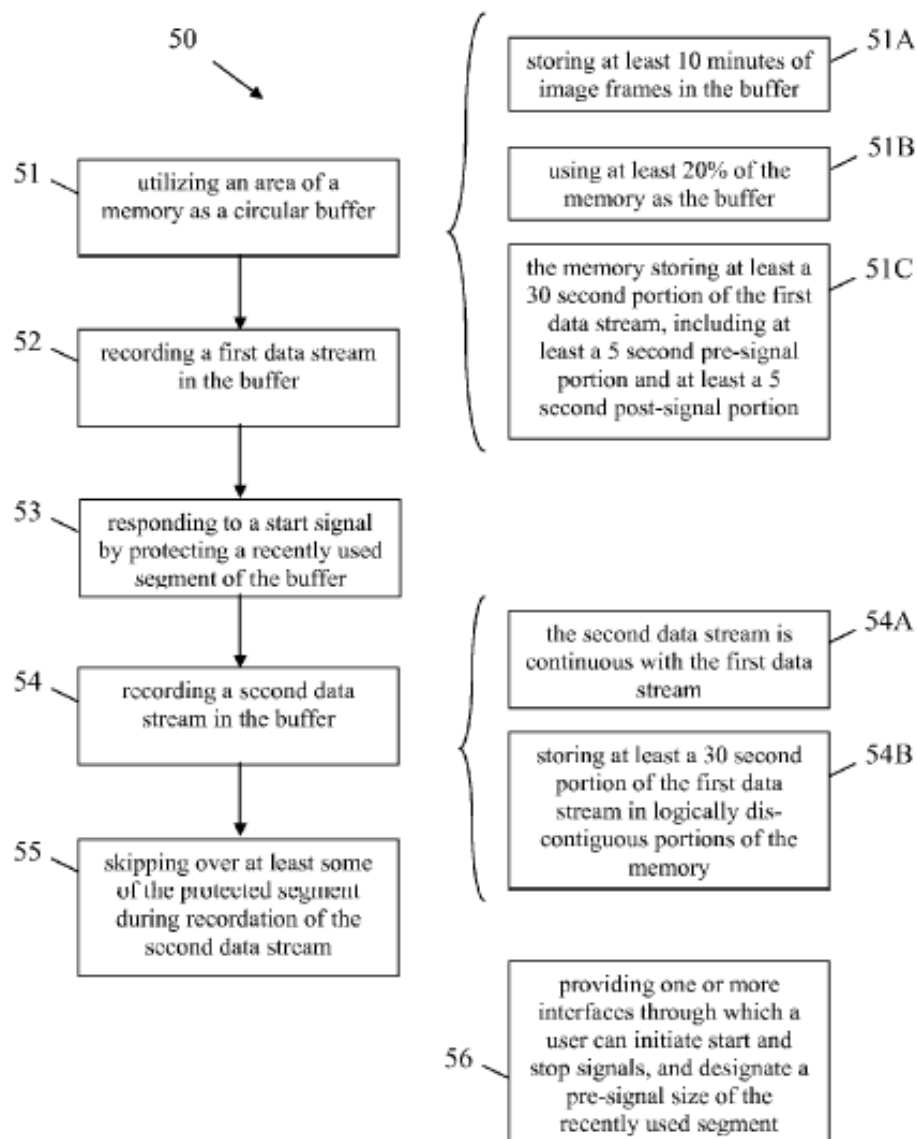


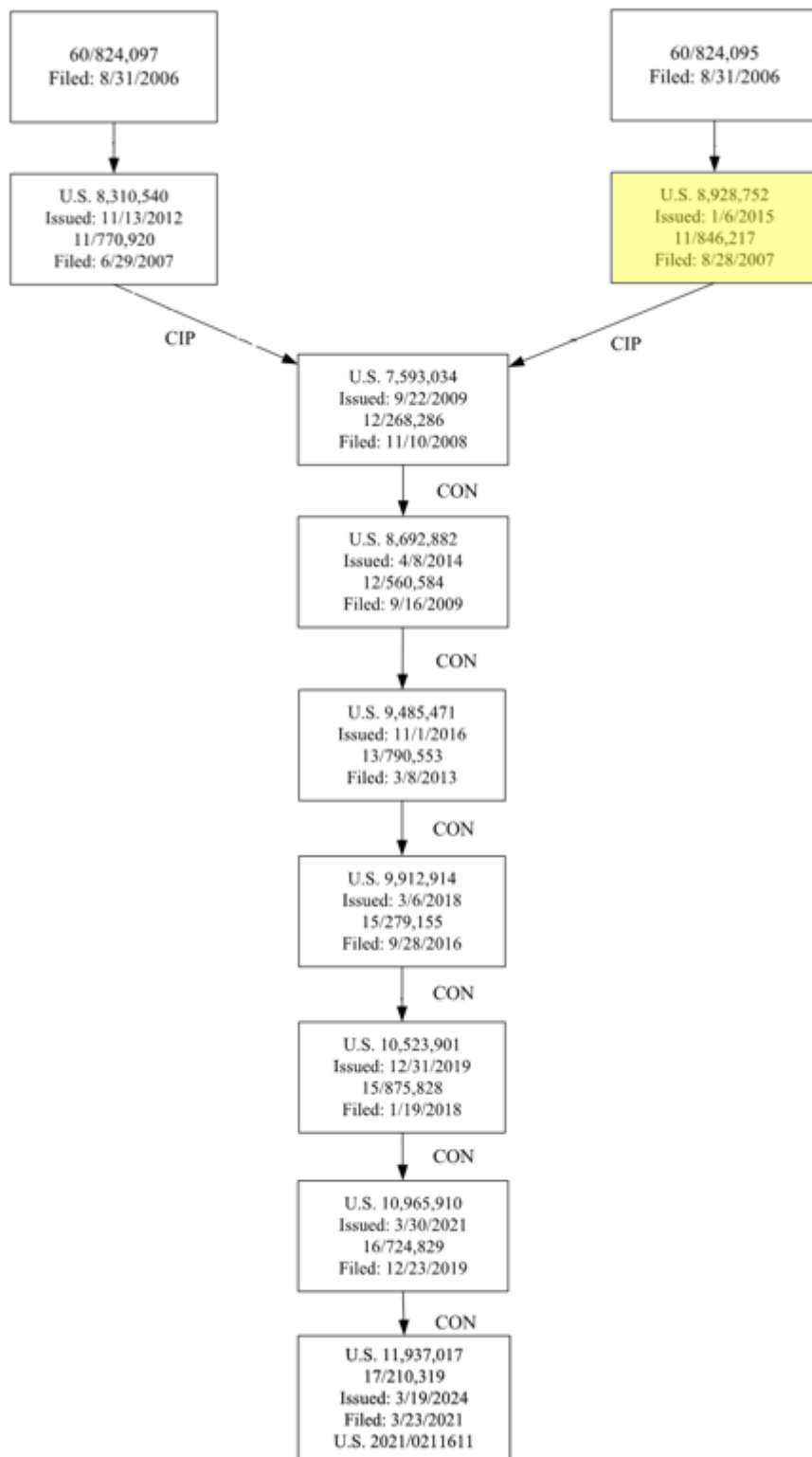
Figure 5

Id., Fig. 5; *see also id.*, 5:35-61.

B. Patent Family And Relevant File Histories

The '752 patent is one of several patents in a family of related patents:

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752



In the district court litigation, Patent Owner Stellar, LLC (“Stellar”) asserts that the claims of the ’752 patent are entitled to claim priority to August 28, 2007, the filing

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

date of the application for the '752 patent. EX1006, 4. Petitioner applies August 28, 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—a continuation in part of the '752 patent, EX1010, Cover—contains admissions relevant to the unpatentability of the '752 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, 84-112. As relevant to this proceeding, several of the features conceded by Applicant as being known in the prior art are recited in the claims of the '752 patent. *Id.*

2. '752 Patent File History

Application No. 11/846,217, which eventually issued as the '752 patent, was filed on August 28, 2007 with 14 claims. EX1012, 1-25. The Office provisionally rejected claims 1, 7, and 9-13 on the basis of non-statutory double patenting over co-pending Application No. 12/268,286, which issued as the '034 patent. *Id.*, 51-54. Applicant overcame these rejections by submitting a terminal disclaimer. *Id.*, 77. The Office also rejected the claims as being unpatentable over U.S. 5,523,799 to Hattori (EX1016) alone or in combination with other prior art. *Id.*, 54-58, 83-89, 122-129.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

After Applicant made several narrowing amendments (*id.*, 71-76, 91-98, 135-140), the Office allowed the claims. *Id.*, 144-150.

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 '752 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. EX1051, ¶30. Additional graduate education could substitute for professional experience, and significant work experience could substitute for formal education.

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 '752 patent is available for IPR and that the Petitioner is not barred or estopped from requesting IPR challenging the claims of the '752 patent on the grounds identified herein.

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

Ground 1a: Claims 1-11 and 14 would have been obvious under 35 U.S.C. § 103 over U.S. 7,158,167 to Yerazunis ("Yerazunis") (EX1017) alone or as combined with U.S. 6,804,638 to Fiedler ("Fiedler") (EX1037).

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Ground 1b: Claims 12, 13, and 15-18 would have been obvious under 35 U.S.C. § 103 over Yerazunis alone or as combined with Fiedler, in further view of U.S. 6,563,532 to Strub (“Strub”) (EX1046).

Ground 2a: Claims 1-11 would have been obvious under 35 U.S.C. § 103 over U.S. 5,982,418 to Ely (“Ely”) (EX1020) alone or as combined with Fiedler.

Ground 2b: Claim 14 would have been obvious under 35 U.S.C. § 103 over Ely alone or as combined with Fiedler, in further view of Yerazunis.

Ground 2c: Claims 12, 13, and 15-18 would have been obvious under 35 U.S.C. § 103 over Ely alone or as combined with Fiedler, in further view of Strub.

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

In this Petition, all of the claim terms are given their plain meaning, as understood by a POSITA, unless otherwise noted below.

“Hardware that executes an instruction set that...”

Claim 1 recites “hardware that executes an instruction set” that performs certain recited functions. EX1004, 6:20-31. In the related litigation, Patent Owner’s position is that the claim language “hardware that executes an instruction set” recited in claim 1 of the ’752 patent merely “refers to a processor.” EX1056, 024.¹ Patent Owner’s

¹ Citations to EX1056 and EX1057 herein refer to page numbers added by Petitioner.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

position is that 35 U.S.C. § 112, ¶6 is inapplicable to claim 1, and there are no means-plus-function limitations in claim 1. *Id.*, 019-024.

If, however, the “hardware that executes an instruction set” limitations invoke Section 112, ¶6, Patent Owner and Petitioner (the “Parties”) in the related litigation have identified the claimed functions and corresponding structure. EX1057, 005-008. The Parties agree about each claimed functions. *Id.* Patent Owner’s position is that the corresponding structure is the same for all four claim limitations, whereas Petitioner identifies different corresponding structure for two of the limitations:

Patent Owner’s Identification Of Corresponding Structure	Petitioner’s Identification Of Corresponding Structure
Elements 3, 4, 5, 6: FIGS 3A-H, 4 and 5 including corresponding descriptions in the specification and equivalents thereof; 2:25-44, 4:64-5:4, 5:35-61, Abstract; Any recording device including a processor that runs software to accomplish the described function	Element 3: hardware and software programmed to perform the circular buffer algorithm disclosed at 2:36-39, 4:67-5:1, Figs. 3A-3H, 3:13-4:45, Fig. 5 (Step 51), 5:35-40 Element 4: hardware and software programmed to perform the circular buffer algorithm disclosed at 2:36-39, 4:67-5:1, 5:12-14, Fig. 3A, 3:13-16, Fig. 5 (Step 52), 5:48

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Id.

For purposes of this petition, Petitioner has applied the constructions (MPF and non-MPF) urged by Patent Owner in the related litigation, as well as Petitioner's proposed alternative corresponding structure for the two limitations above.

IV. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. Ground 1a: Claims 1-11 And 14 Would Have Been Obvious Over Yerazunis Alone Or As Combined With Fiedler

1. Summary Of Yerazunis

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

Yerazunis discloses a "compact video image recording device" for different applications. EX1017, Abstract, 1:21-31, 3:5-10, 9:8-16. In one application, it is "mounted to a targetable weapon, such as a gun," for "recording video images before and after the firing of the gun." *Id.*, Abstract, 3:9-10, 4:28-30, 8:8-20, 9:60-10:3, 16:4-5, 16:43-17:38.

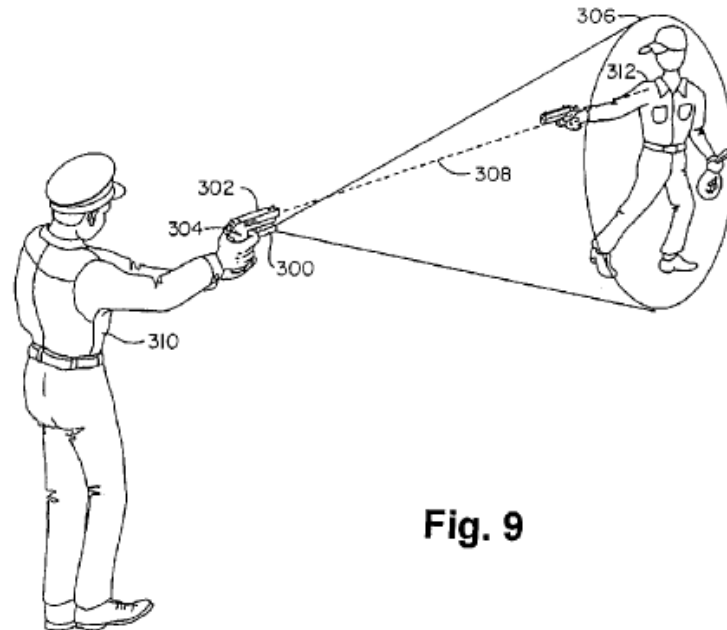


Fig. 9

Id., Fig. 9.

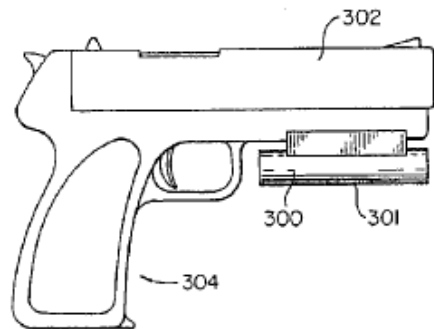


Fig. 10a

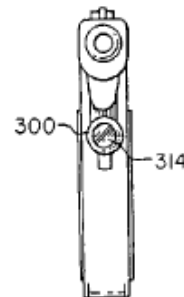


Fig. 10b

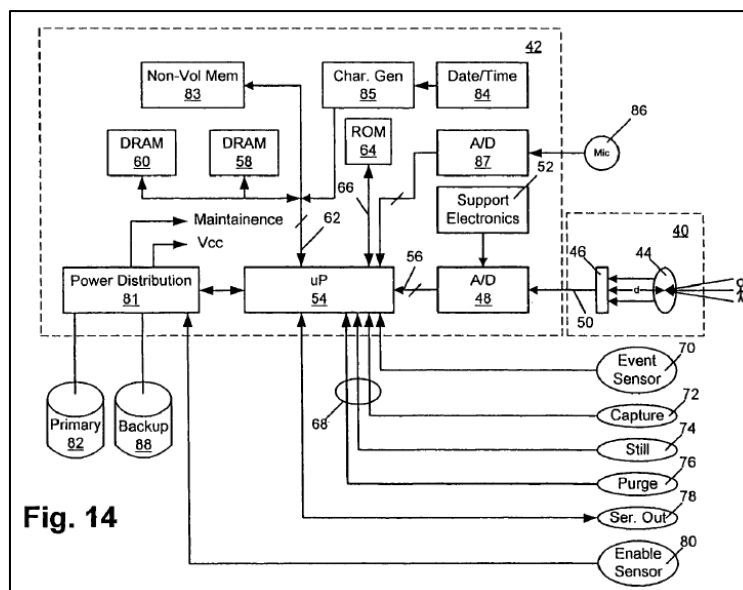
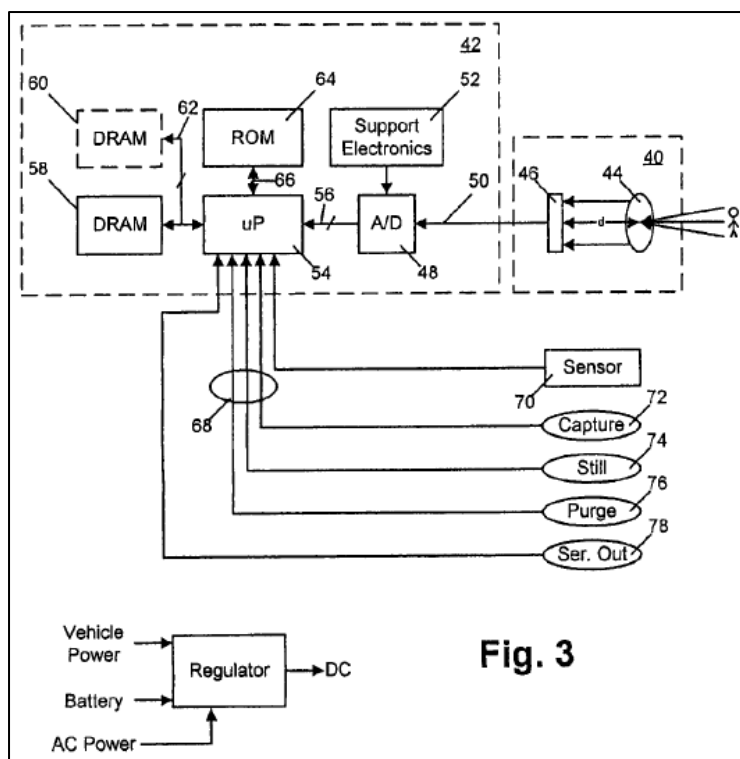
Id., Figs. 10a, 10b.

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. For a gun-mounted application, Yerazunis discloses that a "gun firing signal [may be] generated upon discharge of the gun," and "specified frame data associated

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

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 depicts an “electrical block diagram of a video recording device” (*id.*, 3:55-56), and Figure 14 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.*, 16:4-8, 17:34-38. These figures and other relevant disclosure of Yerazunis are described in further detail below and in Dr. Sarhan's declaration. EX1051, ¶¶123-129.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Yerazunis was neither cited nor applied during prosecution. While certain patents related to the '752 patent list on their face U.S. Patent Pub. 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 Fiedler

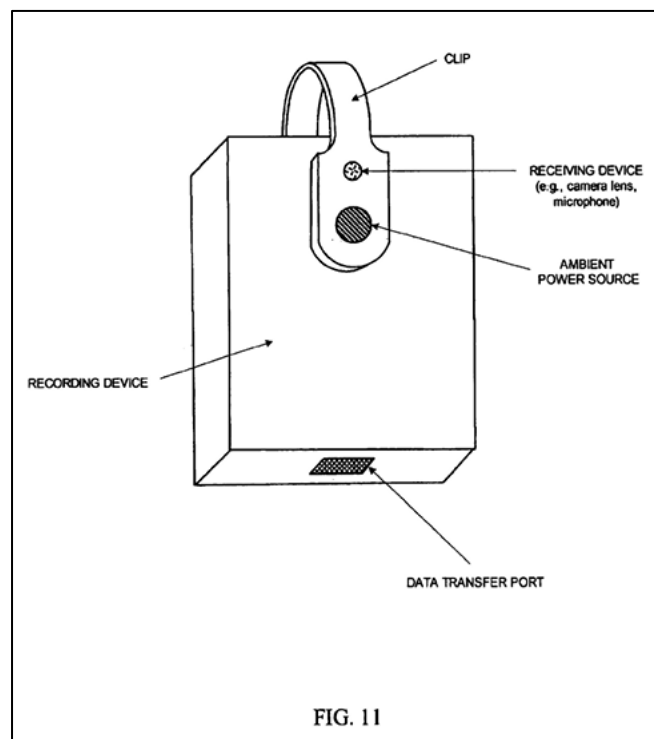
Fiedler, EX1037, entitled “Device and Method for Selective Recall and Preservation of Events Prior to Decision to Record the Events,” was filed June 20, 2001, published February 27, 2003, and issued October 12, 2004. Fiedler is prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), (e).

Fiedler describes a “device process for event-activated recording,” where events are recorded in an “acquisition buffer” and “[a]ction by the user or triggering system” preserves “all or part of the record of the most recent events recorded in the acquisition buffer.” EX1037, Abstract. The event data “is preserved by reserving a portion of the record of events from being overwritten by other events, and/or by transferring the selected portions of the record of events to a predetermined permanent location.” *Id.*

Fiedler discloses that the “present invention may be applied to sound or video recording” (*id.*, 2:60-61), and that an “area of technology addressed by the present

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

invention is event-activated recording, in which a recording process is initiated on the occurrence of some event that is recognized by some mechanism, algorithm or other automated means,” such as “[i]n a security system, audio and/or video recording activated on detection of movement” (*id.*, 1:43-52). Fiedler further discloses that the “invention may be advantageously embodied in a portable device that clips to a pocket or other article of clothing, as shown in FIG. 11” where a “microphone, camera, camera lens, infrared or radio-frequency receiver, or similar device is attached to the clip, exposed to the outside environment.” *Id.*, 13:11-16.



Id., Fig. 11.

Fiedler further describes a “Capture” button: “pressing Capture once may capture the most recent minute, pressing it twice in rapid succession may capture the

most recent two minutes, and so on.” *Id.*, 9:42-45. The “Capture” button “[t]oggles the capture state of the current block” and “[m]ay be pressed at any time to capture the current block.” *Id.*, 9:5-8; *see also id.*, Abstract, 1:43-54, 2:60-61.

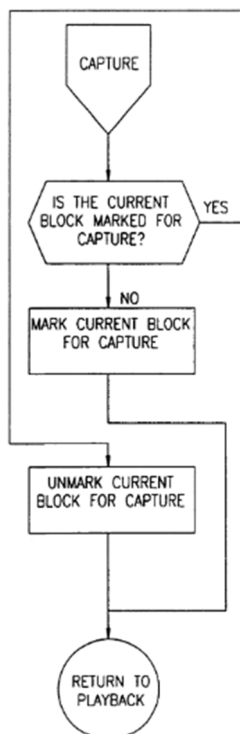


FIG. 9

Id., Fig. 9.

Fiedler was neither cited nor applied during prosecution.

3. Motivation To Combine

A POSITA would have been motivated to combine Yerazunis and Fiedler for several reasons. EX1051, ¶¶274-279.

As one example, because Yerazunis and Fiedler both disclose compact, hand-held data recording systems that store data in a circular buffer and preserve data

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

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. *Id.*, ¶275.

As another example, a POSITA would have been motivated to implement Yerazunis’s video recording device with Fiedler’s capture functionality to extend the length of a write-protected segment that occurs prior to an event trigger. *Id.*, ¶276. Yerazunis discloses (i) the length of the write-protected segment is a matter of design choice, and (ii) the length of the segment can be extended. EX1017, 8:26-61, 16:66-17:44. Further, Yerazunis states an objective of its video recording device in one embodiment is to create an evidentiary record (*id.*, 14:61-64), and teaches in this embodiment that the “events surrounding the initial firing of the gun” are “more likely to bear directly on the question of whether or not the firing by the officer or individual was justified” (*id.*, 17:4-9).

A POSITA would have understood that increasing the duration of the protected segment of the buffer prior to the event trigger in Yerazunis using Fiedler’s capture functionality would have advantageously helped to ensure preservation of important video data. EX1051, ¶277. Both references disclose a user-pressable “capture” button for preserving data for an event (*e.g.*, EX1017, 6:43-44, 8:8-42, 9:17-26, Figs. 3, 14; EX1037, 9:35-46, Fig. 3), and it would have been obvious to a POSITA to incorporate functionality of Fiedler’s capture button (*e.g.*, increasing the amount of pre-event video preserved in the circular buffer) with Yerazunis’s capture button:

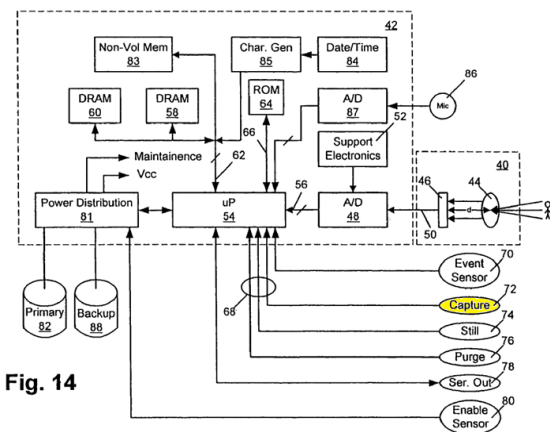


Fig. 14

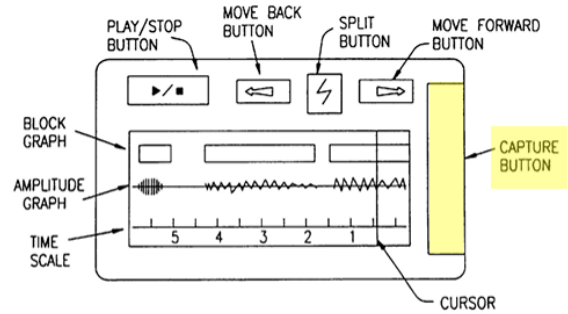


FIG. 3

EX1017 (Yerazunis), Fig. 14 (left); EX1037 (Fiedler), Fig. 3 (right) (color added).

A POSITA would have understood that Fiedler’s capture functionality would have advantageously enabled capture of additional contextual video data for events occurring before write-protection would otherwise begin, thus preserving, for instance, the events leading up to the firing of a gun that might bear on justification. EX1051, ¶¶278-279.

4. Claim 1

a) Preamble: A surveillance system, comprising:

To the extent limiting, Yerazunis discloses the preamble of claim 1. *Id.*, ¶280. Yerazunis discloses “a video recording device” that “is contained within a compactly sized housing” and captures video images for, *e.g.*, security purposes. EX1017, 2:12-14; *see also id.*, 1:17-43. Yerazunis therefore discloses a “surveillance apparatus,” and Applicant admitted this limitation is known in the art. EX1013, 94, 100, 106-107.

b) Element 1: a camera that converts images into first and second data streams;

Yerazunis discloses this claim element. EX1051, ¶¶281-282. Yerazunis's video recording device includes a camera 40 with sensor 46 that is "operative to provide an output signal representative of a video image which impinges upon the sensor." EX1017, 5:45-49. The output signal is "an analog signal which is coupled to one or more A/D converters" ("ADCs 48") that "generate a digital representation of the video image." *Id.*, 2:37-41.

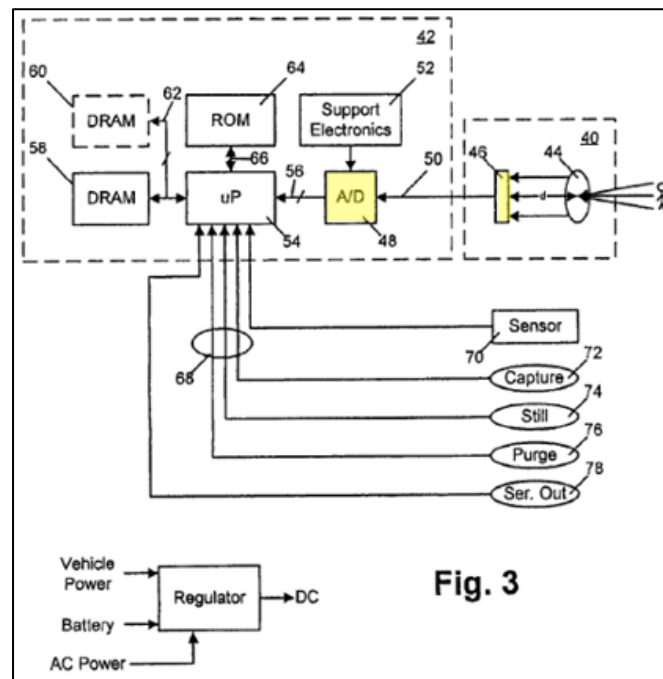
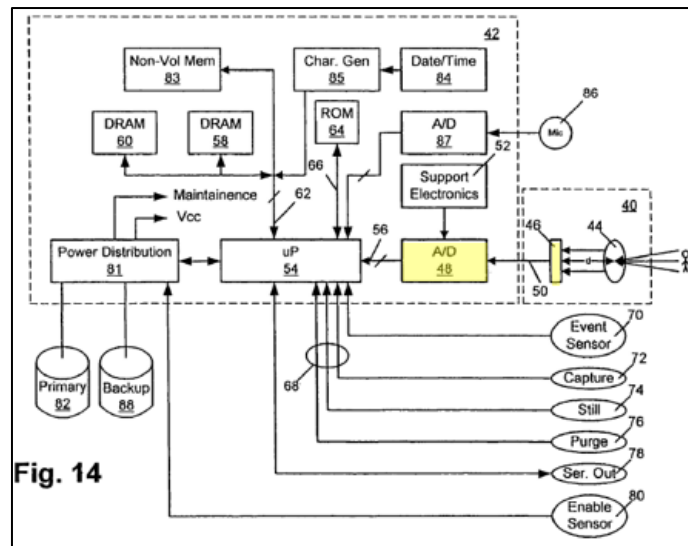


Fig. 3



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

Camera 40 and ADCs 48 collectively disclose the claimed “camera” because camera 40 includes an image sensor 46 that captures video images, and ADCs 48 generate a digital representation of the video image. EX1051, ¶282. A POSITA would have understood the digital output of Yerazunis’s ADCs 48 as including data streams. *Id.* These data streams include the claimed “first and second data streams” as explained below for elements 4 and 5 of claim 1.

c) Element 2: a memory; and

Yerazunis discloses this claim element. *Id.*, ¶283. Yerazunis’s video recording device includes video electronics 42 with DRAMs 58, 60 that disclose the claimed “memory.” EX1017, 5:40-43, 6:24-36 and Figs. 3, 14. Further, Applicant has conceded that this limitation is known in the art. EX1013, 101, 107.

- d) **Element 3: hardware that executes an instruction set that utilizes an area of the memory as a circular buffer,**

Patent Owner's Constructions: Patent Owner's position is that the claimed "hardware that executes an instruction set" merely "refers to a processor" and does not invoke Section 112, ¶ 6. EX1056, 024. Yerazunis discloses a microprocessor 54 (a processor) that receives digital signals from the ADCs 48 and "compresses the digitized frame data and stores the compressed frame data in the next sequential location of [a] circular buffer" formed in DRAM 58. EX1017, 2:45-47, 6:24-26, 6:52-7:61, 10:55-67, 11:50-14:44, 17:50-59, 18:7-12, and Figs. 3, 4a, 4b, 6-8, 14. Yerazunis specifically discloses that its "semiconductor memory [DRAM] 58 is structured as a circular memory buffer as illustrated in FIG. 4a" (*id.*, 7:7-9):

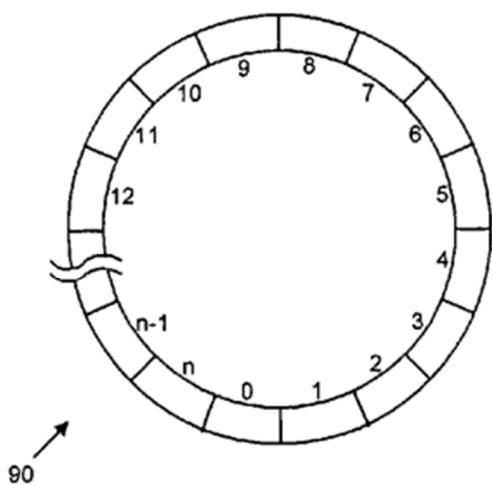


Fig. 4a

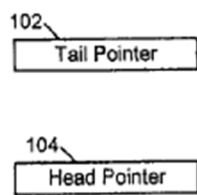
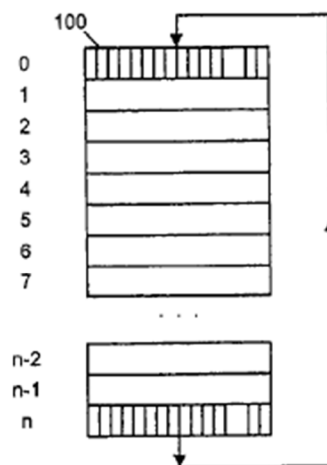


Fig. 4b



Id., Figs. 4a, 4b; see also *id.*, 7:7-61, 18:7-12.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Yerazunis thus describes a processor (microprocessor 54) “that utilizes an area of the memory as a circular buffer,” disclosing element 3 under Patent Owner’s position that Section 112, ¶6 is inapplicable (referred to herein as Patent Owner’s “non-MPF position”). EX1051, ¶¶284-285.

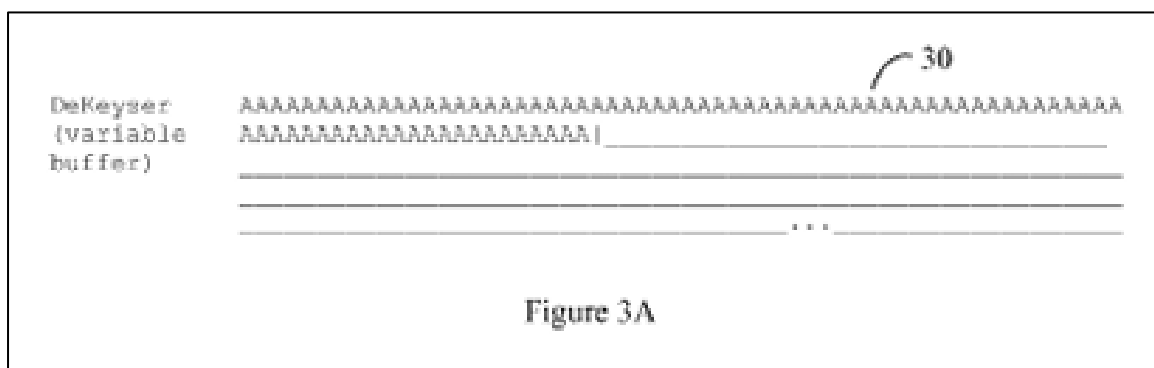
Yerazunis also discloses element 3 under Patent Owner’s MPF position. While Patent Owner cites wide swaths of the ’752 patent as allegedly disclosing corresponding structure for this element (*see* Section III.C above), Patent Owner also contends that the corresponding structure broadly encompasses “[a]ny recording device including a processor that runs software to accomplish the described function” (referred to herein as Patent Owner’s “MPF position”). EX1057, 005-008. As explained above for Patent Owner’s non-MPF position, Yerazunis discloses a video recording device including a processor (microprocessor 54) that runs software to accomplish the claimed function of “utilizes an area of the memory as a circular buffer.” *See* EX1017, 6:17-23, 6:37-51. Yerazunis thus discloses element 3 under Patent Owner’s MPF position. EX1051, ¶286.

Petitioner’s Corresponding Structure: The combination of Yerazunis and Fiedler discloses the corresponding structure identified by Petitioner, *i.e.*, “hardware and software programmed to perform the circular buffer algorithm disclosed at 2:36-39, 4:67-5:1, Figs. 3A-3H, 3:13-4:45, Fig. 5 (Step 51), 5:35-40.” EX1051, ¶¶287-289.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

First, Yerazunis discloses a recorder with a memory that runs software to accomplish functions, consistent with the '752 patent's disclosure at 4:67-5:1. Specifically, Yerazunis discloses video electronics 42 (a recorder) having microcontroller 54 that runs software for performing instructions. EX1017, 6:17-23, 6:37-51. The video electronics 42 includes DRAM 58, 60 (memory), and the microprocessor 54 utilizes an area of the memory as a circular buffer, consistent with the '752 patent's disclosure at Figure 5 (Step 51) and 5:35-40. EX1017, 2:45-47, 6:24-26, 6:52-7:6, 7:7-61, 10:55-67, 11:50-14:44, 17:50-59, 18:7-12, and Figs. 3, 6-8, 14.

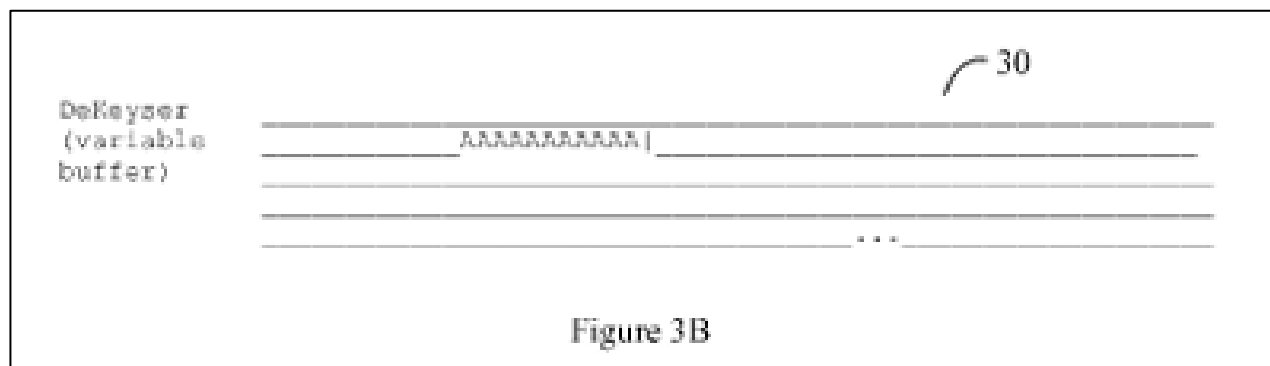
Second, Yerazunis's microcontroller 54 and software, in view of Fiedler's teachings, perform the "schematics of memory usage" "progressively showing storage of multiple data streams" (EX1004, 3:3-5) described at Figures 3A-3H and 3:13-4:45 of the '752 patent.



'752 Patent	Yerazunis in view of Fiedler
In Figure 3A, memory 30 stores data from data stream "A" up to the current position " " marker. EX1004, 3:13-14.	In Yerazunis's gun-camera embodiment, microprocessor 54 stores a first digital data stream generated by

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

	one or more ADCs 48 in a circular buffer formed in DRAM 58, 60 (memory). EX1017, 2:19-23, 2:45-47, 6:24-26, 6:52-7:6, 10:55-67, 11:50-14:44, 17:9-20, 17:50-59, and Figs. 3, 5 (<i>e.g.</i>, steps 122, 124, 126, 130), 6-8, 14. <i>See also</i> Section IV.A.4.e below.
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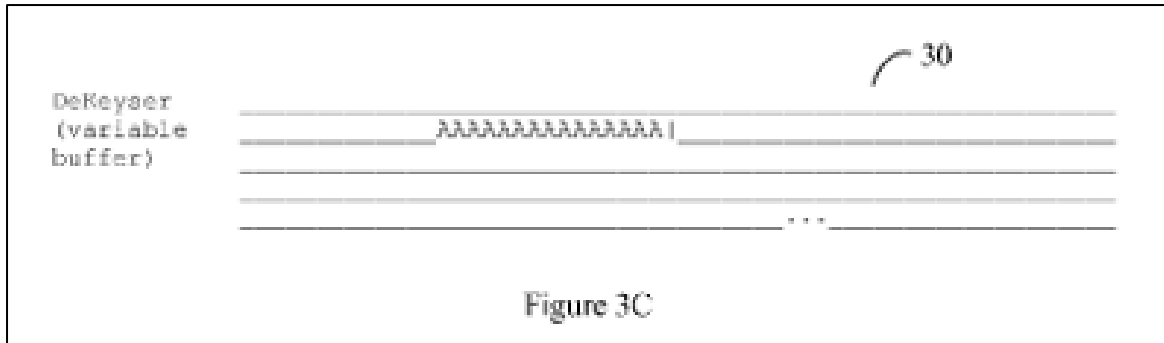
'752 Patent	Yerazunis in view of Fiedler
In Figure 3B, a recent period of data stream “A” has been protected as a function of a “start” signal. EX1004, 3:23-27. In protecting recent data, the system can protect a historical time period preceding the “start” signal. <i>Id.</i>, 3:37-50.	In Yerazunis’s gun-camera embodiment, the microprocessor 54 protects a recent period of the first data stream recorded in the circular buffer based on a first trigger signal (a start signal) generated by event sensor 70 or capture button 72. EX1017, 2:1-4,

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Although not depicted in Figure 3B above, the '752 patent further states: “Alternatively, the historical time period being protected could be altered in some manner, such as by software or by a user operating a history button.” <i>Id.</i>, 3:39-42.	2:19-33, 3:20-38, 4:45-49, 8:8-30, 9:17-26, 9:34-38, 14:55-61, 15:9-13, 17:45-61. <i>See also</i> Section IV.A.4.f below. The protected portion of the first data stream in the circular buffer is associated with a first event, <i>e.g.</i>, a first firing of a gun (EX1017, 3:20-38, 8:26-30, 15:9-13, 16:66-17:4, 17:45-61), and includes a period of the first data stream preceding the first trigger signal. <i>Id.</i>, 3:20-38, 14:55-64. <i>See also</i> Section IV.A.4.f below. Yerazunis also discloses (i) the length of the write-protected segment is a matter of design choice, and (ii) the length of the segment can be extended. EX1017, 8:26-61, 16:66-17:44. Yerazunis thus discloses altering the historical time
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PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

	period being protected. EX1051, ¶289. Further, altering the historical time period would have been obvious in further view of Fiedler. Fiedler describes “pressing Capture once may capture the most recent minute, pressing it twice in rapid succession may capture the most recent two minutes, and so on.” EX1037, 9:42-45. A POSITA would have been motivated to apply Fiedler’s teaching of altering the historical time period to Yerazunis for the reasons in Section IV.A.3 above. EX1051, ¶289. Further, a POSITA would have generally known that the length of a write-protected segment in a circular buffer could be extended in response to a signal. <i>Id.</i>
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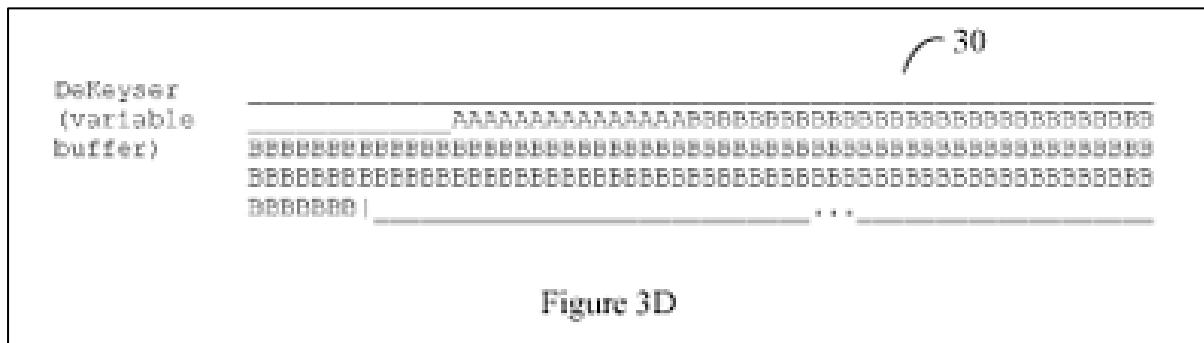
'752 Patent	Yerazunis in view of Fiedler
In Figure 3C, the system has received a “stop” signal sometime after receiving the start signal, thereby lengthening the protected portion of the “A” data stream. EX1004, 3:51-53.	In Yerazunis’s gun-camera embodiment, the video recording device responds to a signal from a user, and the user’s signal includes a stop signal. EX1017, 3:20-38, 8:8-30, 14:55-61, 15:9-13; EX1051, ¶289. Specifically, Yerazunis’s signal from the user tells the video recording device when to (i) start recording, <i>i.e.</i>, upon detection of the signal (EX1017, 3:25-38, 8:26-30, 15:9-13), and when to (ii) stop recording by designating an end of a write-protected portion, <i>i.e.</i>, when a predetermined number of frames subsequent to the trigger event have

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

	been write protected (<i>id.</i>, 2:53-64, 4:35-56, 8:26-61, 11:27-30, 12:14-17, 13:3-17, 16:66-17:38). Further, Fiedler discloses a stop signal received after a start signal. EX1037, Fig. 3, 8:45-9:4, 9:35-53. Fiedler's stop signal toggles the device from a recording mode to a non-recording mode, thereby designating the end of a protected portion. <i>Id.</i> A POSITA would have been motivated to apply Fiedler's teaching of receiving the stop signal after the start signal to Yerazunis. A POSITA would have recognized that user control to stop write protection following a start signal would have been desirable in some scenarios (<i>e.g.</i>, to prevent unnecessary preservation of unimportant video data), and would
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PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

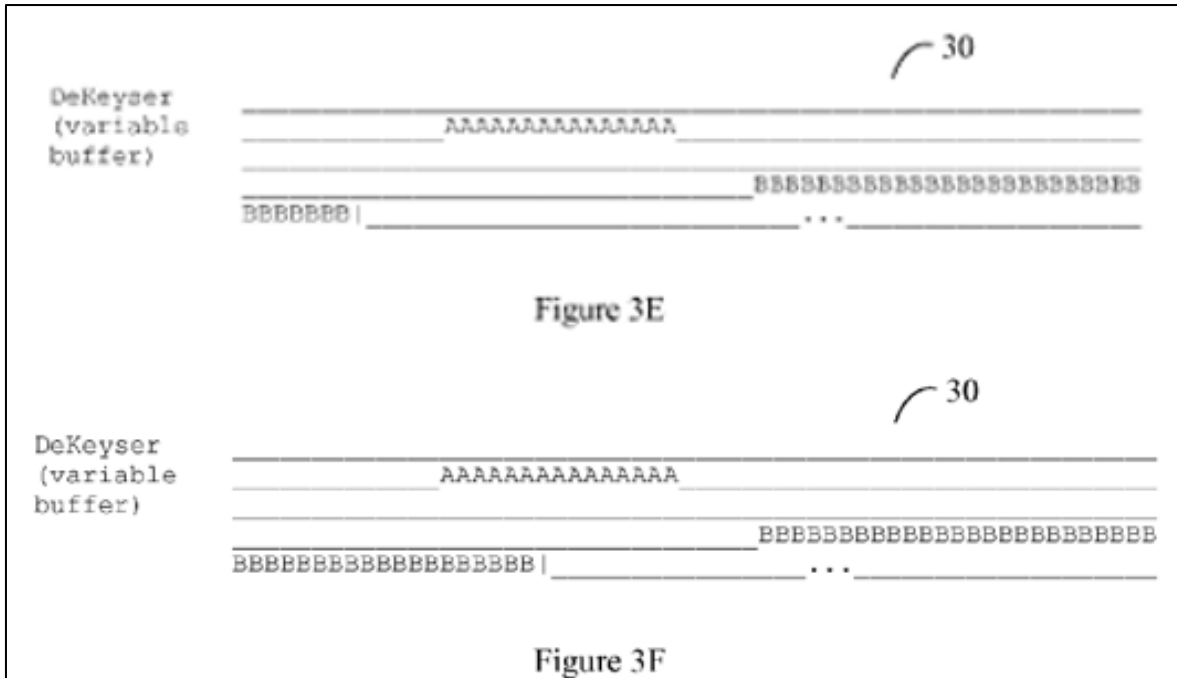
	have thus been motivated to include a stop signal, consistent with the '752 patent's disclosure. EX1051, ¶289.
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'752 Patent	Yerazunis in view of Fiedler
In Figure 3D, the system has finished protecting the desired portion of the “A” data stream, and has now moved on to storing a “B” data stream. EX1004, 4:16-18. The “B” data stream may be continuous with the “A” data stream, “so that differentiation of ‘A’ and ‘B’ streams is merely an artifact of how the data is being stored.” <i>Id.</i> , 4:18-21.	In Yerazunis’s gun-camera embodiment, the video recording device under control of microprocessor 54 records into the circular buffer continuously, such that storing of a second data stream in the circular buffer continues after protecting a portion of the first data stream. EX1017, 2:1-8, 2:19-23, 4:45-49, 7:11-14, 9:34-38, 17:45-61. <i>See also</i> Sections IV.A.4.f, IV.A.6 below.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

	Further, the second data stream is continuous with the write-protected portion of the first data stream, with the second data stream being recorded in a non-protected portion of Yerazunis's circular buffer immediately following the write-protected portion of the first data stream. EX1017, 2:1-8, 2:19-23, 4:45-49, 7:11-14, 9:34-38, 17:45-61. <i>See also</i> Sections IV.A.4.f, IV.A.6 below.
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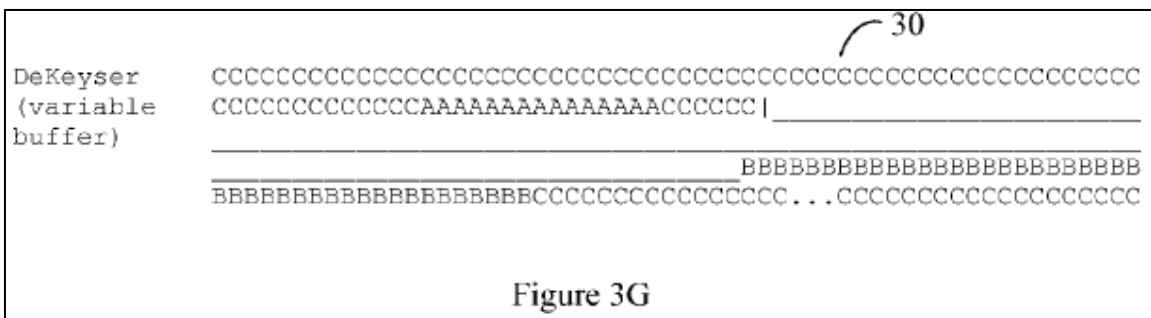


'752 Patent	Yerazunis in view of Fiedler
Figures 3E, 3F illustrate protection of a portion of the “B” data stream in the same manner as illustrated in Figures 3B, 3C for the “A” data stream, comprising receiving a start signal (Figure 3E) and subsequently receiving a stop signal (Figure 3F). EX1004, 4:35-38.	In Yerazunis’s gun-camera embodiment, the microprocessor 54 is configured to protect a portion of the second data stream in the circular buffer associated with a second event, <i>e.g.</i>, a second firing of the gun, based on a second trigger signal (a start signal) generated by event sensor 70 or capture button 72. EX1017, 4:35-56, 8:26-61, 11:27-30, 12:14-17, 13:3-17, 16:66-17:61.

	Like the protected portion of the first data stream, the protected portion of the second data stream includes a period of the second data stream preceding the second trigger signal. EX1017, 3:20-38, 14:55-64; <i>see also</i> Section IV.A.4.f below. And as with the first data stream, Yerazunis's microprocessor 54 stops protection of the second data stream in the circular buffer based on a stop signal. EX1017, 4:35-56, 8:26-61, 11:27-30, 12:14-17, 13:3-17, 16:66-17:38. EX1051, ¶289. Further, Fiedler discloses a stop signal received after a start signal, with the stop signal designating the end of a write-protected portion. EX1037, Fig. 3, 8:45-9:4, 10:35-54. A POSITA
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PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

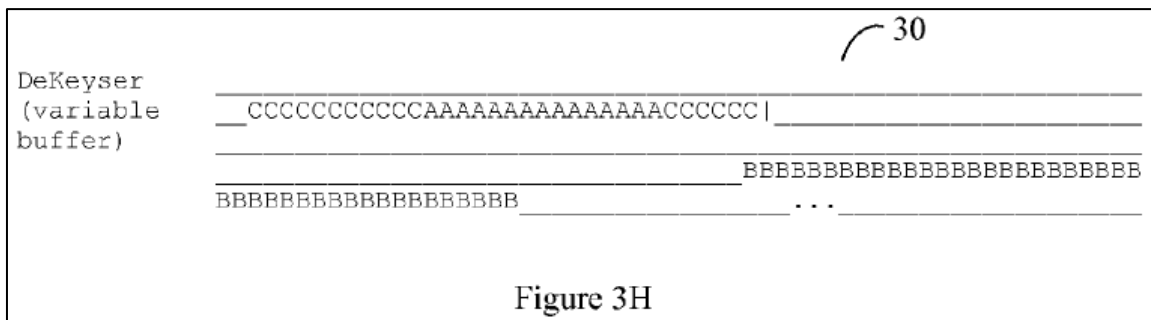
	would have been motivated to apply Fiedler’s teaching of receiving the stop signal after the start signal to Yerazunis for the reasons stated above with respect to Figure 3C of the ’752 patent. EX1051, ¶289.
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'752 Patent	Yerazunis in view of Fiedler
In Figure 3G the system has continued to record data, which is now depicted as data stream “C” because it follows the “B” data stream. EX1004, 4:39-41. Figure 3G “is particularly significant in that recordation of the ‘C’ data stream skips over the protected portion of the ‘A’ data stream.” <i>Id.</i> , 4:41-43.	In Yerazunis’s gun-camera embodiment, after protecting the portion of the second data stream, the video recording device under control of microprocessor 54 continues to record video data to the circular buffer as a third data stream. EX1017, 2:1-8, 2:19-23, 4:45-49, 7:11-14, 9:34-38, 17:45-61. Recordation of the third data stream

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

	would skip over the protected portion of the first data stream in the circular buffer. <i>Id.</i> , 3:28-33, 17:45-61. <i>See also</i> Sections IV.A.4.f, IV.A.6-7 below.
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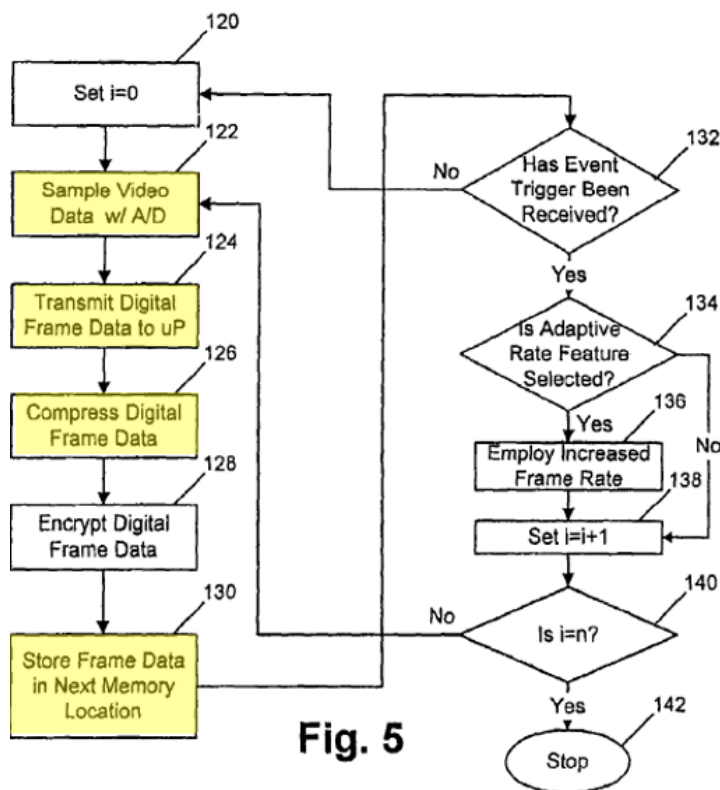
'752 Patent	Yerazunis in view of Fiedler
In Figure 3H, the system has again received another start signal, and has protected a desired portion of the “C” data stream that straddles the protected “A” stream. EX1004, 4:43-45; <i>see also id.</i> , 2:36-39 (“The memory preferably utilizes different sections for the buffer at different times, with protected subsections being skipped over during storage of subsequent data streams.”).	In Yerazunis’s gun-camera embodiment, the microprocessor 54 is configured to protect a portion of the third data stream in the circular buffer associated with a third event, <i>e.g.</i> , a third firing of the gun, based on a third trigger signal (a start signal) generated by event sensor 70 or capture button 72. EX1017, 4:35-56, 8:26-61, 11:27-30, 12:14-17, 13:3-17, 16:66-17:61. The protected portion of the third data

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

	stream would straddle the protected portion of the first data stream in the circular buffer. <i>Id.</i> , 3:19-33, 17:45-61, Figs 6-8. <i>See also</i> Sections IV.A.4.f, IV.A.7 below.
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e) Element 4: records the first data stream in the buffer;

Patent Owner's Constructions: Yerazunis discloses a processor (microprocessor 54) that “records the first data stream in the buffer,” as required under Patent Owner’s non-MPF position for element 4. EX1056, 024; EX1051, ¶290. Yerazunis’s video recording device under control of microprocessor 54 “records video frames successively in at least one circular buffer memory organized as a continuous loop.” EX1017, 2:19-23, 17:9-20, 17:50-59. Camera 40 captures video, and one or more ADCs 48 convert the captured video into a digital signal. *Id.*, 5:40-67. The digital signal is provided to microprocessor 54, which “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, 11:50-14:44, 17:50-59, and Figs. 3, 6-8, 14. Further, Figure 5 illustrates aspects of Yerazunis’s process for “record[ing] the first data stream in the buffer” at least at steps 122, 124, 126, and 130.



Id., Fig. 5 (color added); *see also id.*, 10:55-11:7. Yerazunis thus discloses element 4 under Patent Owner’s non-MPF position.

Yerazunis also discloses element 4 under Patent Owner’s MPF position detailed above in Section III.C. As explained for Patent Owner’s non-MPF position, Yerazunis discloses a video recording device including microprocessor 54 that runs software to accomplish the function of element 4. EX1051, ¶291.

Petitioner’s Corresponding Structure: The combination of Yerazunis and Fiedler discloses the corresponding structure identified by Petitioner, *i.e.*, “hardware and software programmed to perform the circular buffer algorithm disclosed at 2:36-39, 4:67-5:1, 5:12-14, Fig. 3A, 3:13-16, Fig. 5 (Step 52), 5:48.” EX1051, ¶¶292-294.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

As explained above with respect to Petitioner's corresponding structure for element 3 of claim 1, Yerazunis discloses a recorder (video electronics 42) with memory and microcontroller 54 that runs software to accomplish functions, consistent with the '752 patent's disclosure at 4:67-5:1. EX1017, 6:17-23, 6:37-51. The video electronics 42 include DRAM 58, 60 (memory), and the microprocessor 54 records a first data stream in the circular buffer formed in the memory, consistent with the '752 patent's disclosure at Figure 5 (Step 52), 5:35-40, Fig. 3A, and 3:13-16. EX1017, 2:45-47, 6:24-26, 6:52-7:6, 7:7-61, 10:55-67, 11:50-14:44, 17:50-59, 18:7-12 and Figs. 3, 6-8, 14. *See* Section IV.A.4.d above. EX1051, ¶293.

Additionally, in recording the first data stream to the circular buffer, Yerazunis's microcontroller 54 "utilizes different sections for the buffer at different times, with protected sub-sections being skipped over during storage of subsequent data streams," consistent with the '752 patent's disclosure at 2:36-39. EX1017, 3:28-33, 17:45-61. Further, Yerazunis's recorder (video electronics 42) "record[s] images in digital [or analog] format," consistent with the '752 patent's disclosure at 5:12-14. EX1017, 2:37-47, 5:49-67, 6:14-16, 6:52-57. EX1051, ¶294.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

- f) Element 5: responds to a first signal by protecting a recently used segment of the buffer storing at least a portion of the first data stream corresponding to a duration of time prior to the first signal, while at the same time continuously recording the first data stream as the second data stream in an unprotected segment of the buffer, without overwriting the protected segment; and**

Yerazunis discloses a processor (microprocessor 54) that “responds to a first signal” in the manner claimed, as required under Patent Owner’s non-MPF position for element 5. EX1056, 024. In embodiments, Yerazunis’s video recording device includes the microprocessor 54 with “a number of inputs 68 which permit activation of the video recording device and control of the device by a user.” EX1017, 6:40-42, Figs. 3, 14. Inputs include still button 74, the activation of which causes a video frame to be “stored within a frame location within the circular buffer,” with the “frame [being] protected from overwriting while video capture within the circular buffer continues.” *Id.*, 9:27-31, 9:34-42. EX1051, ¶295.

In Yerazunis’s gun-camera embodiment, event sensor 70 generates a “gun firing signal” “upon discharge of the gun.” EX1017, 3:20-33, 8:8-25, 14:55-61. Upon detecting the gun-firing signal, 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 firing events.” *Id.*, 3:25-38, 8:26-30, 15:9-13. With the specified frame data write-protected, “[f]rame data associated with each subsequent firing event[] is stored within

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

an unused portion of the circular buffer memory.” *Id.*, 3:31-33. Thus, Yerazunis’s microprocessor 54 “responds to a first signal by protecting a recently used segment of the buffer storing at least a portion of the first data stream corresponding to a duration of time prior to the first signal.” EX1051, ¶296.

Yerazunis stresses recording occurs “continuously,” such that write-protecting necessarily occurs “while at the same time” as recording. *Id.*, ¶297. Indeed, Yerazunis expressly discloses that frame data is “protected from overwriting while video capture within the circular buffer continues. EX1017, 9:34-38; *see also id.*, 2:1-4, 2:19-23, 4:45-49, 17:45-61. Yerazunis also teaches that when its video recording device is employed with a gun, “it may be desirable to generate a video record which is associated with each firing of the gun.” *Id.*, 16:66-17:4. “To accommodate this objective, after the conclusion of data storage associated with one firing event, the head pointer 104 and the tail pointer 102 ... 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,” and the pointers “are then reset to allow continued recording into another portion of the circular buffer memory without over writing the previously stored and preserved data.” *Id.*, 17:50-59. Thus, after protecting video data pertaining to an event, “recording of data continues since a subsequent firing event may occur.” *Id.*, 17:45-50.

Yerazunis also discloses “recording the first data stream as the second data stream.” EX1051, ¶298. For example, in Yerazunis’s gun-camera embodiment, the

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

video recording device under control of microprocessor 54 records into the circular buffer continuously, such that storing of a second data stream in the circular buffer continues after protecting a portion of the first data stream. EX1017, 2:1-8, 2:19-23, 4:45-49, 7:11-14, 9:34-38, 17:45-61. Further, the second data stream is continuous with the write-protected portion of the first data stream, with the second data stream being recorded in a non-protected portion of Yerazunis's circular buffer immediately following the write-protected portion of the first data stream. *Id.* A POSITA would have understood Yerazunis as disclosing "recording the first data stream as the second data stream." EX1051, ¶298. Further, Yerazunis's disclosure of the claimed "recording the first data stream as the second data stream" is consistent with the disclosure of the '752 patent (*e.g.*, with reference to Figure 3D). *See* Section IV.A.4.d above. Yerazunis thus discloses element 5 under Patent Owner's non-MPF position.

Yerazunis also discloses element 5 under Patent Owner's MPF position detailed above in Section III.C. As explained for Patent Owner's non-MPF position, Yerazunis discloses a video recording device including microprocessor 54 that runs software to accomplish the function of element 4. EX1051, ¶299.

g) Element 6: responds to a second signal received after the first signal by increasing the duration of the protected segment of the buffer prior to the first signal.

Yerazunis discloses a processor (microprocessor 54) that "responds to a second signal" in the manner claimed, as required under Patent Owner's non-MPF position for

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

element 6. EX1056, 024; EX1051, ¶300. Yerazunis states: “Since multiple firings of the gun are possible, it is conceivable that the gun may be refired within the post trigger event time period that the video recording device is still recording as a consequence of a prior firing.” EX1017, 17:38-42. “In such event, the recording time may be extended” under control of microprocessor 54 “so as to terminate another post event time period after the last such firing.” *Id.*, 17:42-44.

Yerazunis also discloses (i) the length of the write-protected segment is a matter of design choice, and (ii) the length of the segment can be extended. *Id.*, 8:26-61, 16:66-17:44. It would have been obvious to use the microprocessor 54 to increase the duration of the protected segment of the buffer prior to the first signal in response to a second signal in view of Yerazunis’s disclosure. EX1051, ¶301. Moreover, this feature would have been obvious in further view of Fiedler. *Id.* Fiedler discloses a second signal received after a first signal that causes a duration of a pre-event protected segment to be increased: Fiedler describes “pressing Capture once may capture the most recent minute, pressing it twice in rapid succession may capture the most recent two minutes, and so on.” EX1037, 9:42-45. And a POSITA would have generally known that the length of recording in a circular buffer could be extended in response to a signal. EX1051, ¶301.

A POSITA would have recognized the advantages of increasing the duration of the protected segment of the buffer prior to the first signal in response to a second

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

signal in the Yerazunis system. Yerazunis states an objective of its video recording device in one embodiment is to create an evidentiary record (EX1017, 14:61-64), and teaches in this embodiment that the “events surrounding the initial firing of the gun” may be “more likely to bear directly on the question of whether or not the firing by the officer or individual was justified” in firing (*id.*, 17:4-9). A POSITA would have understood the benefits of increasing the duration of the protected segment of the buffer prior to the first signal in the Yerazunis system, including to ensure that important video evidence is preserved (*e.g.*, by capturing important, contextual video data for events occurring before write-protection would otherwise begin). EX1051, ¶302. Yerazunis thus discloses element 6 under Patent Owner’s non-MPF position.

Yerazunis also discloses element 6 under Patent Owner’s MPF position detailed above in Section III.C. As explained for Patent Owner’s non-MPF position, Yerazunis discloses a video recording device including microprocessor 54 that runs software to accomplish the function of element 6. EX1051, ¶303.

5. Claim 2

Claim 2 depends from claim 1 and recites “wherein the buffer stores at least 10 minutes of image frames.” This limitation would have been obvious in view of Yerazunis. EX1051, ¶¶304-305. In one embodiment, Yerazunis’s memory holds approximately 15 seconds of video data; in another, 30 seconds. EX1017, 8:43-51, 11:31-43. Yerazunis provides motivation for increasing the total recording time,

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

explaining that “[a] greater recording interval may be achieved by ... utilizing a larger memory” (*id.*, 6:11-13), and that “[i]t may be desired to increase the memory capacity of the recording device to permit a greater number of frames to be captured or to accommodate the storage of video images received from plural cameras.” *Id.*, 6:33-36. Yerazunis also teaches “[a]dditional semiconductor memory 60 may be coupled to the microprocessor 54 via a bus 62 in the event that it is desired to increase the semiconductor memory capacity of the video recording device.” *Id.*, 6:30-33.

In addition to increasing memory capacity, Yerazunis also discloses multiple techniques for increasing the total record time that would have been conventional and well-known by June 2007, including using a lower sampling rate (*id.*, 6:12-13), using compression (*id.*, 10:63-67, 11:31-35), and using “any number of storage methods ... to extend the period of time captured within the semiconductor memory buffer, or to achieve almost any frame capture profile that may be desired,” including those techniques illustrated in Yerazunis’s Figures 6-8. *Id.*, 10:37-49, 11:44-49, 17:34-38. A POSITA would have been motivated to implement a sufficiently large circular buffer in the Yerazunis/Fiedler system, such as to store at least 10 minutes of image frames to permit a greater number of frames to be captured, and a POSITA would have been aware of conventional and well-known techniques for doing so. EX1051, ¶305; *see also* EX1020 (Ely), 10:60-65 (describing embodiment with circular buffer having

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

capacity of “thirty minutes of video signals,” with each alarm command initiating protection of ten-minute period).

6. Claim 3

Claim 3 depends from claim 1 and recites “wherein the second data stream is continuous with the first data stream.” In the context of the ’752 patent, this claim language encompasses the second data stream being recorded into the buffer following protection of the first data stream. EX1051, ¶306; *see, e.g.*, EX1004, Fig. 3D, 4:18-21 (after protecting portion of “A” data stream, “B” data stream may be recorded continuous with the “A” data stream “so that differentiation of ‘A’ and ‘B’ streams is merely an artifact of how the data is being stored”).

Yerazunis discloses the limitations added in claim 3. EX1051, ¶307. In Yerazunis’s gun-camera embodiment, the video recording device under control of microprocessor 54 records into the circular buffer continuously, such that recording of the second data stream in the circular buffer continues immediately after protecting a portion of the first data stream. EX1017, 2:1-8 (describing recordation of video frames “on a continuing basis”), 2:19-23 (describing “successively” recording video frames into buffer organized as a “continuous loop”), 4:45-49 (Yerazunis’s invention “continually record[s] video frames in a circular buffer”), 7:11-14, 9:34-38, 17:45-61 (after trigger event, “recording of data continues since a subsequent firing event may occur”). Further, the second data stream is continuous with the write-protected portion

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

of the first data stream, with the second data stream being recorded in a non-protected portion of Yerazunis's circular buffer immediately following the write-protected portion of the first data stream. *Id.*; EX1051, ¶307.

7. Claims 4 and 5

Claim 4 depends from claim 1 and recites "wherein the memory stores at least a 30 second portion of the first data stream, including at least a 5 second pre-signal portion and at least a 5 second post-signal portion." Claim 5 depends from claim 4 and recites "wherein the at least a 30 second portion of the first data stream is stored in logically discontinuous portions of the memory." Yerazunis discloses these limitations. *Id.*, ¶308. In one embodiment, the write-protected portion is approximately 30 seconds long, half being the pre-signal portion, thus disclosing the limitations added in claim 4. EX1017, 8:43-51; *see also id.*, 11:31-43 (embodiment with 15-second portion). And since frame data associated with a firing event cannot be overwritten in Yerazunis's video recording device, the device necessarily records to physically discontinuous parts of the circular buffer, as the overwriting process skips preserved event data, thus disclosing the limitations added in claim 5. *Id.*, 3:19-33; *see also* Figs 6-8 (illustrating the non-sequential nature of recording); *accord* EX1004, 4:39-45, Fig. 3H. EX1051, ¶308.

8. Claim 6

Claim 6 depends from claim 1 and recites “wherein at least 20% of the memory is used as the buffer.” Yerazunis discloses this limitation. EX1051, ¶309. Yerazunis’s DRAM 58 “is *structured as a circular memory buffer*.” EX1017, 7:7-61, 18:7-12, Figs. 3, 4a, 4b, 14. Accordingly, a POSITA would have understood nearly all of the DRAM 58 (*i.e.*, more than 20% of its storage capacity) to be used as the buffer. EX1051, ¶309. Moreover, it would have been an obvious design choice to dedicate at least 20% of Yerazunis’s DRAM 58 to the buffer, *e.g.*, to enable sufficient capacity for recording and preserving video data. *Id.* Yerazunis discloses flexibility in configuring the circular buffer (*e.g.*, enabling a greater portion of it to be dedicated to “events surrounding [an] initial firing of the gun”), and a POSITA would have recognized such flexibility as enabling the selection of an adequate amount of the DRAM 58 to be used as the circular buffer. EX1017, 16:66-17:38; EX1051, ¶309. Additionally, the ’752 patent does not disclose that using at least 20% of the memory as the buffer is critical to the purported invention, nor is there anything inventive or non-obvious about selecting a percentage of the memory to be used as the buffer. EX1051, ¶309.

9. Claims 7 and 8

Claim 7 depends from claim 1 and recites “a sensor that automatically initiates the first signal.” Claim 8 depends from claim 7 and recites “wherein the sensor operates upon content in the first data stream.” Yerazunis discloses these limitations. EX1051,

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

¶¶310-311. When event sensor 70 detects certain “condition[s],” it automatically provides a trigger output signal that activates capture of video images, causing them to be write-protected. EX1017, 3:25-35, 8:8-30, 15:9-13, 17:45-61. Accordingly, event sensor 70 “automatically initiates the first signal.”

“Triggering events may include” a “signal representing a recognized change in a video image or acoustic signal.” *Id.*, 2:58-64. A POSITA would have understood that recognizing a change in a video image would have involved operating upon content in the first data stream. EX1051, ¶311.

Applicant admitted the limitations of claims 7 and 8 were known in the art. EX1013, 89, 95-96.

10. Claim 9

Claim 9 depends from claim 1 and recites “an interface through which a human can initiate the signal.” Yerazunis discloses this limitation. EX1051, ¶¶312-313. The ’752 patent describes an “interface” as an input mechanism for receiving user input. EX1004, Abstract, 2:45-51, 4:6-13. Yerazunis discloses an input mechanism (*i.e.*, “an interface”) through which a human triggers a write-protecting signal, including via “a button actuated by a user.” EX1017, 2:58-64; *see also id.*, 9:17-18 (describing “capture button 72 which serves as a user activatable trigger event”), Fig. 14 (depicting capture button 72). Pushing this button provides a trigger signal to microcontroller 54. *Id.*, 9:19-22.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Further, Yerazunis's "video recording device may be interfaced directly to the trigger of the gun" such that "the trigger is employed to generate a switching action or signal which is used to indicate a trigger event." *Id.*, 16:59-62. The trigger is "an interface through which a human can initiate a signal" for reasons similar to the capture button.

Applicant admitted this limitation is known in the art. EX1013, 96, 102.

11. Claims 10 and 11

Claim 10 depends from claim 1 and recites "an interface through which a human can override a default pre-signal size of the recently used segment." Claim 11 depends from claim 1 and recites "an interface through which a human can override a default post-signal size of the recently used segment." Yerazunis discloses these limitations. EX1051, ¶314. Yerazunis teaches "the number of frames that are recorded before and after [a trigger event] are a matter of design choice." EX1017, 8:51-55; *see also id.*, 6:11-13, 10:42-48, 11:31-43, 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 respective interfaces of claims 10 and 11. These interfaces also would have been obvious in view of Fiedler, which discloses a "Capture" button (*i.e.*, "an interface") that a human can press to control the amount of video that is captured. EX1037, Abstract, 1:43-54, 2:60-61, 9:5-8, 9:42-45.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Applicant admitted these limitations were known in the art. EX1013, 90, 91, 96, 99, 111.

12. Claim 14

Claim 14 depends from claim 1 and recites “a vehicle mount for the camera.” Yerazunis discloses this limitation. EX1051, ¶315. Yerazunis discloses embodiments of its video recording device mounted within a vehicle. EX1017, 4:35-56. It would have been obvious to a POSITA to use the features of Yerazunis’s gun-camera embodiment discussed above in Section IV.A.4 when the video recording device is mounted in a vehicle. EX1051, ¶315. A POSITA would have recognized that the features of the gun-camera embodiment—including the capability to preserve video data for multiple events in the circular buffer—would have equal application in the vehicle-mounted context, and a POSITA thus would have been motivated to implement them in Yerazunis’s vehicle-mounted video recording device accordingly. *Id.*

B. Ground 1b: Claims 12, 13, And 15-18 Would Have Been Obvious Over Yerazunis Alone Or As Combined With Fiedler, In Further View of Strub

Claim 12 depends from claim 1 and recites “a wireless receiver upstream of the buffer with respect to the first data stream.” Claim 13 depends from claim 1 and recites “a wearable mount for the camera.” Claim 15 depends from claim 1 and recites “a signaling device in wireless communication with a recorder comprising the

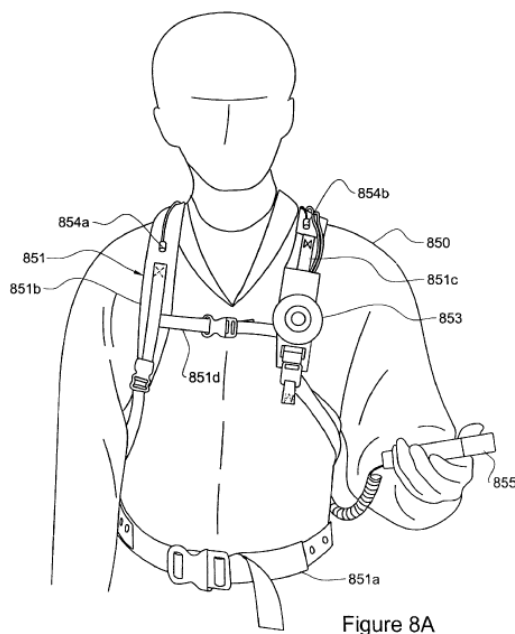
PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

memory, and that is configured to wirelessly send the first signal to the recorder.”

Claims 16-18 depend from claim 15 and recite “wherein the wireless signaling device comprises a human wearable ring” (claim 16), “wherein the wireless signaling device comprises a key fob” (claim 17), and “wherein the wireless signaling device is local to the camera and the hardware, and local about a user” (claim 18).

To the extent Yerazunis and Fiedler do not disclose the limitations added in dependent claims 12, 13, and 15-18, these limitations would have been obvious in view of Strub (EX1046), entitled “Low Attention Recording Unit For Use By Vigorously Active Recorder.” Strub was filed on April 21, 2000, and issued on May 13, 2003. Strub is therefore prior art to the ’540 patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). Strub was neither cited nor applied during prosecution.

Strub discloses a “recording unit” with a wearable “visual data acquisition device 853” (*e.g.*, video camera, EX1046, 8:1-27, 70:53-65) that “acquires a continuous stream of visual data” of an event. *Id.*, 15:41-48.



Id., Fig. 8A.

Strub discloses that the visual data acquisition device 853 can be “mounted on the shoulder strap 851c [or 851b].” *Id.*, 70:52-58. Other wearable options for mounting visual data acquisition devices are disclosed and described as being advantageous *See, e.g., id.*, Abstract (“advantageous aspects of the invention can be provided by a small, lightweight, wearable recording unit”), 5:26-31, 16:24-41 (camera may be mounted on “helmet, headband or head harness”), 43:12-39 (camera mounted on eyeglasses). Strub further teaches that “it can be desirable to integrate components of a recording unit according to the invention into clothing to be worn by a recorder” and that components of a recording unit according to the invention “can be sewn into clothing” such as “a special police officer’s uniform.” *Id.*, 66:31-39.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Strub also discloses that “[d]uring recording of an event, it can be desirable to mark the recording,” which Strub discloses is “intended to indicate that the content represented by the recording data is of interest and may be particularly desirable to view during later display of the recording.” *Id.*, 3:44-54. Further, to “facilitate” marking, Strub discloses that “it may be desirable to provide additional apparatus (a ‘marking token’)” that is “physically separated from the rest of a recording unit,” such as “a ring, brooch, bracelet (e.g., a watch-like band) or similar wearable item can be constructed with one or more pushbuttons and adapted to enable communication (perhaps wirelessly) with the remainder of the recording unit.” *Id.*, 54:20-33.

Claim 13: The combination of the Yerazunis/Fiedler video recording device with Strub discloses “a wearable mount for the camera,” as recited in claim 13 of the ’752 patent. EX1051, ¶¶316-318. Strub’s recording unit can utilize a wearable video camera, thus disclosing the claimed “wearable mount for the camera.” *See, e.g.*, EX1046, 5:26-31, 6:3-8, 8:1-27, 16:24-41, 43:12-39, 66:31-39, 70:52-58. A POSITA would have been motivated to apply Strub’s teaching of a wearable mount for the camera to the Yerazunis/Fiedler video recording device. EX1051, ¶318. Because Yerazunis, Fiedler, and Strub all disclose video recording systems—and Yerazunis and Strub disclose compact, mountable systems—a POSITA would have been aware of and motivated to combine these references. *Id.* Strub also describes why a POSITA would have been motivated to implement the Yerazunis/Fiedler camera with a

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

wearable mount, *e.g.*, “to facilitate freedom of movement” for the user (EX1046, Abstract), and enable hands-free, discreet recording (*id.*, 4:29-51, 66:24-39). Further, Yerazunis discloses embodiments of its video recording device with various mounting options, *e.g.*, mounted to a vehicle (EX1017, 4:35-56) or a gun (*id.*, 14:45-15:20), and a POSITA would have recognized Yerazunis’s video recording device as having applicability to other types of mounts, including wearable ones. EX1051, ¶318.

Claims 12 and 15: The combination of the Yerazunis/Fiedler video recording device with Strub discloses “a wireless receiver upstream of the buffer with respect to the first data stream” and “a signaling device in wireless communication with a recorder comprising the memory, and that is configured to wirelessly send the first signal to the recorder,” as respectively recited in claims 12 and 15 of the ’752 patent. EX1051, ¶¶319-322. Strub discloses using a wearable item with pushbuttons to wirelessly control operation of a physically separate recording unit. EX1046, 54:20-52, 64:21-26; *see also id.*, 64:27-65:14. A POSITA would have been motivated to implement the Yerazunis/Fiedler video recording device with Strub’s wearable item with user-pressable pushbuttons, and specifically to use Strub’s wearable item to wirelessly send the “first signal” to a wireless receiver of the separate recording unit to initiate preservation of video data. EX1051, ¶319.

As a POSITA would have recognized, this implementation would have advantageously facilitated operation of Yerazunis’s video recording device by a user.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Id., ¶320. For example, a police officer surveilling a situation with Yerazunis’s video recording device (*e.g.*, mounted on a gun or in a car) could use Strub’s wearable item to wirelessly send the first signal to discreetly take video or photographs without handling the video recording device directly. EX1051, ¶320; *see also* EX1049 (Blum), EX1050 (Blum provisional). And a POSITA would have understood such implementations as utilizing “a wireless receiver upstream of the buffer with respect to the first data stream,”² as described in Strub and “known to those skilled in the art” (EX1046, 64:21-26). *See also id.*, 6:32-35, 11:29-35, 46:58-47:6, 52:39-56, 69:62-70:3, Fig. 3. EX1051, ¶321.

A POSITA would have had a reasonable expectation of success because wirelessly coupled cameras were well-known, and implementing such cameras in the Yerazunis/Fiedler video recording device would have been routine and well within a POSITA’s skill. *Id.*, ¶322 (citing EX1035, 14:51-59).

² The ’752 patent’s specification includes minimal disclosure of the claimed “wireless receiver upstream of the buffer with respect to the first data stream” of claim 12, describing it with reference to receipt of a stop signal. EX1004, 3:51-65, 6:57-59. The disclosure of Yerazunis/Fiedler as combined with Strub—*e.g.*, using a wireless receiver to receive a stop signal from a remote control—is consistent with the ’752 patent’s description of the claimed “wireless receiver.” EX1051, ¶321.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Claims 16 and 17: The combination of the Yerazunis/Fiedler video recording device with Strub further discloses the limitations added in claims 16 and 17, *i.e.*, that the claimed wireless signaling device comprises “a human wearable ring” (claim 16) or “a key fob” (claim 17). EX1051, ¶323. Strub’s wearable marking token may be, for example, “a *ring*, brooch, bracelet (e.g., a watch-like band) or similar wearable item” that “can be constructed with one or more pushbuttons and adapted to enable communication (perhaps wirelessly) with the remainder of the recording unit.” EX1046, 54:20-52. Strub therefore discloses the claimed “human wearable ring,” and a POSITA would have understood Strub’s wearable token could alternatively be a key fob. EX1051, ¶323. Like a ring, a key fob could be worn by a user, and would provide similar advantages. *Id.* Indeed, wearable, wireless accessories in the form of a key fob for use with video recording systems were well-known, as evidenced by, *e.g.*, U.S. 7,263,073 to Petite (EX1054, cited by Examiner), U.S. 7,956,735 to Jackson (EX1055). EX1051, ¶323.

Claim 18: Finally, the combination of the Yerazunis/Fiedler video recording device with Strub discloses the limitations added in claim 18, *i.e.*, that the claimed wireless signaling device is “local to the camera and the hardware, and local about a user.” EX1051, ¶324. Yerazunis discloses a video recording device which may be mounted to a hand-held gun, and Strub discloses a “marking token” such as “a ring, brooch, bracelet (e.g., a watch-like band) or similar wearable item.” EX1046, 54:20-

52. Strub's wearable token is "local" to Yerazunis's camera and hardware: All of these components are disposed locally about the user, *e.g.*, with the user holding the gun with camera and hardware mounted thereon in his hand, and Strub's wearable token located on the user's clothing. EX1051, ¶324.

C. Ground 2a: Claims 1-11 Would Have Been Obvious Over Ely Alone Or As Combined With Fiedler

1. Summary Of Ely

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

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

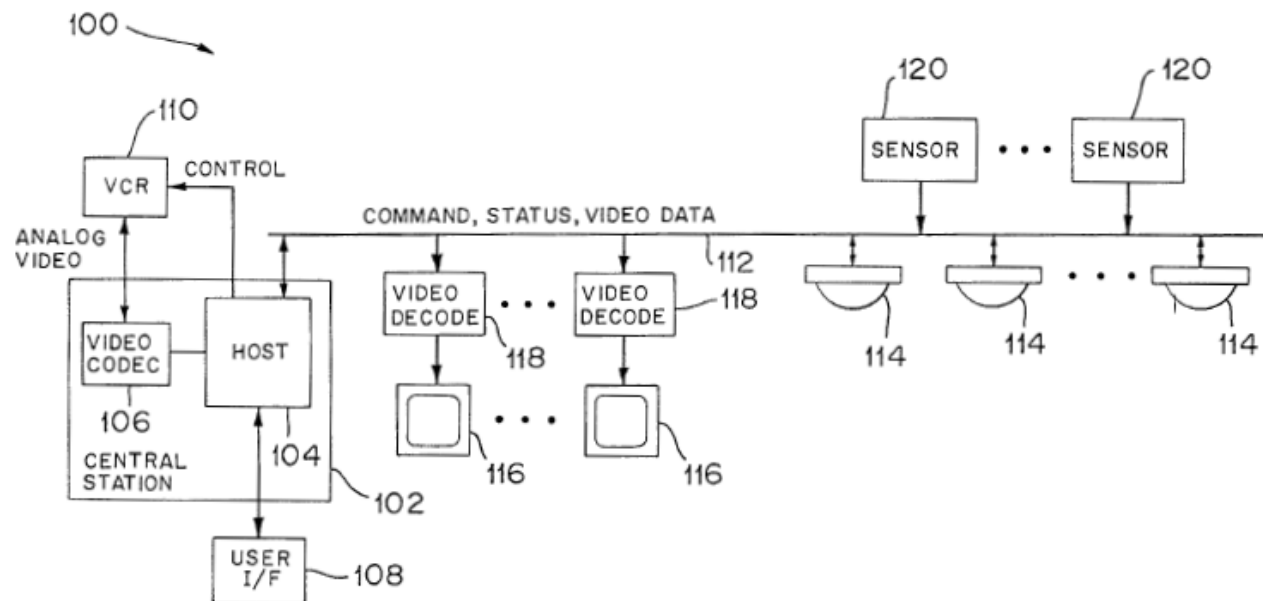


FIG. 2

Id., Fig. 2. Depicted are camera units 114 and sensor devices 120, connected to host computer 104 at central station 102 via a network, which in Figure 3 is a local area network (LAN) 112 (*id.*, 5:46-53):

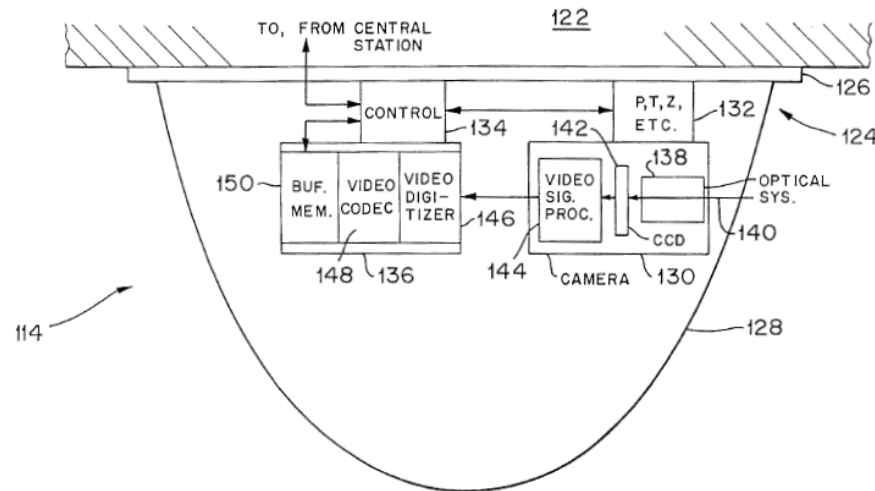


FIG. 3

Id., Fig. 3.

Ely's network enables video data to be transmitted from memory device 150 to a remote memory that uses "conventional analog video tape recording" or "a digital video tape recorder (DVTR)." *Id.*, 9:51-58. Ely's disclosure is described in further detail below and in Dr. Sarhan's declaration. EX1051, ¶¶130-134.

2. Motivation To Combine

A POSITA would have been motivated to combine Ely and Fiedler for several reasons. EX1051, ¶¶325-328.

As one example, because Ely and Fiedler both disclose video recording systems for security, law enforcement, or surveillance operations, that store data in a circular

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

buffer and preserve data associated with an event—both before and after an event trigger. And, Ely and Fiedler specifically disclose recording systems with user controls for operation and playback. A POSITA therefore would have been aware of and motivated to combine the two references. *Id.*, ¶326.

As another example, a POSITA would have been motivated to implement Ely's surveillance system with Fiedler's capture functionality to extend the length of a write-protected segment that occurs prior to an event trigger. *Id.*, ¶327. Ely discloses that the respective lengths of video data protected before and after an alarm command are predetermined. EX1020, 7:45-55, 10:11-23, 10:60-65. Ely also discloses a user interface 108 for providing instructions input by users of the system. *Id.*, 5:60-64, 8:16-27, Fig. 2. A POSITA would have understood that increasing the duration of the protected segment of the buffer prior to the event trigger using Fiedler's capture functionality would have advantageously helped to ensure preservation of important video data. EX1051, ¶327. For example, Fiedler's capture functionality would have helped ensure important video evidence can be preserved in the Ely system (*e.g.*, by capturing important, contextual video data for events occurring before write-protection would otherwise begin). *Id.* And a POSITA would have generally known that the length of recording in a circular buffer could be extended in response to a signal, such that implementation of Fiedler's capture functionality in Ely's system would have been routine and well within a POSITA's skill. *Id.*

3. Claim 1

a) Preamble³

To the extent limiting, Ely discloses the preamble of claim 1. EX1051, ¶328. Ely discloses a “video surveillance system” including a central control station and “video cameras each mounted inside a dome housing unit.” EX1020, Abstract. Ely therefore discloses a “surveillance apparatus.”

b) Element 1

Ely discloses this claim element. EX1051, ¶¶329-330. Ely’s camera unit 114 includes a camera 130 in which 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.” EX1020, 6:21-28, Fig. 3. Camera 130 is coupled to memory board 136 including video digitizer circuit 146. *Id.*, 6:48-61

Camera 130 and digitizer circuit 146 collectively disclose the claimed “camera” because camera 130 includes CCD 142 that captures video images, and the digitizer circuit 146 generates a digital representation of the video image. EX1051, ¶330. A POSITA would have understood the digital output of Ely’s digitizer circuit 146 as

³ For brevity, the language of claims 1-18 (included above in Grounds 1a through 1b) is not reproduced for Grounds 2a through 2c.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

including data streams. *Id.* These data streams include the claimed “first and second data streams,” as explained below for elements 4 and 5 of claim 1.

c) Element 2

Ely discloses this claim element. EX1051, ¶331. Ely’s video surveillance system includes a memory board 136 having a memory device 150 that discloses the claimed “memory.” EX1020, 6:17-21, 6:48-53, 6:61-65, Fig. 3. 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. *Id.*, 6:48-65.

d) Element 3

Patent Owner’s Constructions: Ely discloses a processor (control circuit 134) that “utilizes an area of the memory as a circular buffer,” as required under Patent Owner’s non-MPF position for element 3. EX1056, 024; EX1051, ¶¶332-334. Ely’s camera unit 114 comprises a control circuit 134 “for controlling the storage device to operate as a ring buffer in which digital data representative of a video signal currently formed by the video camera is written over oldest digital data stored in the storage device.” EX1020, 4:1-7.

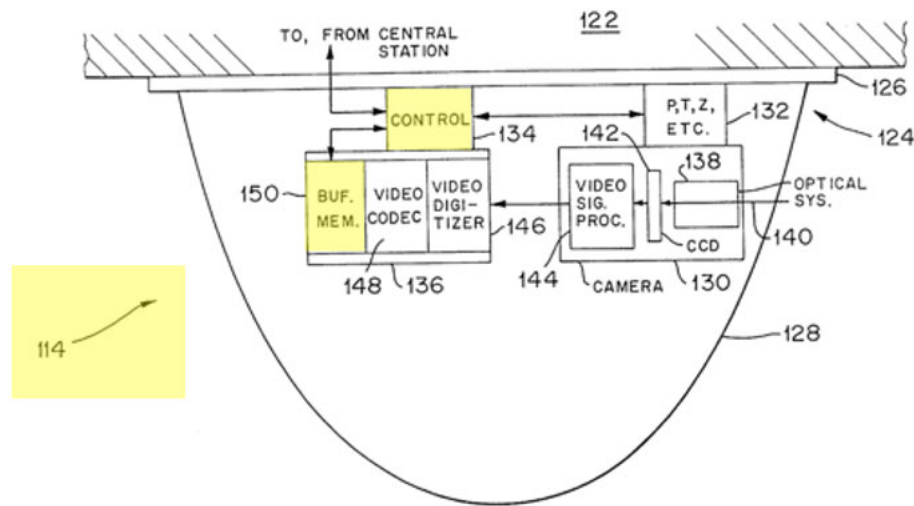


FIG. 3

Id., Fig. 3 (color added).

Memory device 150 “functions as a buffer for the video signal generated by the camera 130, and is controlled by the control circuit 134.” *Id.*, 6:48-65. More particularly, “the 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.” *Id.*, 7:28-34. A POSITA would have understood the “ring buffer” to mean a “circular buffer” of the type disclosed in the ’752 patent. EX1051, ¶333.

Control circuit 134 “may be a conventional microcontroller,” and is “programmed, according to practices of the present invention, to carry out memory control, as well as data storage and retrieval functions” (EX1020, 6:37-47), as Figure 4 illustrates (*id.*, 5:25-26):

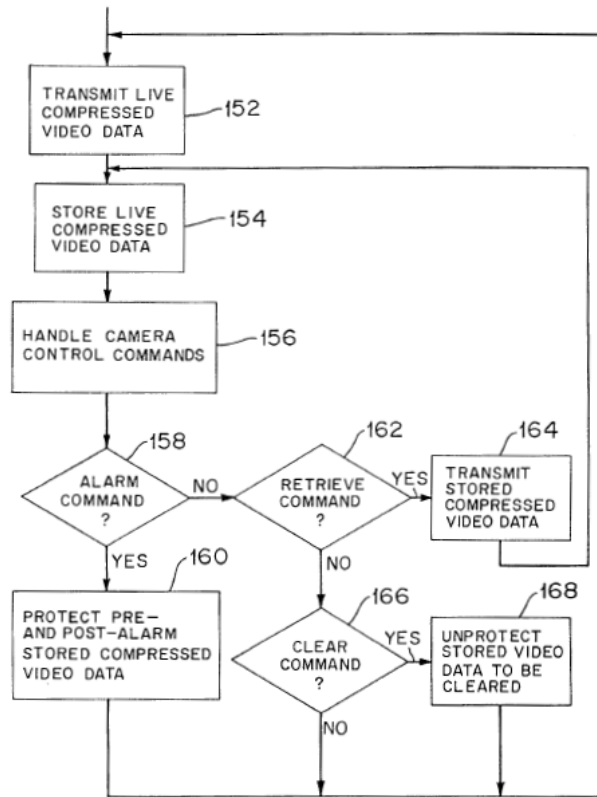


FIG. 4
CAMERA UNIT OPERATION

Id., Fig. 4. Ely thus discloses element 3 under Patent Owner’s non-MPF position.

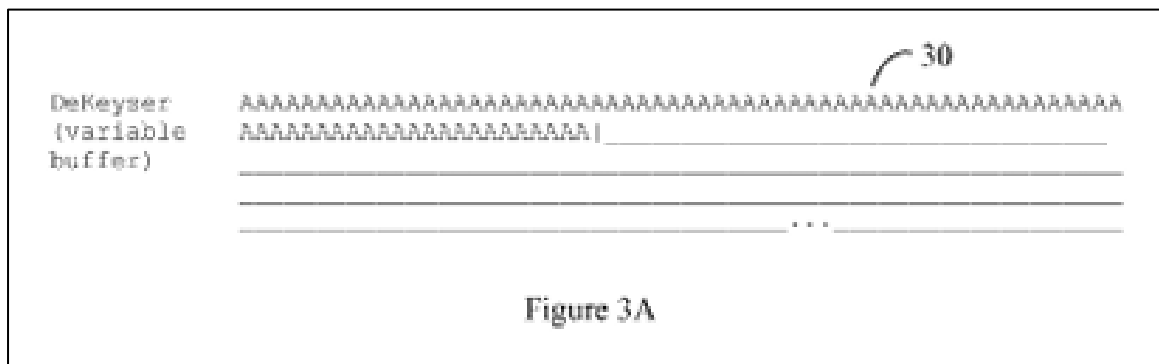
Ely also discloses element 3 under Patent Owner’s MPF position detailed above in Section III.C. As explained for Patent Owner’s non-MPF position, Ely discloses a camera unit 114 including control circuit 134 that runs software to accomplish the function of element 3. EX1051, ¶335.

Petitioner’s Corresponding Structure: The combination of Ely and Fiedler discloses the corresponding structure identified by Petitioner, *i.e.*, “hardware and software programmed to perform the circular buffer algorithm disclosed at 2:36-39, 4:67-5:1, Figs. 3A-3H, 3:13-4:45, Fig. 5 (Step 51), 5:35-40.” EX1051, ¶¶336-349.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

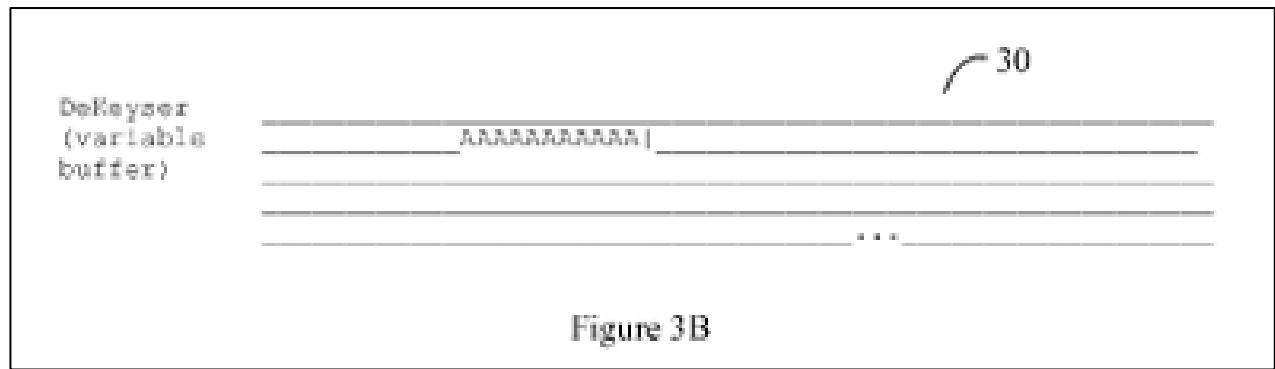
First, Ely discloses a recorder with a memory that runs software to accomplish functions, consistent with the '752 patent's disclosure at 4:67-5:1. Specifically, Ely discloses a camera unit 114 having control circuit 134 that runs software for performing instructions. EX1020, 4:1-8, 6:37-47, 7:12-8:12. The camera unit 114 also includes memory device 150, and the control circuit 134 utilizes an area of the memory device 150 as circular buffer, consistent with the '752 patent's disclosure at Figure 5 (Step 51) and 5:35-40. *Id.*

Second, Ely’s control circuit 134 and software, in view of Fiedler’s teachings, perform the “schematics of memory usage” (EX1004, 3:3-5) described at Figures 3A-3H and 3:13-4:45 of the ’752 patent.⁴



Ely discloses that the control circuit 134 stores a first digital data stream generated by video digitizer 146 in a ring buffer formed in memory device 150. EX1020, 7:17-38. *See also* Section IV.D.3.e below.

⁴ Each of Figures 3A-3H is described in Section IV.A.4 above.

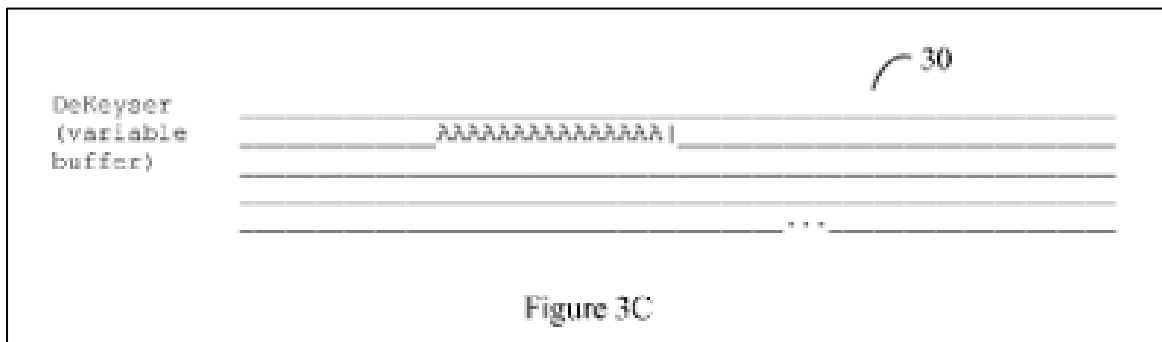


Ely’s control circuit 134 protects a recent period of the first data stream recorded in the ring buffer based on a first alarm command (a start signal) generated by sensor 120. EX1020, 4:7-8, 7:48-55, 10:11-23. *See also* Section IV.D.3.f below.

The protected portion of the first data stream in the ring buffer is associated with a first alarm event (EX1020, 4:7-8, 7:48-55, 10:11-23), and includes a period of the first data stream preceding the first alarm command. *Id.*, 7:48-55, 10:11-23. *See also* Section IV.D.3.f below.

Ely discloses that the respective lengths of video data protected before and after an alarm command are predetermined. EX1020, 7:45-55, 10:11-23, 10:60-65. Ely also discloses a user interface 108 for providing instructions input by users of the system. *Id.*, 5:60-64, 8:16 27, Fig. 2. Ely thus discloses, or at minimum would have rendered obvious, altering the historical time period being protected. EX1051, ¶342. Further, altering the historical time period would have been obvious in further view of Fiedler. Fiedler describes “pressing Capture once may capture the most recent minute, pressing it twice in rapid succession may capture the most recent two minutes, and so on.” EX1037, 9:42-45. A POSITA would have been motivated to apply Fiedler’s

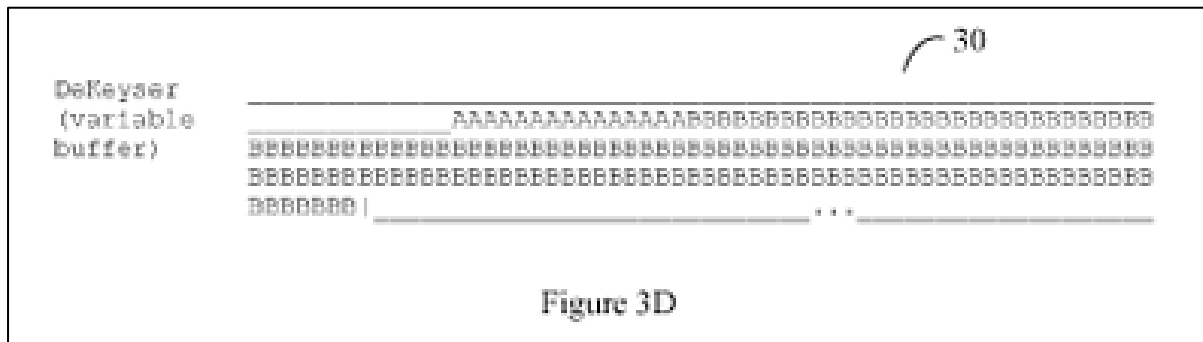
teaching of altering the historical time period to Ely for the reasons in Section IV.D.2 above. EX1051, ¶¶338-342. Further, a POSITA would have generally known that the length of a write-protected segment in a circular buffer could be extended in response to a signal. *Id.*, ¶342.



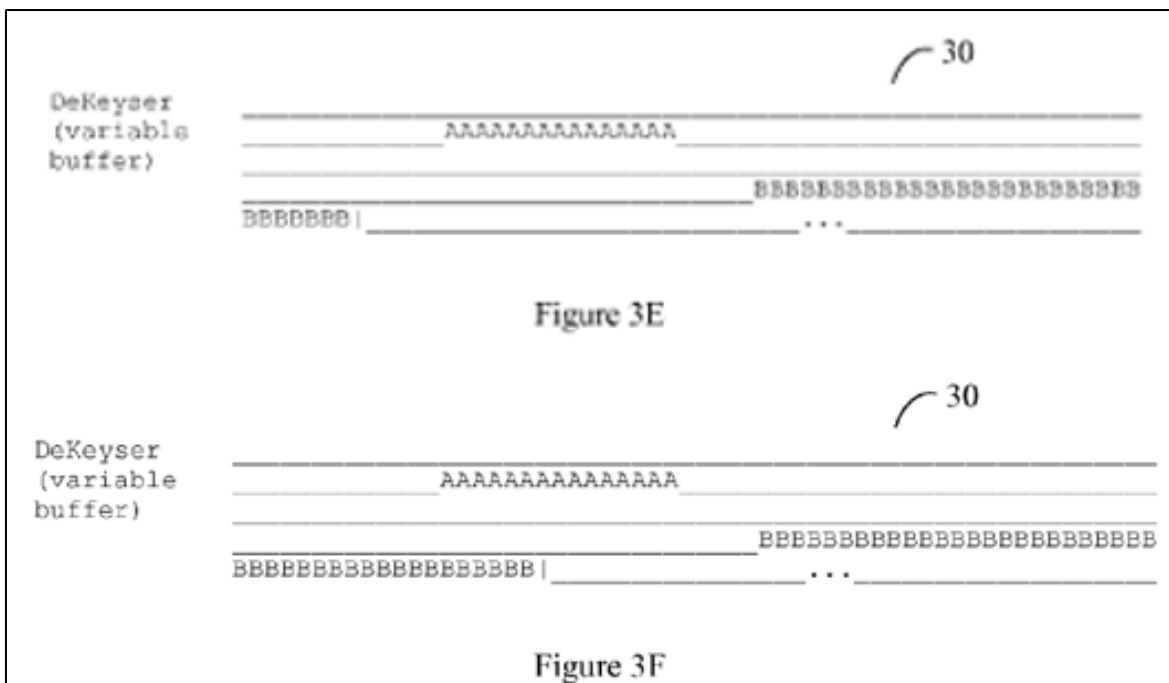
Ely’s control circuit 134 stops protection of the first data stream in the ring buffer based on a stop signal. EX1020, 7:48-55, 10:11-23. Specifically, Ely’s system responds to a signal from a user to save a recording, and this signal includes a “stop signal.” EX1020, 7:48-55, 10:11-15; EX1051, ¶343. Ely’s alarm command tells the video recording device when to (i) start recording, *i.e.*, upon receipt of the alarm command, and when to (ii) stop recording, *i.e.*, when a predetermined amount of time has passed after receipt of the alarm command. EX1020, 7:48-55, 10:11-23.

Further, Fiedler discloses a stop signal received after a start signal. EX1037, Fig. 3, 8:45-9:4, 10:35-54. A POSITA would have been motivated to apply Fiedler’s teaching of receiving the stop signal after the start signal to Ely. A POSITA would have recognized that user control to stop write protection following a start signal

would have been desirable in some scenarios (*e.g.*, to prevent unnecessary preservation of unimportant video data). EX1051, ¶344.



Ely's camera unit 114 under control of control circuit 134 records into the ring buffer on an "ongoing," continuous basis, such that storing of a second data stream in the ring buffer continues immediately after protecting a portion of the first data stream. EX1020, Fig. 4, 7:45-48, 7:56-8:6, 10:11-23. Further, the second data stream is continuous with the write-protected portion of the first data stream, with the second data stream being recorded in a non-protected portion of Ely's ring buffer immediately following the write-protected portion of the first data stream. *Id.* See also Sections IV.D.3.f, IV.D.5 below; EX1051, ¶345.

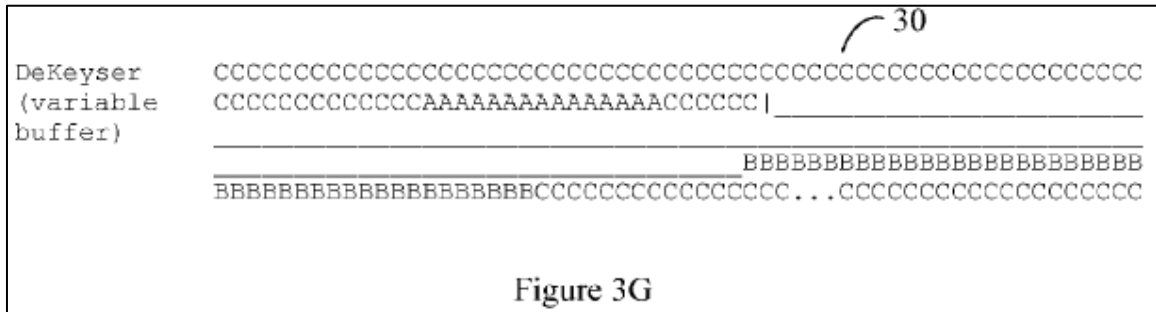


Ely's control circuit 134 is configured to protect a portion of the second data stream in the ring buffer associated with a second alarm event based on a second alarm command (start signal) generated by sensor 120. EX1020, 4:7-8, 7:48-55, 10:11-23, 10:59-11:2; EX1051, ¶¶346-347.

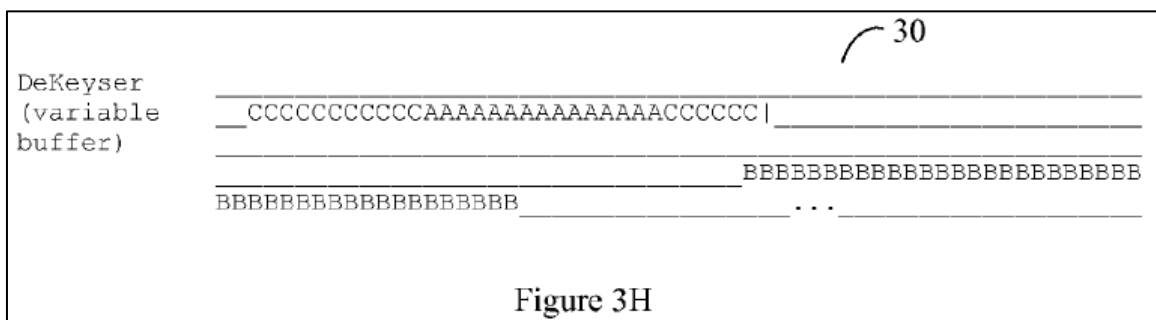
Like the protected portion for the first data stream, the protected portion of the second data stream includes a period of the second data stream preceding the second alarm command. EX1020, 7:48-55, 10:11-23; *see also* Section IV.D.3.f below. As with the first data stream, the control circuit 134 stops protection of the second data stream in the ring buffer based on a stop signal. EX1020, 7:48-55, 10:11-23. Further, Fiedler discloses a stop signal received after a start signal, with the stop signal designating the end of a write-protected portion. EX1037, Fig. 3, 8:45-9:4, 10:35-54. A POSITA would have been motivated to apply Fiedler's teaching of receiving the

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

stop signal after the start signal to Ely for the reasons stated above with respect to the '752 patent's disclosure for Figure 3C. EX1051, ¶347.



Ely discloses that after protecting the portion of the second data stream, the camera unit 114 under control of control circuit 134 continues to record video data to the ring buffer as a third data stream. EX1020, Fig. 4, 7:45-48, 7:56-8:6. Recordation of the third data stream would skip over the protected portion of the first data stream in the ring buffer. *Id.*, 7:34-39, 10:11-23. *See also* Sections IV.D.3.f, IV.D.6 below; EX1051, ¶348.



The control circuit 134 of Ely is configured to protect a portion of the third data stream in the ring buffer associated with a third alarm event based on a third alarm command (start signal) generated by sensor 120. EX1020, Fig. 4, 7:45-48, 7:56-8:6, 10:11-23. The protected portion of the third data stream would straddle the protected

portion of the first data stream in the ring buffer. *Id.*, 7:34-39, 10:11-23. *See also* Sections IV.D.3.f, IV.D.6 below; EX1051, ¶349.

e) **Element 4**

Patent Owner’s Constructions: Ely discloses a processor (control circuit 134) that “records the first data stream in the buffer,” as required under Patent Owner’s non-MPF position for element 4. EX1056, 024; EX1051, ¶350. As Figure 4 illustrates, “the memory addressing and writing of data into the memory is controlled by the control circuit 134 so that the 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, 7:17-38):

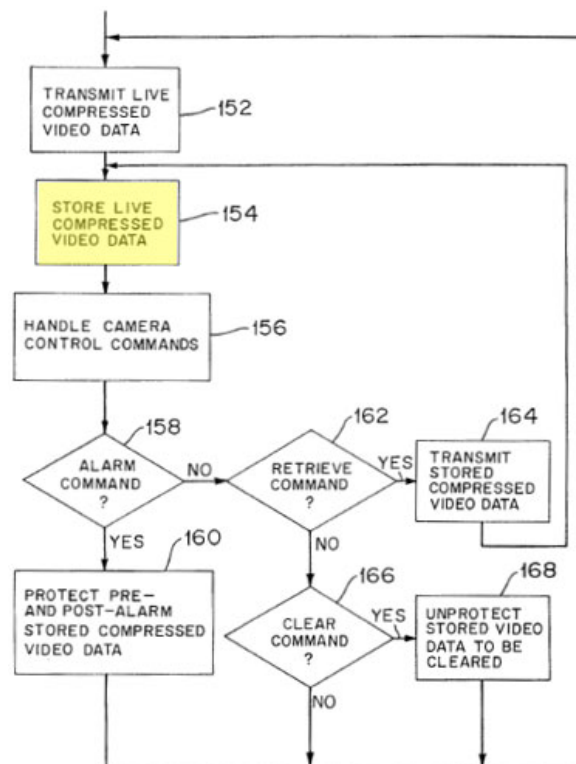


FIG. 4
CAMERA UNIT OPERATION

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Id., Fig. 4 (color added). Ely thus discloses element 4 under Patent Owner’s non-MPF position. *See also* Section IV.D.3.d above.

Ely also discloses element 4 under Patent Owner’s MPF position detailed above in Section III.C. As explained for Patent Owner’s non-MPF position, Ely discloses a camera unit 114 including control circuit 134 that runs software to accomplish the function of element 4. EX1051, ¶351

Petitioner’s Corresponding Structure: The combination of Ely and Fiedler discloses the corresponding structure identified by Petitioner, *i.e.*, “hardware and software programmed to perform the circular buffer algorithm disclosed at 2:36-39, 4:67-5:1, 5:12-14, Fig. 3A, 3:13-16, Fig. 5 (Step 52), 5:48” EX1051, ¶¶352-354.

As explained above for Petitioner’s corresponding structure for element 3 of claim 1, Ely discloses a camera unit 114 with control circuit 134 that runs software to accomplish functions, consistent with the ’752 patent’s disclosure at 4:67-5:1. EX1020, 4:1-8, 6:37-47, 7:12-8:12. The control circuit 134 records a first data stream in the ring buffer formed in the memory device 150, consistent with the ’752 patent’s disclosure at Figure 5 (Step 52), 5:35-40, Fig. 3A, and 3:13-16. This is explained in Section IV.D.3.d above with respect to element 3 of claim 1. EX1051, ¶353.

Additionally, in recording the first data stream to the ring buffer, Ely’s control circuit 134 “utilizes different sections for the buffer at different times, with protected sub-sections being skipped over during storage of subsequent data streams,”

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

consistent with the '752 patent's disclosure at 2:36-39. EX1020, 7:34-38, 10:11-23. *See also* Section IV.D.6 below. Further, Ely's recorder "record[s] images in digital [or analog] format," consistent with the '752 patent's disclosure at 5:12-14. EX1020, 2:55-3:5, 4:1-8, 6:48-7:11.

f) Element 5

Ely discloses a processor (control circuit 134) that "responds to a first signal" in the manner claimed, as required under Patent Owner's non-MPF position for element 5. EX1056, 024; EX1051, ¶¶355-357. Ely discloses that the camera system responds to an "alarm command by protecting buffered video data which corresponds to a predetermined pre- and post-alarm time period," and the "protected data is then available for subsequent retrieval, display, and permanent recording." EX1020, 10:11-17. In Ely, "[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 (block 182)." *Id.*, 10:17-23.

"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." *Id.*, 7:48-55. The alarm data "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.” *Id.* The protection of alarm data occurs while at the same time continuously recording the data stream into an unprotected segment of the ring buffer: As illustrated in Figure 4, protection of alarm data (at block 160) loops back to the beginning of a process including, at block 154, “stor[ing] live compressed video data”:

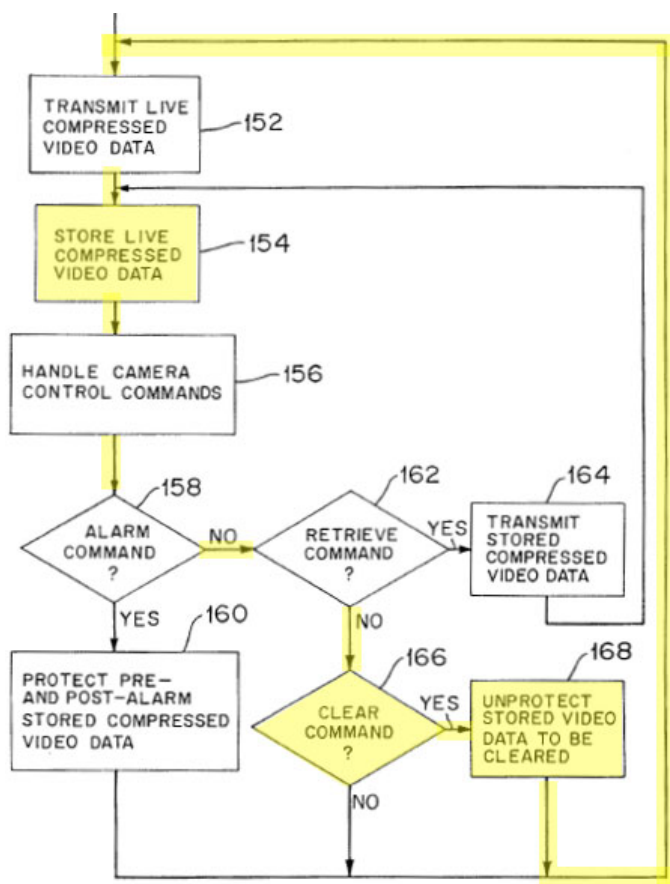


FIG. 4
CAMERA UNIT OPERATION

Id., Fig. 4 (color added); *see also id.*, 7:45-48, 8:3-6.

Further, because the recording of live video data is “ongoing” (*i.e.*, continuous), the protection alarm data necessarily occurs while recording additional segments of image data. *See id.*, Fig. 4, 7:45-48, 7:56-8:6. Ely also discloses write-protecting multiple events (as multiple “blocks”) in the ring buffer. *Id.*, 10:59-11:2. A POSITA

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

would have understood that to preserve video for multiple events in the ring buffer, Ely must “continuously record[] the first data stream as the second data stream in an unprotected segment of the buffer, without overwriting the protected segment,” *e.g.*, the first block of alarm data. EX1051, ¶357. Ely thus discloses element 5 under Patent Owner’s non-MPF position.

Ely also discloses element 5 under Patent Owner’s MPF position detailed above in Section III.C. As explained for Patent Owner’s non-MPF position, Ely discloses a camera unit 114 including control circuit 134 that runs software to accomplish the function of element 5. EX1051, ¶358.

g) Element 6

Ely discloses a processor (control circuit 134) that “responds to a second signal” in the manner claimed, as required under Patent Owner’s non-MPF position for element 6. EX1056, 024. Ely discloses that the respective lengths of video data protected before and after an alarm command are predetermined. EX1020, 7:45-55, 10:11-23, 10:60-65. Ely also discloses a user interface 108 for providing instructions input by users of the system. *Id.*, 5:60-64, 8:16-27, Fig. 2. It would have been obvious to use the control circuit 134 to increase the duration of the protected segment of the buffer prior to the first signal in response to a second signal in view of Ely’s disclosure. EX1051, ¶359.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Moreover, such limitations would have been obvious in further view of Fiedler. Fiedler describes “pressing Capture once may capture the most recent minute, pressing it twice in rapid succession may capture the most recent two minutes, and so on.” EX1037, 9:42-45. A POSITA would have generally known that the length of recording in a circular buffer could be extended in response to a signal. EX1051, ¶360. A POSITA would have understood the benefits of increasing the duration of the protected segment of the buffer prior to the first signal in the Ely system to ensure important video evidence can be preserved (*e.g.*, by capturing contextual video data for events occurring before write-protection would otherwise begin). *Id.* Ely thus discloses element 6 under Patent Owner’s non-MPF position.

Ely also discloses element 6 under Patent Owner’s MPF position detailed above in Section III.C. As explained for Patent Owner’s non-MPF position, Ely discloses a camera unit 114 including control circuit 134 that runs software to accomplish the function of element 6. EX1051, ¶361.

4. Claim 2

Ely discloses the limitations added in dependent claim 2. EX1051, ¶362. In one embodiment, the buffer has a storage capacity of “thirty minutes of video signals,” and “each alarm command initiates protection of buffered video signals corresponding to a ten minute period (say five minutes prior to the alarm and five minutes after).” EX1020, 10:60-65.

5. Claim 3

Ely discloses limitations added in dependent claim 3 for the reasons explained for claim 1, element 5. EX1051, ¶363.

6. Claims 4 and 5

Ely discloses the limitations added in dependent claims 4 and 5. *Id.*, ¶364. In one embodiment, the buffer has a storage capacity of “thirty minutes of video signals,” and “each alarm command initiates protection of buffered video signals corresponding to a ten minute period (say five minutes prior to the alarm and five minutes after),” thus disclosing the limitations added in claim 4. EX1020, 10:60-65. And because alarm data cannot be overwritten, Ely’s video recording device necessarily records to physically discontinuous parts of the circular buffer, as the overwriting process skips alarm data, thus disclosing the limitations added in claim 5. *Id.*, 7:34-39, 10:60-65.

7. Claim 6

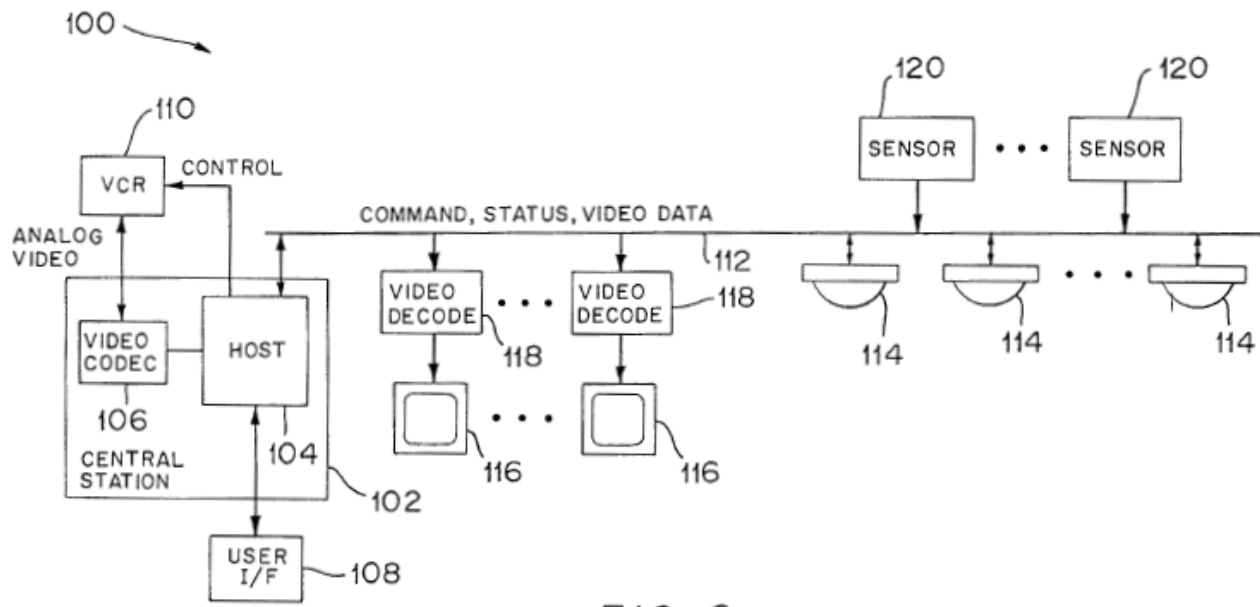
Ely discloses the limitations added in dependent claim 6. EX1051, ¶365. Ely’s “memory device 150 *functions as a buffer* for the video signal generated by the camera 130, and is controlled by the control circuit 134.” EX1020, 6:48-65 (emphasis added). Accordingly, a POSITA would have understood nearly all of the memory device 150 (*i.e.*, more than 20% of it) to be used as the buffer. EX1051, ¶365. Moreover, it would have been an obvious design choice to dedicate at least 20% of Ely’s memory device 150 to the buffer, *e.g.*, to enable sufficient capacity for recording

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

and preserving video data. *Id.* Ely discloses flexibility in configuring its ring buffer (*e.g.*, enabling a “predetermined proportion” of it to be “utilized for protected storage”), and a POSITA would have recognized such flexibility as enabling the selection of an adequate amount of the memory device 150 to be used as the ring buffer. EX1020, 11:2-8; EX1051, ¶365. Additionally, the ’752 patent does not disclose that using at least 20% of the memory as the buffer is critical to the purported invention, nor is there anything inventive or non-obvious about selecting a percentage of the memory to be used as the buffer. EX1051, ¶309.

8. Claims 7 and 8

Ely discloses the limitations added in dependent claims 7 and 8. EX1051, ¶¶366-367. Sensors 120 “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,” and “may also include conventional motion and/or heat sensing devices.” EX1020, 5:50-55.



Further, “an alarm condition can 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.

9. Claim 9

Ely discloses the limitations added in dependent claim 9. EX1051, ¶368. Ely teaches “an alarm condition can be generated by a system operator via the user interface” (EX1020, 11:42-47), and 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).

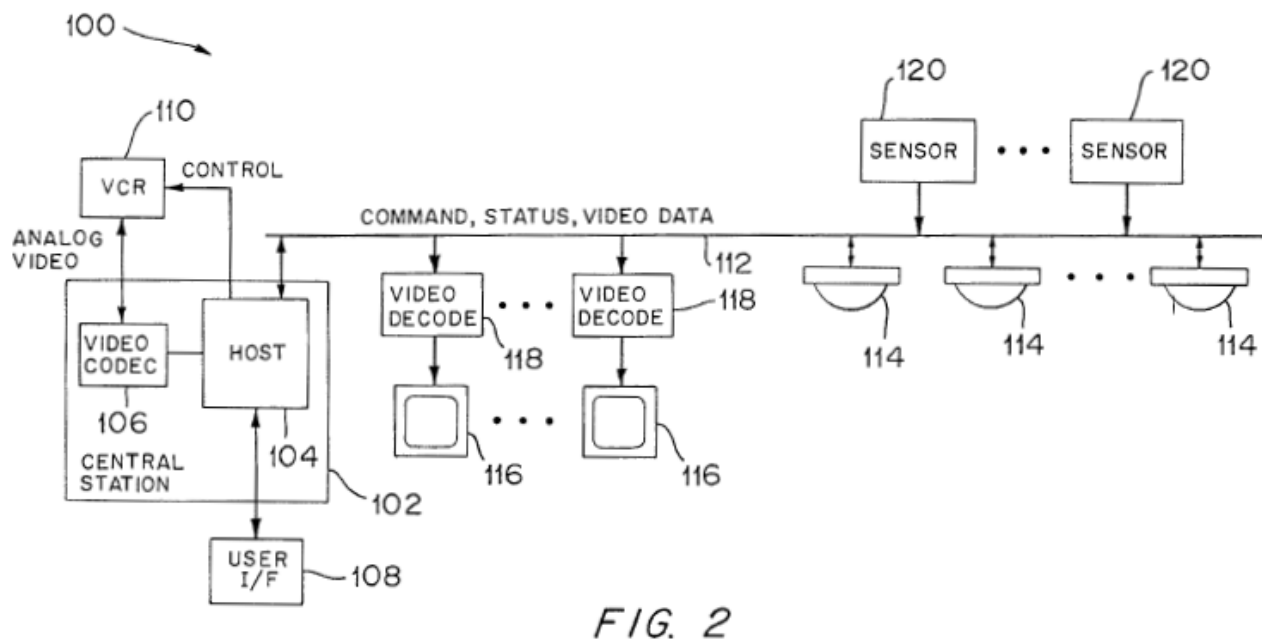
10. Claims 10 and 11

Ely discloses the limitations added in dependent claims 10 and 11. EX1051, ¶¶369-371. As explained above for claim 1, when an alarm command is received, Ely’s surveillance system protects from overwriting video data previously stored in the

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

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 (emphases added); *see also id.*, 10:10-23. Ely thus discloses the pre-alarm and post-alarm intervals are predetermined. *See also id.*, 10:60-65. For a human to “predetermine” amounts of time to be protected before and after the alarm command, Ely necessarily discloses the “interface” of claims 10 and 11.

Ely further discloses a user interface 108 for users to provide instructions, depicted in Figure 2 (EX1020, 5:60-64, 8:16-27):



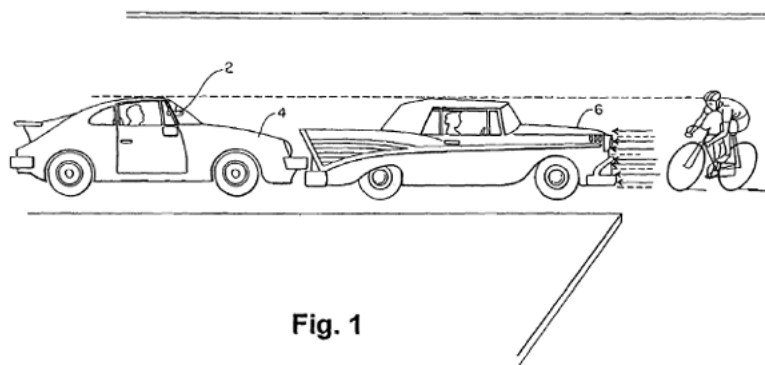
Id., Fig. 2.

The interfaces of claims 10 and 11 also would have been obvious in further view of Fiedler, which discloses a “Capture” button (*i.e.*, an “interface”) that a human

can press to control the amount of video that is captured. EX1037, Abstract, 1:43-54, 2:60-61, 9:5-8, 9:42-45. *See also* Section IV.D.2 above.

D. Ground 2b: Claim 14 Would Have Been Obvious Over Ely Alone Or As Combined With Fiedler, In Further View Of Yerazunis

To the extent Ely and Fiedler do not disclose the limitation added in dependent claim 14, this limitation would have been obvious in view of Yerazunis. EX1051, ¶¶372-373. As explained in Section IV.A.13, Yerazunis discloses embodiments of its video recording device mounted within a vehicle. EX1017, 1:21-26, 4:36-56, Fig. 1. Yerazunis also describes why it is “highly desirable” to mount the recording device in this environment, *e.g.*, “to have an evidentiary record which establishes that the accident was caused by vehicle 6 since it would normally be presumed in such a circumstance that the driver of vehicle 4 was the cause of the accident” (*id.*) in the context of Figure 1:



Id., Fig. 1.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

In addition to Yerazunis, cameras mounted in police vehicles were well-known and widely used in real-world situations before the claimed priority date of the '752 patent. EX1051, ¶¶49-102 (discussing evidence including EX1007, “Special Report – The Patrol Video Project,” an article detailing the ubiquity of in-car recording systems in the law enforcement context).

A POSITA would have been motivated to mount Ely’s camera unit 114 to a vehicle. EX1051, ¶373. While Ely describes the camera unit 114 mounted in a dome 128 (EX1020, Abstract, 6:7-15, Fig. 3), a POSITA would have recognized the camera unit 114 as having advantageous applicability in a vehicle-mounted context, including to enable evidentiary records of vehicle-related incidents, which Yerazunis describes as “highly desirable.” EX1017, 1:21-31, 4:36-61, Fig. 1. A POSITA would have been motivated to mount Ely’s camera unit 114 in a vehicle with appropriate modifications well within a POSITA’s skill (*e.g.*, coupling the camera unit to other components, like the central station, via a wireless connection). EX1051, ¶373.

E. Ground 2c: Claims 12, 13, And 15-18 Would Have Been Obvious Over Ely Alone Or As Combined With Fiedler, In Further View Of Strub

To the extent Ely and Fiedler do not disclose the limitations added in dependent claims 12 and 15-18, these limitations would have been obvious in view of Strub. EX1051, ¶¶374-379.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Claim 13: The combination of the Ely/Fiedler video recording device with Strub discloses “a wearable mount for the camera,” as recited in claim 13 of the ’752 patent. EX1051, ¶375. Strub discloses this limitation (*see* Section IV.B), and a POSITA would have been motivated to apply Strub’s teaching of a wearable mount for the camera to the Ely/Fiedler system. EX1051, ¶375. Because Ely, Fiedler, and Strub all disclose video recording systems, a POSITA would have been aware of and motivated to combine these references. *Id.* While Ely describes the camera unit 114 mounted in a dome 128 (EX1020, Abstract, 6:7-15, Fig. 3), a POSITA would have recognized the camera unit 114 as having applicability to wearable mounts, including “to facilitate freedom of movement” for the user, hands-free, discreet recording, and other advantages described in Strub. EX1046, Abstract, 4:12-39, 66:24-39.

Claims 12 and 15: For claims 12 and 15, Strub discloses using a wearable item with pushbuttons to wirelessly control operation of a physically separate recording unit having a wireless receiver. EX1046, 6:32-35, 11:29-35, 46:58-47:6, 54:20-52, 64:21-26, 64:27-65:14, 69:62-70:3, Fig. 3. A POSITA would have been motivated to implement the Ely/Fiedler video recording device with Strub’s wearable item with user-pressable pushbuttons, and specifically to use Strub’s wearable item to wirelessly send the “first signal” to a wireless receiver of the separate recording unit to initiate preservation of video data. EX1051, ¶¶376-377.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

As a POSITA would have recognized, this implementation would have advantageously facilitated wireless operation of the Ely/Fiedler system by a user. *Id.*, ¶377. For example, a security guard patrolling the floor of a casino or warehouse could advantageously use Strub’s wearable item to take video or photographs by communicating wirelessly with Ely’s control circuit 134 to control the camera 130. *Id.* And a POSITA would have understood such implementations as utilizing “a wireless receiver upstream of the buffer with respect to the first data stream” as described in Strub (EX1046, 6:32-35, 11:29-35, 46:58-47:6, 52:20-52, 69:62-70:3, Fig. 3), and consistent with the ’752 patent’s minimal support for this limitation added during prosecution. *See* Section IV.B above.

Claims 16 and 17: The combination of the Ely/Fiedler system with Strub further discloses the limitations added in claims 16 and 17. EX1051, ¶378. Strub’s wearable marking token may be “a ring” or “similar wearable item,” thus disclosing claim 16’s “human wearable ring” and at minimum rendering obvious claim 17’s “key fob.” EX1046, 54:20-52. *See* Section IV.C above.

Claim 18: The combination of the Ely/Fiedler system with Strub also discloses the limitations added in claim 18. EX1051, ¶379. As a wearable item, Strub’s wearable token would be “local about a user,” and would additionally be “local to the camera and the hardware” because the wearable token would be near enough to engage in wireless communication with the Ely/Fiedler system and, in the case of,

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

e.g., security personnel monitoring an office or casino floor, would be worn in the vicinity of the Ely/Fiedler system to send a “first signal” to record events that can be recorded and captured by the Ely/Fiedler system. *Id.* A POSITA would have been motivated to implement Strub’s marking token with the Ely/Fiedler system for the reasons explained above.

V. CONCLUSION

Petitioner respectfully requests IPR of claims 1-18 of the ’752 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 ’752 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:

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Lead Counsel	Back-up 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.

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,928,752

Dated: August 9, 2024

Respectfully submitted,

/ Joshua R. Nightingale /

Joshua R. Nightingale

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing petition for *Inter Partes* Review of U.S. Patent No. 8,928,752, including all Exhibits, was served on August 9, 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. 8,928,752, including all Exhibits, was served on litigation counsel for patent owner Stellar LLC at the following address:

Devlin Law Firm
Attn: Jim Lennon
1526 Gilpin Ave.
Wilmington, DE 1980
United States

Date: August 9, 2024

/ Joshua R. Nightingale /

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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 13,849 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: August 9, 2024

By: / Joshua R. Nightingale /

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LIST OF PETITIONER EXHIBITS

EXHIBIT NO.	TITLE
1001	RESERVED
1002	RESERVED
1003	Declaration of Nabil J. Sarhan Regarding the '034, '882, '471, and '914 Patents
1004	U.S. 8,928,752 ('752 patent)
1005	U.S. 5,996,023 (Winter)
1006	Stellar's First Amended Infringement Contentions
1007	Special Report – The Patrol Video Project
1008	U.S. 6,167,186 (Kawasaki)
1009	US 2002/191952 (Fiore)
1010	U.S. 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	U.S. 5,523,799 (Hattori)
1017	U.S. 7,158,167 (Yerazunis)
1018	U.S. 8,310,540 ('540 patent)
1019	US 2004/008255 (Lewellen)
1020	U.S. 5,982,418 (Ely)
1021	RESERVED
1022	RESERVED
1023	U.S. 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	RESERVED
1032	RESERVED
1033	RESERVED
1034	U.S. 6,831,556 (Boykin)
1035	U.S. 7,348,895 (Lagassey patent)
1036	US 2006/092043 (Lagassey publication)
1037	US 6,804,638 (Fiedler)
1038	RESERVED
1039	RESERVED
1040	RESERVED

1041	Appendix to Declaration of Nabil J. Sarhan Regarding the '034, '882, '471, and '914 Patents
1042	Declaration of Joshua R. Nightingale
1043	U.S. Patent No. 6,370,198 (Washino)
1044	U.S. Patent No. 5,204,909 (Cowan)
1045	WO 1992/022983 (Browne)
1046	U.S. Patent No. 6,563,532 (Strub)
1047	Plaintiff Stellar, LLC's Reply Claim Construction Brief
1048	U.S. Patent No. 10,523,901 ('901 Patent)
1049	U.S. Patent No. 9,124,796 (Blum)
1050	U.S. App. No. 60/669,043 (Blum provisional)
1051	Declaration of Nabil J. Sarhan Regarding the '540 and '752 Patents
1052	Appendix to Declaration of Nabil J. Sarhan Regarding the '540 and '752 Patents
1053	U.S. Patent Pub. 2007/132,773 (Plante)

1054	U.S. Patent No. 7,263,073 (Petite)
1055	U.S. Patent No. 7,956,735 (Jackson)
1056	<i>Stellar, LLC v. Motorola Solutions, Inc. et al.</i> , Case No. 4:23-cv-750 (E.D. Tex.), Dkt. 36
1057	<i>Stellar, LLC v. Motorola Solutions, Inc. et al.</i> , Case No. 4:23-cv-750 (E.D. Tex.), Dkt. 39