UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TERREMARK NORTH AMERICA LLC, VERIZON BUSINESS NETWORK SERVICES INC., VERIZON SERVICES CORP., TIME WARNER CABLE INC., ICONTROL NETWORKS, INC. AND COXCOM, LLC,
Petitioners

v.

JOAO CONTROL & MONITORING SYSTEMS, LLC,
Patent Owner

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 6,587,046 UNDER 35 U.S.C. §§311-319 AND 37 C.F.R. §§ 42.1-.80 & 42.100-.123

Mail Stop **Patent Board**
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

TABLE OF CONTENTS

LIST OF EXHIBITS

The following is a list of exhibits in support of this petition:

EX-1001	U.S. Patent No. 6,587,046 ("the '046 Patent")
EX-1002	Declaration of Richard Bennett
EX-1003	*Curriculum Vitae* of Richard Bennett
EX-1004	Prosecution History of the '046 Patent
EX-1005	Fuhr, P., et al., "Remote Monitoring of Instrumented Structures Using the INTERNET Information Superhighway," published in Second European Conference on Smart Structures and Materials, Glasgow 1994, 3 (1994) at 148-151 ("Fuhr")
EX-1006	Goldberg, K., et al., "Beyond the Web: manipulating the real world," published by NH Elsevier in *Computer Networks and ISDN Systems,* 28 (1995) at 209-219 ("Goldberg")
EX-1007	International Patent Application Publication No. WO 88/04082 to Aknar ("Aknar") entitled "Digital Image Acquisition System" published on June 2, 1988

EX-1008	Sheng, S., et al., "A Portable Multimedia Terminal," published by IEEE in *IEEE Communications Magazine* (December 1992) at 64-75 ("Sheng")
EX-1009	U.S. Patent No. 4,857,912 to Everett, Jr. et al. ("Everett") entitled "Intelligent Security Assessment System" filed on August 15, 1989
EX-1010	Zuech, N., "The EDC-1000 Electronic Imaging System," published by NASA Astrophysics Data System in *I.A.P.P.P. Communications*, 39 (March 1990) at 1-2 ("Zuech")
EX -1011	U.S. Patent Application No. 08/622,749 filed on March 27, 1996 ("Mar 1996 application")

I. INTRODUCTION

Petitioners identified below, respectfully request *inter partes* review under 35 U.S.C. § 311 and 37 C.F.R. § 42.100 of claims 30, 33, 53, 85-88, and 90 ("the Challenged Claims") of U.S. Patent No. 6,587,046 ("the '046 Patent"), titled "Monitoring Apparatus and Method." Ex. 1001. The '046 Patent is believed to be owned by Joao Control & Monitoring Systems, LLC ("Joao" or "Patent Owner").

According to the '046 Patent, the inventor sought to meet a need for an improved premises security system that offers the "ability to conveniently and effectively enable . . . owners, occupants and/or other authorized individuals to exercise and/or to provide control, monitoring and/or security functions over these premises, from a remote location and at any time." Ex. 1001 at 3:4-11. More specifically, the '046 Patent and the Challenged Claims relate to a monitoring apparatus that includes "a processing device for receiving video information recorded by a video recording device or a camera… located at a vehicle or a premises" that transmits the video information to "a communication device located at a location remote from the processing device" in response to a signal from the communication device. *Id.* at Abstract.

Contrary to the '046 Patent's representations, remotely controlled and monitored premises systems, having a processing device that receives a request for

video information from a communication device, were previously disclosed in numerous prior art references.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(A)(1)

A. Real party-in-interest under 37 C.F.R. § 42.8(b)(1)

The Petitioners are: Terremark North America LLC, Verizon Business Network Services Inc., Verizon Services Corp, Time Warner Cable Inc., iControl Networks, Inc., and CoxCom, LLC. Additionally, Petitioners, out of an abundance of caution in light of prior challenges to the named real parties-in-interest in separate and unrelated IPR petitions, identify each of Verizon Communications Inc., Verizon Corporate Resources Group LLC and Verizon Data Services LLC as a real party-in-interest for the IPR requested by this Petition solely to the extent that Patent Owner contends that these separate legal entities should be named a real party-in-interest in the requested IPR, and Petitioners do so to avoid the potential expenditure of resources to resolve such a challenge. No unnamed entity is funding, controlling, or otherwise has an opportunity to control or direct this Petition or any of the Petitioners' participation in any resulting IPR. Also, Petitioners note that Verizon Communications Inc. has over 500 affiliated entities and each of these entities agrees to be estopped under the provisions of 35 U.S.C. §§ 315 and/or 325 as a result of any final written decision in the requested IPR to the same extent that the Petitioners are estopped.

B. Related matters under 37 C.F.R. § 42.8(b)(2)

Below is a chart listing the 27 proceedings brought by Joao that may affect, or be affected, by a decision in the proceeding. Joao filed Complaints against some of the Petitioners in the United States District Court for the District of Delaware alleging infringement of the '046 Patent and other related patents. Those actions remain pending.

CASES	NUMBER	DISTRICT
Joao v. LifeShield, Inc.	2-15-cv-02772	PAED
Joao v. Telular Corporation	1-14-cv-09852	ILND
Joao v. Slomin's, Inc.	2-14-cv-02598	NYED
Joao v. CPI Security Systems, Inc.	3-14-cv-00202	NCWD
Joao v. Cox Communications, Inc.	1-14-cv-00520	DED
Joao v. Verizon Communications, Inc.	1-14-cv-00525	DED
Joao v. Time Warner Cable, Inc.	1-14-cv-00524	DED
Alarm.com Incorporated v. Joao	1-14-cv-00284	DED
Joao v. Protect America, Inc.	1-14-cv-00134	TXWD
Joao v. FrontPoint Security Solutions LLC	1-13-cv-01760	DED
Joao v. Lowe's Companies, Inc.	5-13-cv-00056	NCWD
Joao v. Vivint Inc.	1-13-cv-00508	DED

Joao v. American Traffic Solutions, Inc.	1-13-cv-00243	MIED
Joao v. City of Yonkers	1-12-cv-07734	NYSD
Joao v. Digital Playground, Inc. et al.	1-12-cv-06781	NYSD
Joao v. Liquid Cash, LLC	1-12-cv-06315	NYSD
Joao v. Digital Playground Inc.	2-12-cv-00417	CACD
Joao of California, LLC v. Sling Media, Inc., et al.	3-11-cv-06277	CACD
Joao v. Game Link LLC	2-11-cv-09633	CACD
Joao v. GSMC Inc.	2-11-cv-09636	CACD
Joao v. Ahava Incorporated	2-11-cv-09638	CACD
Joao v. GSMC Inc.	2-11-cv-08697	CACD
Joao v. Game Link LLC	2-11-cv-08695	CACD
Joao v. Webcamnow.com Inc.	2-11-cv-08257	CACD
Xanboo Inc. v. Joao of California	8-11-cv-00604	CACD
Joao of California, LLC v. ACTI Corporation Inc., et al.	8-10-cv-01909	CACD
Joao v. Cenuco, Inc.	7-05-cv-01037	NYSD

C. Lead and back-up counsel under 37 C.F.R. § 42.8(b)(3)&(4)

Petitioners designate the following counsel and provide service information in accordance with 37 C.F.R. § 42.8(b)(3)&(4). Pursuant to 37 C.F.R. § 42.10(b), Powers of Attorney accompany this Petition.

For Terremark North America LLC, Verizon Business Network Services Inc., and Verizon Communications, Inc.	
Lead Counsel	**Back-Up Counsel**
Frank C. Cimino, Jr. **(**Reg.No. 39,945) FCCimino@Venable.com	Megan S. Woodworth (Reg. No. 53,655) MSWoodworth@Venable.com
Venable LLP 575 7th Street, N.W. Washington, DC 20004 Phone: (202)-344-4000 Fax: (202)-344-8300	
For CoxCom, LLC	
Back-Up Counsel	**Back-Up Counsel**
Vaibhav P. Kadaba (Reg. No. 45,865) Wkadaba@kilpatricktownsend.com	D. Clay Holloway (Reg. No. 58,011) Cholloway@kilpatricktownsend.com
Kilpatrick Townsend & Stockton LLP 1100 Peachtree Street NE, Suite 2800 Atlanta, GA 30309-4528 Phone: (404) 532-6959 Fax: (404) 541-3258	
For Time Warner Cable, Inc. and iControl Networks, Inc.	
Back-Up Counsel	**Back-Up Counsel**
Jackson Ho (Reg. No. 72,360) jackson.ho@klgates.com	David A. Simons (Reg. No. 45,888) david.simons@klgates.com

K&L Gates LLP 630 Hansen Way Palo Alto, CA 94304 Phone: (650) 798-6719 Fax: (650) 798-6701	K&L Gates LLP State Street Financial Center, One Lincoln Street Boston, MA 02111-2950 Tel: 617.261.3258 Fax: 617.261.3175

III. PAYMENT OF FEES

Petitioners authorize the Director to charge the required $23,000 fee for this Petition, as well as any additional fees to Deposit Acct. No. 22-0261.

IV. REQUIREMENTS FOR *INTER PARTES* REVIEW

A. Grounds for standing under 37 C.F.R. § 42.104(a)

Petitioners certify that (1) the '046 Patent is available for *inter partes* review and (2) Petitioners are not barred or estopped from requesting *inter partes* review of the claims of the '046 Patent on the grounds identified in this Petition.

B. Identification of challenge and relief requested - 37 C.F.R. § 42.104(b)

Petitioners request cancellation of claims 30, 33, 53, 85, 86, 87, 88, and 90 of the '046 Patent in view of the following grounds:

Ground	Claims	Basis for Rejection
1	30, 85-87	Anticipated under 35 U.S.C. §102(b) by Fuhr
2	33, 90	Obvious under 35 U.S.C. §103(a) over Fuhr
3	53	Obvious under 35 U.S.C. §103(a) over Fuhr and Sheng

4	88	Obvious under 35 U.S.C. § 103(a) over Fuhr and Aknar.
5	30, 33, 85, 86, 90	Anticipated under 35 U.S.C. §102(a) by Goldberg
6	53	Obvious under 35 U.S.C. §103(a) over Goldberg and Sheng
7	87	Obvious under 35 U.S.C. §103(a) over Goldberg and Everett
8	88	Obvious under 35 U.S.C. §103(a) over Goldberg and Aknar

V. BACKGROUND OF THE TECHNOLOGY AND PURPORTED INVENTION OF THE '046 PATENT

A. The '046 Patent

The '046 Patent acknowledges that security systems were well known, explaining that "[a]nti-theft devices for vehicles and premises are known in the prior art for preventing and/or thwarting the theft of a vehicles and/or of a premises." Ex. 1001, 1:34-36. According to the '046 Patent, the problem with these known systems, however, is that they do not allow the "owner or occupants and/or other authorized individuals to exercise and/or to provide control, monitoring and/or security functions… from a remote location and at any time." *Id.* at 3:1-6.

The claims of the '046 Patent were allowed without receiving a rejection. In the Statement of Reasons for Allowance, the Examiner restated the words of the

entire claim. For example, with reference to claim 28 (which issued as claim 30), the Examiner stated:

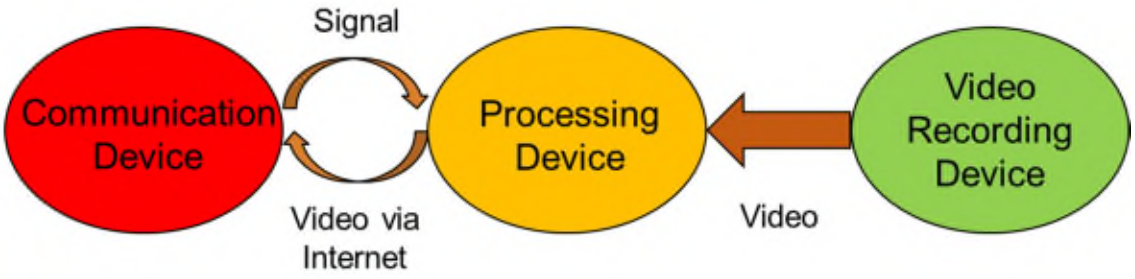
> Regarding Claim 28, the prior art does not teach or suggest, alone or in combination, a monitoring apparatus, comprising: a processing device, wherein the processing device receives video information recorded by at least one of a video recording device and a camera, wherein the at least one of a video recording device and a camera is located at a premises, and wherein the processing device is located at a location remote from the premises, wherein the processing device receives a signal transmitted from a communication device, wherein the communication device is located at a location remote from the processing device and remote from the premises, wherein the video information is transmitted from the processing device to the communication device in response to the signal, and further wherein the video information is transmitted to the communication device on or over at least one of the Internet and the World Wide Web.

Ex. 1004 at 136-37 (Notice of Allowance mailed May 3, 2003, at 2-3). The Examiner, however, was unaware of the prior art cited herein that discloses such systems.

B. Summary of the Challenged Claims

The Challenged Claims contain several common elements. The claims are directed to a monitoring apparatus that comprises a series of well-known devices, as shown below:

- The ***communication device*** transmits a signal to a processing device, receives video information from the processing device over the Internet, and is located remote from a premises and from the processing device;
- The ***processing device*** receives a signal from the communication device, receives video information from the video recording device, and is located remote from the premises;
- The ***video recording device*** is located at the premises.



As demonstrated below, however, prior art not considered by the U.S. Patent and Trademark Office disclosed each of these common elements of the Challenged Claims (as well as all of the additional dependent limitations).

C. Summary of the Prior Art Not Previously Considered

1. Fuhr Article (Ex. 1005)

As suggested by its title, Fuhr relates to a system for "remote monitoring of instrumented structures using the Internet." Ex. 1005 at Title. The disclosed

system includes an "automated data acquisition system which archives the acquired information in an electronic location remotely accessible through the Internet." *Id.* at 148. As one example, Fuhr discloses placing cameras in the "powerhouse" of a hydroelectric dam to monitor the operator's control console associated with a turbogenerator. *Id.* at 150; Fig. 2b. The video information from those cameras in the powerhouse are sent to a Mosaic web server at the University of Vermont whereupon users have worldwide access to the video information. *Id.* Therefore, Fuhr discloses a method of remote video monitoring of a premises using a web server and the Internet.

2. Goldberg Article (Ex. 1006)

Goldberg discloses a remotely operated robot system for work in various environments, such as an excavation site. The goal of the Goldberg system is to provide "teleoperation to the masses" by allowing remote users the ability to control a robot "by positioning the arm, delivering a burst of air, and viewing the image of the newly cleared region," from their own computer. Ex. 1006 at § 1.

This system utilizes a video recording device located at an excavation site, which sends video information to a remote processing device. The remote processing device then sends the video information to a remote communication device, based on a signal sent from the communication device. Specifically, Goldberg discloses that "WWW clients from around the world" (communication

devices) are able so send a signal to an intermediate UNIX Server A (processing device) for ultimately controlling a robot and camera at a premises (video recording device). Ex. 1006 at § 5. Server A decodes and reformats the control signal, which it then sends to Robot Server C. Server C, in turn, sends a command signal via a serial connection to activate movement of a robotic arm and camera at an excavation area, for example. *Id.* at § 6.5. After initial input, no human interaction is needed to make the robot arm and camera active at the premises.

VI. CLAIM CONSTRUCTION

In deciding whether to institute *inter partes* review, "[a] claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears." 37 C.F.R. § 42.100(b). To the extent there is any ambiguity regarding the "broadest reasonable construction" of a term, the ambiguity should be resolved in favor of the broader construction absent amendment by the patent owner. Final Rules, 77 Fed. Reg. at 48699. However, under any reasonable interpretation of the claims, including the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1327 (Fed. Cir. 2005) (holding that words of a claim "are generally given their ordinary and customary meaning" as understood by a person of ordinary skill in the art in question at the time of the invention), all of the limitations are met in the prior art as discussed below.

The terms of the Challenged Claims have a well-understood meaning. Therefore, Petitioner submits that the plain and ordinary meaning of the terms of the challenged claims applies.[1]

VII. PERSON HAVING ORDINARY SKILL IN THE ART (PHOSITA)

For purposes of this proceeding, Petitioners assert that a person of ordinary skill in the art of remote-controlled premise systems at the time of the alleged invention would have had a bachelor's degree in engineering or equivalent coursework and at least two years of experience in networked systems.

VIII. THE CHALLENGED CLAIMS ARE NOT ENTITLED TO A PRIORITY DATE BEFORE JULY 18, 1996.

A patent's date of invention is presumed to be its filing date. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 796 F.2d 443, 449 (Fed. Cir. 1986). A patentee may enjoy the benefit of a priority date only by "demonstrat[ing] that the claims meet the requirements of 35 U.S.C. § 120." *In re NTP, Inc.*, 654 F.3d 1268, 1276 (Fed. Cir. 2011).

[1] Petitioners do not raise any written description or indefiniteness issues with the Challenged Claims, because IPR petitioners are not authorized to challenge claims under 35 U.S.C. § 112. However, Petitioners explicitly reserve the right to raise Section 112 issues in this or any other proceeding.

> Under § 120, a patent is entitled to the priority date of an earlier filed application if (1) the written description of the earlier filed application discloses the invention claimed in the later filed application sufficient to satisfy the requirements of § 112…. In addition, if the later filed application claims priority through the heredity of a chain of applications, each application in the chain must satisfy § 112.

Id. at 1277; *see also* 35 U.S.C. § 120.

For the Challenged Claims to be entitled to an earlier date of priority "[t]he test is whether the [earlier] disclosure conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Streck, Inc. v. Research & Diagnostic Sys., Inc.*, 665 F.3d 1269, 1285 (Fed. Cir. 2012) (internal citations omitted). This test requires an "objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art." *Id.*

In a Certificate of Correction, the '046 Patent claims priority as a continuation of U.S. Patent Application No. 10/263,554, filed on October 3, 2002, which is a continuation-in-part of U.S. Patent Application No. 10/244,334, filed on September 16, 2002; and as a continuation-in-part of U.S. Patent Application No. 09/551,365, filed on April 17, 2000, which is a continuation-in-part of U.S. Application No. 09/277,935, filed on March 29, 1999, which is a continuation of U.S. Application No. 08/683,828, filed on July 18, 1996 ("the July 1996

application"). The July 1996 application claims priority as a continuation-in-part to U.S. Patent Application No. 08/622,749, filed on March 27, 1996 ("March 1996 application").[2]

The July 1996 Application included material that is not present in the earlier applications, including Figures 15 and 16 and related text. The July 1996 Application is the earliest application that may support the Challenged Claims, and therefore, July 1996 is the earliest priority date.

Each of the Challenged Claims require a monitoring apparatus including a video recording device (or a camera) located at a premises for transmitting video information to a remote processing device. *See, e.g.*, Ex. 1001 at 111:14-31; 111:38-40; 113:19-20; 115:33-61; 115:65-67. In contrast, the March 1996 application discloses a vehicle theft deterrent system, not a premises system. The March 1996 application does not contain Figures 15 and 16 of the '130 Patent

[2] Although not listed in the chain for the '046 Patent, the March 1996 application also claims priority to a chain of earlier applications: U.S. Patent Application No. 08/587,628, filed on January 17, 1996; U.S. Patent Application No. 08/489,238, filed on June 12, 1995; and U.S. Patent Application No. 08/073,755, filed on June 8, 1993.

which discloses a premises control device and premise equipment. Indeed, the March 1996 application is solely focused on vehicles. Ex. 1011.

Because the March 1996 application does not disclose a video recording device or camera at a premises for transmitting data to a processing system, it fails to satisfy Section 112 with respect to the Challenged Claims. Additional limitations in dependent claims 33, 86- 88, and 90 that are not present in the March 1996 Application are summarized in the table below. The March 1996 application (as well as all other earlier applications) fails to provide § 112 support for claims 33, 86-88, and 90 of the '046 Patent for these additional limitations.

No.	Claim requirement
33 90	Video information is real-time video information or live video information
86	Video recording device/camera is located at an interior of the premises[3]
87	Video recording device/camera is located at an exterior of the premises

[3] The only mention of video in the March 1996 application is that a user interface device 2A on the remote transmitter system 2, may provide a "video indication of system operation and/or status as well as providing information indicative of data received by the receiver 2C." Ex. 1011 at 31.

88	Video recording device/camera includes a storage medium

IX. HOW THE CHALLENGED CLAIMS ARE UNPATENTABLE UNDER 37 C.F.R. § 42.104(B)[4]

A. GROUND 1 – Claims 30, and 85-87 are Anticipated by Fuhr

For at least the reasons discussed below, claims 30, 33, 85-87, and 90 of the '046 Patent are unpatentable as anticipated by Fuhr, Ex. 1005, under 35 U.S.C. § 102(b). Fuhr was published in 1994, and thus qualified as prior art under 35 U.S.C. § 102(b). The following section provides relevant disclosure from Fuhr, and an explanation of how the reference applies to each limitation of the claim.

Claim 30 - Fuhr discloses the elements of claim 30:

Claim Language	Fuhr
[30.0]: "A monitoring apparatus, comprising:"	*See, e.g.*, Ex. 1005 at Abstract; §§ 1-3 ("sensor monitoring associated with instrumented civil structures").
[30.1]: "a processing device, wherein the processing device receives video information	*See, e.g.*, Ex. 1005 at Abstract; §§ 1-3 ("Internet-host" "video images

[4] Petitioners have enumerated each element of the Challenged Claims, providing them with a unique identifier set forth before the element in brackets. Thus, for claim "X" the first element would be listed as [X.0], the next as [X.1], etc. These elements are cross-referenced throughout this Petition.

recorded by at least one of a video recording device and a camera,"	obtained from the cameras").
[30.2]: "wherein the at least one of a video recording device and a camera is located at a premises, and"	*See, e.g.*, Ex. 1005 at §§ 1, 2 ("sensors that are often spatially distributed across the span of a large structure").
[30.3]: "wherein the processing device is located at a location remote from the premises,"	*See, e.g.*, Ex. 1005 at Abstract; § 2 ("Internet-host").
[30.4]: "wherein the processing device receives a signal transmitted from a communication device,"	*See, e.g.*, Ex. 1005 at Abstract; §§ 2, 3 ("accessible through the Internet").
[30.5]: "wherein the communication device is located at a location remote from the processing device and remote from the premises,"	*See, e.g.*, Ex. 1005 at Abstract; §§ 2, 3 ("at a remote location").
[30.6]: "wherein the video information is transmitted from the processing device to the communication device in response to the signal, and"	*See, e.g.*, Ex. 1005 at §§ 2, 3 ("Mosaic is an Internet-based global hypermedia browser").
[30.7]: "further wherein the video information is transmitted to the communication device on or over at least one of the Internet and the World Wide Web."	*See, e.g.*, Ex. 1005 at §§ 2, 3 ("Mosaic is an Internet-based global hypermedia browser").

[30.0]: "A monitoring apparatus, comprising:"

Fuhr discloses a system for "sensor monitoring associated with instrumented civil structures," where sensors are place on or within a structure, sent to a central Internet-host computer at another location, and then made remotely accessible via the internet. Ex. 1005 at Abstract. The monitoring system of Fuhr includes (with reference to the corresponding claim element in parenthetical):

- An Internet-host computer (a processing device),

- A user computer (a communication device), and
- A camera for obtaining video information (video recording device or camera).

[30.1]: processing device receives video information recorded by camera[5]

Fuhr discloses a processing device that is an Internet-host computer that is "an Internet networked computer in a file (or folder) . . . that may be accessed by FTP." Ex. 1005 at Abstract; § 2. The Internet-host computer receives and archives the information received from the "sensors that are often spatially distributed across the span of a large structure." *Id.* at § 2. The processing device "allows raw, time history data from each embedded sensor to be archived on an Internet networked computer." *Id.*

Fuhr explains that any sensor data may be transmitted to the processing device. For example, Fuhr explains that acquired individual voltage levels may be "stored in memory for transmission to the Internet host computer." *Id.* Fuhr also explains that "acquired video frames" from a camera "are transmitted to the

[5] The claim limitations recited in the chart above have been summarized in each of the headings below. In particular, because of the disjunctive nature of many of the claim limitations in the '046 patent, the headings have been abbreviated to reflect that these claim limitations only require one of a list of recited elements to be met.

Internet-host computer's 'WinOne-video' Mosaic file for worldwide Internet access and viewing using Mosaic or a comparable video display program." *Id.*

[30.2]: camera is located at a premises

Fuhr discloses a TV camera monitoring an operator's console display associated with a turbogenerator. *Id.* at 150. The operator's console is located at the "powerhouse" at the hydroelectric dam. *Id.* at Figure 2 (called the monitored control console a "powerhouse control console."). Therefore the premises can be the control room or building at the hydroelectric dam and the camera is located at or in the control room.

Fuhr also explains that the system disclosed may be applied to "high-performance structures such as skyscrapers, including intelligent buildings, bridges, and those facilities where failure presents large safety concerns, such as nuclear waste containment vessels, bridge decks, dams, and structures under construction. Ex. 1005 at § 1. Fuhr discloses sensors may be "spatially distributed across the span of a large structure" or embedded into the structure. *Id.* at §§ 1, 2. Fuhr also discloses "video images obtained from [] cameras located at [an] instrumented structure." *Id.* at § 2. Fuhr therefore discloses that the video camera sensor is located at a structure or premises.

[30.3]: processing device is located remote from the premises

Fuhr discloses that the Internet-host computer may be "a Sun Microsystems

computer at the University of Vermont," located in Burlington, Vermont. Ex. 1005 at § 2. Fuhr also discloses that certain instrumented structures that are being monitored using the system described include a dam in Winooski, Vermont, a building at Dublin City University in Ireland, and a bridge in Middlebury, Vermont. *Id.* at § 1. Therefore, Fuhr discloses that the Internet-host computer is located remote from the premises.

[30.4]: processing device receives a signal from a communication device

Fuhr discloses that the Internet-host computer is accessible by users "through the Internet global computer network." Ex. 1005 at Abstract. "Viewing of the video frames is achieved using Mosaic on an Ethernet configured Internet accessible (IP – Internet Protocol addressed) microcomputer." *Id.* at § 2. These Internet-accessible microcomputers must necessarily send a signal to the Internet-host computer in order to access the information stored. Ex. 1002, Bennett Decl. at ¶ 33. Fuhr therefore discloses that the Internet-host computer (processing device) receives a signal from the user computer (communication device).

[30.5]: communication device is located remote from the processing device and remote from the premises

Fuhr discloses that the sensor monitoring system allows for "data monitoring to be performed at a remote location with the only requirements for data acquisition being Internet accessibility." Ex. 1005 at Abstract. Fuhr therefore

discloses that the user's Internet-accessible microcomputers may be remote from the processing device and the instrumented structure.

[30.6]: video information transmitted from processing device to communication device in response to the signal

Fuhr discloses that the video frames acquired by the sensor cameras may be viewed by a user using Mosaic, "an Internet-based global hypermedia browser that allows the user to discover, retrieve, and display documents and data from all over the Internet." Ex. 1005 at § 2. Video images are stored and processed at the Internet-host computer and "placed into the appropriate Mosaic source location home page" for a user to view. *Id.* Fuhr discloses "[v]iewing of the video frames is achieved using Mosaic on [a] microcomputer." *Id.* Thus, Fuhr discloses that video images are sent to a user's microcomputer in response to a signal from the microcomputer.

[30.7]: video information is transmitted to communication device on or over the Internet

Fuhr discloses that the video images may be viewed "using Mosaic on an Ethernet configured Internet accessible (IP – Internet Protocol addressed) microcomputer." *Id.* at § 2. Fuhr therefore discloses that the video information is transmitted to a user's microcomputer via the Internet.

Claim 85 – Fuhr discloses the elements of claim 85:

Claim Language	Fuhr
[85.0]: "A monitoring apparatus, comprising;"	*See, e.g.*, Ex. 1005 at Abstract; §§ 1-3 ("sensor monitoring associated with instrumented civil structures"). *See supra* [30.0], discussed above.
[85.1]: "at least one of a video recording device and a camera, wherein the at least one of a video recording device and a camera is located at a premises,"	*See, e.g.*, Ex. 1005 at §§ 1, 2 ("sensors that are often spatially distributed across the span of a large structure"). *See supra* [30.2], discussed above.
[85.2]: "wherein the at least one of a video recording device and a camera records video information; and"	*See, e.g.*, Ex. 1005 at Abstract; §§ 1-3 ("video images obtained from the cameras"). *See supra* [30.1], discussed above.
[85.3]: "a transmitter, wherein the transmitter transmits the video information to a processing device, wherein the processing device is located at a location remote from the premises, and further wherein the video information is received by the processing device,"	*See, e.g.*, Ex. 1005 at at Abstract; §§ 1-3 ("raw, time history data form each embedded sensor to be archived on an Internet networked computer"). *See supra* [30.3], discussed above.
[85.4]: "wherein the processing device receives a signal transmitted from a communication device,"	*See, e.g.*, Ex. 1005 at Abstract; §§ 2, 3 ("accessible through the Internet"). *See supra* [30.4], discussed above.
[85.5]: "wherein the communication device is located at a location remote from the processing device and remote from the premises,"	*See, e.g.*, Ex. 1005 at Abstract; §§ 2, 3 ("at a remote location"). *See supra* [30.5], discussed above.
[85.6]: "wherein the processing device transmits the video Information to the communication device in response to the signal,"	*See, e.g.*, Ex. 1005 at §§ 2, 3 ("Mosaic is an Internet-based global hypermedia browser"). *See supra* [30.6], discussed above.
[85.7]: "and further wherein the video	*See, e.g.*, Ex. 1005 at §§ 2, 3

information is transmitted to the communication device on or over at least one of the Internet and the World Wide Web."	("Mosaic is an Internet-based global hypermedia browser"). *See supra* [30.7], discussed above.

[85.3]: transmitter transmits video information to a processing device, wherein processing device is located remote from the premises, and video information is received by the processing device[6]

Fuhr discloses that "radio telemetry" is used "for data acquisition and concentration at a single central location." Ex. 1005 at § 2. Fuhr then discloses that this data is "sampled, scaled, time-tagged and stored in memory for transmission to the Internet host computer." *Id.* This allows for "raw, time history data form each embedded sensor to be archived on an Internet networked computer." *Id.* Fuhr therefore discloses that the single central location (transmitter) receives the video information via radio telemetry, and then transmits this information to the Internet-host computer (processing device). Ex. 1002, Bennett Decl. at ¶ 26.

Further, as discussed in *supra* [30.3], the processing device is located remote from the premises.

Claim 86 - Fuhr discloses the elements of claim 86:

[6] Only Section [85.3] is discussed below, as the other limitations of claim 85 have been substantively discussed in reference to claim 30, as noted in the chart above.

Claim Language	Fuhr
[86.0]: "The apparatus of claim 85, wherein the at least one of a video recording device and a camera is located at an interior of the premises."	*See, e.g.*, Ex. 1005 at Abstract, §§ 1, 2 ("acquisition of data from embedded and surface attached sensors").

Fuhr discloses that a structure may be built with embedded fiber optic sensors. Ex. 1005 at § 2. Furthermore, Fuhr discloses that "simple TV camera video capture of [an] operator's consoles" at a dam turbogenerator may be useful to monitor a turbogenerator system. Fuhr therefore discloses that recording sensors and video cameras may be located at an interior of a premises.

Claim 87 - Fuhr discloses the elements of claim 87:

Claim Language	Fuhr
[87.0]: "The apparatus of claim 85, wherein the at least one of a video recording device and a camera is located at an exterior of the premises."	*See, e.g.*, Ex. 1005 at Abstract, §§ 1, 2 ("acquisition of data from embedded and surface attached sensors").

Fuhr discloses that "sensors . . . are often spatially distributed across the span of a large structure." Ex. 1005 at § 2. With reference to a dam structure, Fuhr discloses that a camera may capture an "outside video view of the water flowing over the dam" in real-time. *Id.* Fuhr refers to that camera as the "outside camera." *Id.*; *see also* Fig. 2(a) (describing the camera as "an outside deck video camera"). Fuhr therefore discloses a camera located at an exterior of the premises.

B. GROUND 2 – Claims 33 and 90 Are Obvious in View of Fuhr

Claims 33 and 90 - Fuhr discloses or renders obvious the elements of claims 33 and 90:

Claim Language	Fuhr
[33.0]: "The apparatus of claim 30, wherein the video information is real-time video information or live video information."	*See, e.g.*, Ex. 1005 at § 2 ("near realtime video images").
[90.0]: "The apparatus of claim 85, wherein the video information is real-time video information or live video information."	

Fuhr discloses that "near realtime video images are placed into the appropriate Mosaic source location home page." Ex. 1005 at § 2. Fuhr therefore discloses that the video information is real-time video information. As the Patent Trial and Appeal Board has previously explained, the "teaching of near real-time content updates at least suggests real-time data received from a network." *Ex Parte Klaus Hofrichter*, APPEAL 2012-003117, 2014 WL 2902175, at *5 (Patent Tr. & App. Bd. June 24, 2014). In addition, one of ordinary skill in the art would have understood how to modify the camera of system disclosed in Fuhr so that real-time video information is generated and would have been motivated to do so to provide real-time monitoring of the structure and environment being monitored. Ex. 1002, Bennett Decl. at ¶ 32.

C. GROUND 3- Claim 53 is Obvious in View of Fuhr and Sheng

Claim 53 of the '046 Patent is unpatentable as obvious over Fuhr, Ex. 1005 in view of Sheng, Ex. 1008, under 35 U.S.C. § 103. Sheng was published in 1994December 1992, and thus qualified as prior art under 35 U.S.C. § 102(b). The following section provides relevant disclosure from Fuhr and Sheng, and explanation of how the references apply to each limitation of the claim.

Claim 53 - Fuhr in view of Sheng discloses the elements of claim 53:

Claim Language	Fuhr and Sheng
[53.0]: "The apparatus of claim 30, wherein the communication device is a wireless device."	*See, e.g.*, Ex. 1005 at § 2 ("Ethernet configured Internet accessible . . . microcomputer"). *See, e.g.*, Ex. 1008 at 64-65.

Fuhr discloses viewing transmitted images "on an Ethernet configured Internet accessible . . . microcomputer." *See* Ex. 1005 at § 2. One of ordinary skill in the art would have been motivated to modify the teachings of Fuhr to utilize a wireless device (rather than a hard-wired internet connection) to transmit the signals from the processing device (Internet-host computer) to the communication device (user microcomputer). Ex. 1002, Bennett Decl. at ¶¶ 51-54. One of ordinary skill in the art would have known that these portable computers were wireless devices and that these portable computers could serve as a communication

device to access the web services on Internet-host computer. It would have been a mere matter of design choice, based on the requirements of the system being controlled, to use a wireless device to communicate between the user microcomputer and Internet-host computer. Ex. 1002, Bennett Decl. at ¶ 52.

Sheng discloses a portable multimedia terminal wirelessly connected to a central base station, "which serves as a gateway between the wired and wireless mediums." Ex. 1008 at 64. Together, the wired and wireless connections form a personal communication system which "would have access to digital video databases," thus allowing for a user of a wireless portable computer access to video remotely. *Id.* Sheng explains that a wireless connection between a portable computer and a central base station "provide[s] ubiquitous access to data and communications." *Id.* Sheng further explains the benefits of wireless connectivity, in that "[t]he continuous connectivity afforded" by wireless connectivity and distribution of video information "allow[s] for instantaneous recovery of all types of information, without the need to be at a terminal physically attached to the wired network." *Id.* One of ordinary skill in the art at the time of the invention would have found it obvious that the portable multimedia terminal disclosed by Sheng could be used as a communication device to access Internet-host computer via a wireless connection. Ex. 1002, Bennett Decl. at ¶ 54.

Indeed, Fuhr designed his system "for worldwide Internet access." Ex. 1005

at 150. One ordinary skill in the art would have found it obvious that users with Sheng's portable multimedia terminals would and could access the Internet-host computer, just as they did with the microcomputer as described in Fuhr.

X. GROUND 4 – Claim 88 is Obvious in View of Fuhr and Aknar

Claim 88 of the '046 Patent is unpatentable as obvious over Fuhr, Ex. 1005, in view of Aknar, Ex. 1007, under 35 U.S.C. § 103. Aknar was published on June 2, 1988 and is therefore prior art to the Challenged Claims under 35 U.S.C. § 102(b). The following section provides relevant disclosure from Fuhr and Aknar, and an explanation of how the references apply to each limitation of the claim.

Claim 88 - Fuhr in view of Aknar discloses the elements of claim 88:

Claim Language	Fuhr and Aknar
[88.0]: "The apparatus of claim 85, wherein the at least one of a video recording device and a camera further comprises: a storage medium for storing video information."	*See, e.g.*, Ex. 1005 at Abstract, §§ 1, 2 ("last 30 frames temporarily stored"). *See, e.g.*, Ex. 1007 at Fig. 1 ("RAM 8"), Fig. 3 ("memory module 46"); p. 3, ll. 10 – p. 4, ll. 4; p. 5, ll. 20-27; p. 6, ll. 3-11; p. 6, ll. 1-18; p. 12, ll. 23 – p. 13, ll. 30.

Fuhr discloses that acquired video frames "are transmitted to the Internet-

host computer's "WinOne-video" Mosaic file for worldwide Internet access and viewing." Ex. 1005 at § 2. Fuhr also discloses that "due to limited physical disk space . . . the last 30 frames [are] temporarily stored." *Id.* Fuhr therefore discloses a storage medium for storing video information.

Aknar discloses a remotely-controlled camera that stores captured images on a memory module 46 "for processing by pixel comparator circuitry 50." Ex. 1007 at p. 9, ll. 1-3. Therefore, Aknar discloses a camera comprising a storage medium of storing video information.

Aknar explains that processing images using a memory module in the camera is an improvement over prior art systems, where a remote camera "captures the image and then transmits it in analogue form to a station . . . . Any processing that needs to be performed is usually done at the station." *Id.* at p. 1, ll. 14-17. Specifically, Aknar explains that "processing can be performed at the camera . . . so that the only need for communication is for example of a change in a scene which can be communicated over a much narrower bandwidth channel than that required for any prior art device," which enables the system to have "the necessary versatility whereby the intelligent camera can be used in a variety of situations." *Id.* at p. 13, ll. 18-30. Aknar therefore discloses storing video information on a memory module to provide more expedient analysis "in real time." *Id.* at p. 9, ll. 15-16.

One of ordinary skill in the art would have understood that the storage of captured images for processing by the Internet-host computer could take place in the camera itself. Ex. 1002, Bennett Decl. at ¶ 55-58. Storage of video data using memory devices was well-known to those of ordinary skill in the art at the time of the invention, and one of ordinary skill in the art would have improved on the system of Fuhr by including image storage in the camera itself in order to minimize bandwidth use as taught by Aknar. Ex. 1002, Bennett Decl. at ¶ 58.

D. GROUND 5 – Claims 30, 33, 85, 86, and 90 are Anticipated by Goldberg

For at least the reasons discussed below, claims 30, 33, 85, 86, and 90 of the '046 Patent are anticipated by Goldberg, Ex. 1006, under 35 U.S.C. § 102(a). Goldberg was published in December 1995, and thus qualified as prior art under 35 U.S.C. § 102(a). The following section provides relevant disclosure from Goldberg, and an explanation of how the reference applies to each limitation of the claim.

Claim 30 - Goldberg discloses the elements of claim 30:

Claim Language	Goldberg
[30.0]: "A monitoring apparatus, comprising:"	*See, e.g.*, Ex. 1006, Abstract; §§ 2-4.
[30.1]: "a processing device, wherein the processing device receives video information recorded by at least one of a video recording device and a camera,"	*See, e.g.*, Ex. 1006 at Fig. 2 ("Server A", "camera"); §§ 5, 6.4, 6.6.

[30.2]: "wherein the at least one of a video recording device and a camera is located at a premises, and"	*See, e.g.*, Ex. 1006 at Abstract, Fig. 2 ("camera"); §§ 2, 3, 5, 6.6.
[30.3]: "wherein the processing device is located at a location remote from the premises,"	*See, e.g.*, Ex. 1006 at Fig. 2 ("Server A", "WWW Client"); §§ 5, 6.4.
[30.4]: "wherein the processing device receives a signal transmitted from a communication device,"	*See, e.g.*, Ex. 1006 at Fig. 2 ("WWW Client"); §§ 3, 4, 5, 6.1, 6.2, 6.3, 6.4.
[30.5]: "wherein the communication device is located at a location remote from the processing device and remote from the premises,"	*See, e.g.*, Ex. 1006 at Fig. 2 ("Server A"); §§ 4, 5, 6.1, 6.3, 6.4.
[30.6]: "wherein the video information is transmitted from the processing device to the communication device in response to the signal, and"	*See, e.g.*, Ex. 1006 at Abstract; Fig. 2 ("WWW Clients"); §§ 3-5, 6.1, 6.2, 6.3, 6.4.
[30.7]: "further wherein the video information is transmitted to the communication device on or over at least one of the Internet and the World Wide Web."	*See, e.g.*, Ex. 1006 at Abstract; Fig. 2 ("WWW Clients"); §§ 3-5, 6.1, 6.2, 6.3, 6.4.

[30.0]: "A monitoring apparatus, comprising:"

Goldberg discloses a control and monitoring apparatus "which consists of a robot arm," where remote "operator[s] of the robot direct[] the camera to move vertically or horizontally in order to obtain a desired position and image." Ex. 1006 at Abstract. The monitoring system of Goldberg includes (with reference to the corresponding claim element in parenthetical):

- A UNIX Server A (a processing device),
- A user computer having WWW user-interface (a communication

device), and

- A camera (video recording device or camera).

See e.g., *id.* at Fig. 2; § 5. Goldberg discloses that "WWW clients from around the world" are able to use the control apparatus to control "a robot arm combined with a camera." *Id.* at § 5.

[30.1]: processing device receives video information recorded by camera

Goldberg discloses a processing device (Server A) that receives video information recorded by a digital camera via a Server C. Ex. 1006 at § 6.4, 6.6. The Server A requests a connection with Server C, along with the coordinates of a requested image. *Id.* at § 6.4. Server C generates a new image, and sends the image to Server A. *Id.*

Goldberg specifically discloses an EDC 1000 digital CCD camera to provide images. Ex. 1006 at § 6.6. The image data from the CCD camera is fed into a "video capture card." *Id.* The EDC 1000 digital CCD camera is capable of continuously acquiring images at up to 30 frames per second. Ex. 1002, Bennett Decl. at ¶ . The camera capable of recording at 30 frames per second is a "video recording device" or a "camera for obtaining video information" since a series of still images taken together is video information. Ex. 1002, Bennett Decl. at ¶ 38.

[30.2]: camera is located at a premises

Goldberg discloses that the robot arm is "fitted with a CCD camera." *Id.* at

Abstract. The robot arm operates within the workspace, which is located within a premises; therefore the camera is necessarily located at the premises. *Id.* at Abstract, § 6.5.

[30.3]: processing device is located remote from the premises

Goldberg discloses that Server A "is located across campus from Server C." *Id.* at § 6.4. Server C is located at the premises - Goldberg discloses that command signals are transmitted from the Server C to the robot via a serial connection. *Id.* at § 5. One of ordinary skill in the art would have understood that this connection necessarily requires that the Server C be located near the robot. Ex. 1002, Bennett Decl. at ¶ 42. Therefore, the processing device (Server A) is located remote from the premises.

[30.4]: processing device receives a signal from a communication device

Goldberg discloses that a WWW client (communication device) sends a signal to Server A in order to update the image on the client. *Id.* at § 5. Specifically, in describing the monitoring device, Goldberg explains that when an observer wants to view an image retrieved from the camera, the WWW client sends a request to Server A, and "the most recent image, which is stored on server A, is simply returned." *Id.*

[30.5]: communication device is located remote from the processing device and remote from the premises

Goldberg discloses that "[a]t one end are WWW clients from around the

world; at the other end is a robot arm combined with a camera." *Id.* § 5. Specifically, remote user GUI stations located around the world and remote from the premises may be used to observe and monitor the operations of the robot arm disclosed in Goldberg. *Id.* Thus, the WWW client is located remote from the premises. Further, Goldberg discloses that Server A is located on campus. *Id.* at § 6.4. Therefore, the WWW clients located around the world are also remote from the processing device (Server A).

[30.6]: video information transmitted from processing device to communication device in response to the signal

Goldberg discloses that Server A acts upon receipt of "a client request." *Id.* at § 5. These client requests are received based on a user's input to an external website (WWW clients). *Id.* Specifically, a user that is an observer may request a view of an image using the WWW client, and "the most recent image, which is stored on server A, is simply returned." *Id.*

[30.7]: video information is transmitted to communication device on or over the Internet

Goldberg discloses that the users are connected to the monitoring apparatus via the "World Wide Web HTTPD protocol." *Id.* at § 6.1. Thus, Goldberg discloses that Server A transmits video information to the WWW client over the World Wide Web.

Claim 33 - Goldberg discloses the elements of claim 33:

Claim Language	Goldberg
[33.0]: "The apparatus of claim 30, wherein the video information is real-time video information or live video information."	*See, e.g.*, Ex. 1006 at Fig. 1; Abstract; § 3, 6.6, 8.

Goldberg discloses an EDC 1000 digital CCD camera to provide images. Ex. 1006 at § 6.6; *see also supra* [30.1].

Goldberg discloses live video feed as a feature of Goldberg's Robotic camera. *Id.* at § 3; Ex. 1002, Bennett Decl. at ¶ 38. Goldberg discloses a "live video feed from the camera" is possible using the EDC 1000 digital CCD camera, although not implemented "in order to maintain compatibility with all visual clients on the Web." Ex. 1006 at § 3. Goldberg discloses that it is possible to get a live video feed by "releasing specially modified clients that set up a two-way communication" and by "writ[ing] a separate program to run on the clients' workstation." *Id.* at n. 1. Goldberg explains that the difficulty with these solutions is that "many clients are used to view[ing] the WWW," and distribution of the software to "enough platforms to be useful" would be challenging. *Id.* But since the claims do not require wide compatibility with different visual clients on the Web or different systems or platforms, the Goldberg reference renders claim 30 obvious even if the system works with only one client, i.e. one communication

device.

Claim 85 – Goldberg discloses the elements of claim 85:

Claim Language	Goldberg
[85.0]: "A monitoring apparatus, comprising;"	*See, e.g.*, Ex. 1006, Abstract; §§ 2-4. *See supra* [30.0], discussed above.
[85.1]: "at least one of a video recording device and a camera, wherein the at least one of a video recording device and a camera is located at a premises,"	*See, e.g.*, Ex. 1006 at Abstract; Fig. 2 ("camera"); §§ 2, 3, 5, 6.6. *See supra* [30.2], discussed above.
[85.2]: "wherein the at least one of a video recording device and a camera records video information; and"	*See, e.g.*, Ex. 1006 at Fig. 2 ("camera"); §§ 5, 6.6. *See supra* [30.1], discussed above.
[85.3]: "a transmitter, wherein the transmitter transmits the video information to a processing device, wherein the processing device is located at a location remote from the premises, and further wherein the video information is received by the processing device,"	*See, e.g.*, Ex. 1006 at Fig. 2 ("Server C, Server A"); §§ 4, 5, 6.1, 6.3, 6.4.
[85.4]: "wherein the processing device receives a signal transmitted from a communication device,"	*See, e.g.*, Ex. 1006 at Fig. 2 ("Server A", "WWW Client"); §§ 4, 5, 6.1, 6.3, 6.4. *See supra* [30.4], discussed above.
[85.5]: "wherein the communication device is located at a location remote from the processing device and remote from the premises,"	*See, e.g.*, Ex. 1006 at Fig. 2 ("WWW Client"); §§ 3, 4, 5, 6.1, 6.2, 6.3, 6.4. *See supra* [30.5],

	discussed above.
[85.6]: "wherein the processing device transmits the video Information to the communication device in response to the signal,"	*See, e.g.*, Ex. 1006 at Abstract; Fig. 2 ("WWW Client"); §§ 3, 4, 5, 6.1, 6.2, 6.3, 6.4. *See supra* [30.6], discussed above.
[85.7]: "and further wherein the video information is transmitted to the communication device on or over at least one of the Internet and the World Wide Web."	*See, e.g.*, Ex. 1006 at Abstract; Fig. 2 ("WWW Clients"); §§ 3-5, 6.1, 6.2, 6.3, 6.4. *See supra* [30.7], discussed above.

[85.3]: transmitter transmits video information to a processing device, wherein processing device is located remote from the premises, and video information is received by the processing device[7]

Goldberg discloses that "server C uses the CCD camera to capture a stable 8 bit 192 x 165 image of the workspace." Ex. 1006 at § 5. Thus, video information is sent from the camera to the transmitter (Server C). The captured image, along with a "schematic view of the robot in its new configuration," is then sent by Server C to Server A, "which updates the most recent image and returns it to the operator client" to notify the user that control has been successfully executed. *Id.* Therefore, Goldberg discloses that the transmitter (Server C) sends video information that is received by the processing device (Server A).

[7] Only Section [85.3] is discussed below, as the other limitations of claim 85 have been substantively discussed in reference to claim 30, as noted in the chart above.

Further, as discussed in *supra* [30.3], the processing device is located remote from the premises.

Claim 86 - Goldberg discloses the elements of claim 86:

Claim Language	Goldberg
[86.0]: "The apparatus of claim 85, wherein the at least one of a video recording device and a camera is located at an interior of the premises."	*See, e.g.*, Ex. 1006 at Fig. 2; Abstract; § 2, 3, 6.6.

Goldberg discloses that the robot arm is "fitted with a CCD camera." *Id.* at Abstract. The robot arm operates within the workspace (or premises); therefore the camera is necessarily located at an interior the premises. *Id.* at Abstract, § 6.5.

Claim 90 - Goldberg discloses the elements of claim 90: [8]

Claim Language	Goldberg
[90.0]: "The apparatus of claim 85, wherein the video information is real-time video information or live video information."	*See, e.g.*, Ex. 1006 at Fig. 1; Abstract; § 3, 6.6, 8. *See supra* [33.0], discussed above.

X. GROUND 6 – Claim 53 is Obvious in View of Goldberg and Sheng

Claim 53 of the '046 Patent is unpatentable as obvious over Goldberg, Ex.

[8] The limitations of claim 90 have been substantively discussed in reference to claim 33, as noted in the chart below.

1006 in view of Sheng, Ex. 1008, under 35 U.S.C. § 103. The following section provides relevant disclosure from Goldberg and Sheng, and explanation of how the references apply to each limitation of the claim.

Claim 53 - Goldberg in view of Sheng discloses the elements of claim 53:

Claim Language	Goldberg and Sheng
[53.0]: "The apparatus of claim 30, wherein the communication device is a wireless device."	*See, e.g.*, Ex. 1006 at §§ 5, 6.4. *See, e.g.*, Ex. 1008 at 64-65.

Goldberg discloses that the WWW client is connected to Server A via the World Wide Web. *See* Ex. 1006 at § 6.1. One of ordinary skill in the art would have been motivated to modify the teachings of Goldberg to utilize a wireless device (rather than a hard-wired internet connection) to transmit the signals from the processing device (Server A) to the communication device (WWW client). Ex. 1002, Bennett Decl. at ¶¶ 60-62. It would have been a mere matter of design choice, based on the requirements of the system being controlled, to use a wireless device to communicate between the WWW client and Server A. *Id*.

For instance, Sheng discloses a portable multimedia terminal that is wirelessly connected to a central base station, "which serves as a gateway between the wired and wireless mediums." Ex. 1008 at 64. Together, the wired and wireless connections form a personal communication system which "would have access to

digital video databases," thus allowing for a user of the wireless multimedia terminal access to video remotely. *Id.* Sheng explains that a wireless connection between a portable multimedia terminal and a central base station "provide[s] ubiquitous access to data and communications." *Id.* Sheng further explains the benefits of wireless connectivity, in that "[t]he continuous connectivity afforded" by wireless connectivity and distribution of video information "allow[s] for instantaneous recovery of all types of information, without the need to be at a terminal physically attached to the wired network." *Id.* Since Sheng's portable multimedia terminal is wirelessly connected a base station, the portable multimedia terminal is a wireless device.

Sheng discloses that the portable multimedia terminal integrates the functions of a traditional "notebook" computer. *Id.* Because the portable terminal of Sheng can act as and has the functions of a notebook computer, one of ordinary skill in the art would have understood that the portable multimedia terminal would have been able to access the web site of disclosed in Goldberg. Ex. 1002, Bennett Decl. at ¶ 62.

Goldberg disclosed a desire "to reach as large a user base as possible." Ex. 1006 at § 3. Given this disclosed desire, one of ordinary skill in the art at the time of the invention would have been motivated to access information about the robot and view its movements using the portable multimedia terminal of Sheng. Ex.

1002, Bennett Decl. at ¶ 62.

X. GROUND 7 – Claim 87 is Obvious in View of Goldberg and Everett

Claim 87 of the '130 Patent is unpatentable as obvious over Goldberg, Ex. 1006 in view of Everett, Ex. 1009, under 35 U.S.C. § 103. The following section provides relevant disclosure from Goldberg and Everett, and an explanation of how the references apply to each limitation of the claim.

Claim 87 - Goldberg in view of Everett discloses the elements of claim 87:

Claim Language	Goldberg and Everett
[87.0]: "The apparatus of claim 85, wherein the at least one of a video recording device and a camera is located at an exterior of the premises."	*See, e.g.*, Ex. 1006 at Abstract; §§ 2, 3, 6.6. *See, e.g.*, Ex. 1009 at 2:55-58.

Goldberg discloses a camera located at an interior of the premises. *See supra* [86.0].

The use of video recording devices and cameras to monitor the exterior of a premises was well known in the art at the time of the invention. *See* Ex. 1002, Bennett Decl. at ¶¶ 63, 65. For example, as explained in Everett, "video systems may also be utilized as intrusion detectors and offer an even more sophisticated method of sensing intrusion in outdoor as well as indoor applications." Ex. 1009 at 2:55-58. Everett explains that having multiple video cameras that are capable of

movement based on commands received from a remote location, *id.* at 9:32-38, that are located within and without a premises, allows for precise identification of the location of an intruder. *Id.* at 2:55-59. It would have been a mere design choice to use the system described in Goldberg to remotely control cameras located within and at the exterior of a premises, so that a user may remotely control the cameras and view multiple vantage points of the premises. *See* Ex. 1002, Bennett Decl. at ¶¶ 64-66.

X. GROUND 8 – Claim 88 is Obvious in View of Goldberg and Aknar

Claim 88 of the '046 Patent is unpatentable as obvious over Goldberg, Ex. 1006 in view of Aknar, Ex. 1007, under 35 U.S.C. § 103. Aknar was published on June 2, 1988 and is therefore prior art to the Challenged Claims under 35 U.S.C. § 102(b). The following section provides relevant disclosure from Goldberg and Aknar, and an explanation of how the references apply to each limitation of the claim.

Claim 88 - Goldberg in view of Aknar discloses the elements of claim 88:

Claim Language	Goldberg and Aknar
[88.0]: "The apparatus of claim 85, wherein the at least one of a video recording device and a camera further comprises: a storage medium for storing video information."	*See, e.g.*, Ex. 1006 at Fig. 1; Abstract; § 3, 6.6, 8. *See, e.g.*, Ex. 1007 at Fig. 1 ("RAM 8"), Fig.

	3 ("memory module 46"); p. 3, ll. 10 – p. 4, ll. 4; p. 5, ll. 20-27; p. 6, ll. 3-11; p. 6, ll. 1-18; p. 12, ll. 23 – p. 13, ll. 30.

Goldberg discloses a camera (EDC 1000 digital CCD camera) that provides images to Server C. *Id.* at § 6.6. "Image data is sent from the camera back through a serial line into a video capture card," and prior to its transmission to the WWW client, the image is compressed to increase network transfer rate. *Id.* at § 6.6. Thus, Goldberg discloses capturing video information with a camera, and storing it in Server C for processing.

Aknar discloses a remotely-controlled camera that stores captured images on a memory module 46 "for processing by pixel comparator circuitry 50." Ex. 1007 at p. 9, ll. 1-3. Therefore, Aknar discloses a camera comprising a storage medium of storing video information.

Aknar explains that processing images using a memory module in the camera, is an improvement over prior art systems, where a remote camera "captures the image and then transmits it in analogue form to a station . . . . Any processing that needs to be performed is usually done at the station." *Id.* at p. 1, ll. 14-17. Specifically, Aknar explains that "processing can be performed at the camera . . . so that the only need for communication is for example of a change in

a scene which can be communicated over a much narrower bandwidth channel than that required for any prior art device," which enables the system to have "the necessary versatility whereby the intelligent camera can be used in a variety of situations." *Id.* at p. 13, ll. 18-30. Aknar therefore discloses storing video information on a memory module in order to provide more expedient analysis "in real time." *Id.* at p. 9, ll. 15-16.

One of ordinary skill in the art would have understood at the time of the invention that the storage of captured images for processing by Server C could take place in the camera itself. Ex. 1002, Bennett Decl. at ¶¶ 68-69. Storage of video data using memory devices was well-known to those of ordinary skill in the art at the time of the invention, and one of ordinary skill in the art would have improved on the system of Goldberg by including image storage in the camera itself in order to minimize bandwidth use, as taught by Aknar. Ex. 1002, Bennett Decl. at ¶ 70.

X. CONCLUSION

For the foregoing reasons, Petitioners respectfully request that the Patent Trial and Appeal Board grant this Petition for *inter partes* review of claims 30, 33, 53, 85-88 and 90 of the '046 Patent.

Respectfully submitted,

Dated: June 23, 2015

By: /Frank C. Cimino, Jr./

Frank C. Cimino, Jr.
Registration No. 39,945
Megan S. Woodworth
Registration No. 53,655
Venable LLP
575 7th Street, N.W.
Washington, DC 20004
Telephone: 202-344-4000
Facsimile: 202-344-8300

CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that a complete and entire copy of this Petition for *Inter Partes* Review and all supporting exhibits was served on June 23, 2015, by Express Mail to the following address of record for the subject patent and address for Joao's counsel in the above-referenced litigation:

Raymond A. Joao, Esq.
122 Bellevue Place
Yonkers, NY 10703

Steven W. Ritcheson
Heninger Garrison Davis, LLC
9800 D Topanga Canyon Blvd. #347
Chatsworth, CA 91311

By: /Frank C. Cimino, Jr./
Frank C. Cimino, Jr.
Registration No. 39,945
Megan S. Woodworth
Registration No. 53,655
Venable LLP
575 7th Street, N.W.
Washington, DC 20004
Telephone: 202-344-4000
Facsimile: 202-344-8300