

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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AVAIL MEDSYSTEMS, INC..  
Petitioner

v.

TELADOC HEALTH, INC..  
Patent Owner

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**U.S. Patent No. 8,849,679**

“Remote Controlled Robot System That Provides Medical Images”

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*Inter Partes* Review No. 2022-00445

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**PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,849,679  
UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. §§ 42.100 *ET SEQ.***

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Exhibit No.	Description
1001	U.S. Patent No. 8,849,679 (“the ’679 patent”)
1002	Declaration of Dr. Robert T. Stone
1003	Curriculum Vitae of Dr. Robert T. Stone
1004	File History of U.S. Patent No. 8,849,679 (U.S. Patent Application No. US12/277,842)
1005	Moore, <i>et al.</i> , “Telementoring of laparoscopic procedures,” <i>Surgical Endoscopy</i> (1996)
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1007	Lee, <i>et al.</i> , “A novel method of surgical instruction: international telementoring,” <i>World Journal of Urology</i> (1998)
1008	Camara, <i>et al.</i> , “Real-Time Telementoring in Ophthalmology,” <i>Telemedicine Journal</i> (1998)
1012	United States Patent Application Publication No. 2005/0204438 to Wang <i>et al.</i>
1013	United States Patent Application Publication No. 2003/0144768 to Hennion <i>et al.</i>
1015	United States Patent Application Publication No. 2005/0052527 to Remy <i>et al.</i>
1020	Exhibit F to Complaint, <i>Teladoc Health, Inc. v. Avail Medsystems, Inc.</i> , Case 1:21-cv-00820 (D. Del. June 4, 2021), Dkt. 1
1021	Scheduling Order, <i>Teladoc Health, Inc. v. Avail Medsystems, Inc.</i> , Case 1:21-cv-00820 (D. Del. Nov. 30, 2021), Dkt. 22
1022	Japanese Patent No. 2004-187126 to Akihiro, <i>et al.</i>
1023	Certified translation of Japanese Patent No. 2004-187126 to Akihiro <i>et al.</i>
1024	Linguist Certification by Natalia Lehmann

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1025	U.S. Patent No. 5,701,904 to Simmons <i>et al.</i>
1026	U.S. Patent No. 7,889,791 to Taubman
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1028	Miyashita, <i>et al.</i> , “Telemedicine of the Heart: Real-Time Telescreening of Echocardiography Using Satellite Telecommunication,” Rapid Communication (2003)
1029	Decision on Appeal, <i>Ex parte</i> Yulun Wang, et al., Appeal 2020-003656, Application 10/962,829

## **I. INTRODUCTION**

Despite being filed in 2008 and claiming priority to an application filed in 2006, the '679 patent purports to claim what had been in use for at least 10 years: a telemedicine system using videoconferencing. In particular, the independent claims of the '679 patent recite a “robotic system” comprising a camera, a medical imaging device connected to an auxiliary port, a monitor, a microphone, and a speaker that can videoconference with a remote station comprising a camera, a monitor, a microphone, and a speaker. They also recite a remote station user interface that allows simultaneously displays the image of the remote user, the patient image, and the medical imaging device image.

Yet none of these features were novel in 2006. Researchers in the 1990s had already proven effectiveness of videoconferencing for surgical procedures, where a remote surgeon could mentor a less-experienced surgeon to perform a laparoscopic procedure on a patient. By the mid-2000s, products were already on the market that allowed doctors to remotely proctor patients using a remote-controlled robot. The claimed user interface elements had long been in use in telemedicine systems and general videoconferencing software.

## **II. MANDATORY NOTICES**

Pursuant 37 C.F.R. § 42.8(a)(1), the following mandatory notices are provided as part of this Petition.

**A. Real Party-in-Interest (37 C.F.R. § 42.8(b)(1))**

The real party-in-interest for Petitioner is Avail Medsystems, Inc.

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

**1. Related Patent Office Proceedings**

There are no related Patent Office proceedings.

**2. Related Litigation**

Teladoc is currently asserting the '679 patent against Petitioner in *Teladoc Health, Inc. v. Avail Medsystems, Inc.*, Case No. 1:21-cv-00820 (D. Del.).

**C. Lead and Back-Up Counsel (37 C.F.R. § 42.8(b)(3)) and Service Information (37 C.F.R. § 42.8(b)(3)-(4))**

Petitioner provides the following counsel and service information.<sup>1</sup> Pursuant to 37 C.F.R. § 42.10(b), a Power of Attorney accompanies this Petition.

LEAD COUNSEL	BACK-UP COUNSEL
James Glass Reg. No. 46,729 jimglass@quinnemanuel.com Quinn Emanuel Urquhart & Sullivan, LLP 51 Madison Ave., 22nd Floor New York, NY 10010 Tel: (212) 849-7000	Todd Briggs (Back-up Counsel) Reg. No. 44,040 toddbriggs@quinnemanuel.com Quinn Emanuel Urquhart & Sullivan, LLP 555 Twin Dolphin Dr., 5th Floor Redwood Shores, CA 94065 Tel: (650) 801-5000

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<sup>1</sup>Petitioner consents to electronic service to AvailIPR@quinnemanuel.com and the email addresses listed in the table below.

	<p>Brian Biddinger (<i>pro hac vice</i> to be requested upon grant authorization) brianbiddinger@quinnemanuel.com Quinn Emanuel Urquhart &amp; Sullivan, LLP 51 Madison Ave., 22nd Floor New York, NY 10010 Tel: (212) 849-7000</p>
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Petitioner consents to electronic service at the email addresses listed above.

**D. Payment of Fees (37 C.F.R. § 42.15(a))**

The undersigned authorizes the Office to charge the fee required for this Petition for *Inter Partes* Review to Deposit Account No. 50-5708. Any additional fees that might be due are also authorized.

**III. REQUIREMENTS FOR INTER PARTES REVIEW**

Petitioner certifies it is not barred or estopped from requesting this proceeding, the '679 patent is available for *Inter Partes* Review, and the prohibitions of 35 U.S.C. §§315(a)-(b) are inapplicable.

**IV. STATEMENT OF RELIEF REQUESTED FOR EACH CHALLENGED CLAIM**

Petitioner Avail Medsystems, Inc. ("Avail" or "Petitioner") petitions for *inter partes* review ("IPR") of claims 1-11 of U.S. Patent No. 8,849,679 (the "'679 patent") assigned to Teladoc Health, Inc. ("Teladoc" or "Patent Owner"), pursuant to 35

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U.S.C. § 311 and 37 C.F.R. § 42.100. Petitioner respectfully requests *Inter Partes* review of the challenged claims based on the following obviousness grounds:

#	Claims	Basis
1	1, 2, 4-6, 8-10	Obvious in view of Hennion, Remy, and Akihiro
2	3	Obvious in view of Hennion, Remy, Akihiro, and Simmons
3	7, 11	Obvious in view of Hennion, Remy, Akihiro, and Taubman
4	1, 5, 6, 8, 10	Obvious in view of Wang and Remy
5	2, 4, 9	Obvious in view of Wang, Remy, and Hennion
6	3	Obvious in view of Wang, Remy, and Simmons
7	7, 11	Obvious in view of Wang, Remy, and Taubman



## **V. OVERVIEW OF THE '679 PATENT**

### **A. Background of the Technology**

The '679 patent and the prior art are all directed to the field of telemedicine, and specifically telemedicine systems that incorporate video conferencing. EX1002 ¶29. Telemedicine is the use of telecommunications technologies in order to provide clinical health care services and has been a burgeoning field since the advent of long-distance communications. *Id.* With the increased adoption of computers and high-speed Internet, telemedicine systems and applications have become widespread. *Id.*

The use of video conferencing in telemedicine systems has had a long history. Since at least the mid-1990s, researchers have successfully used telemedicine systems with video conferencing to remotely assist in surgical procedures, also known as telementoring. EX1002 ¶30.

For example, in 1995, researchers from Johns Hopkins University successfully accomplished “a series of [laparoscopic] procedures where an inexperienced surgeon was telementored by a more experienced laparoscopic surgeon.” EX1005 108. The telementoring system included an “external camera ... mounted on a movable arm over the operative table [that] could be coupled by a motor to pan and tilt when controlled from the remote site.” *Id.* The system further included a “laparoscope ... connected to [a] robotic arm” which “could be activated by a control pad located at the remote operative site.” *Id.* At the remote site, “[t]he

remote surgeon was capable of simultaneously viewing both internal and external views of the primary operating room by utilizing [a] video mixer” and could use “[a] video sketch pad ... to draw an overlay image on the video picture generated by the internal camera,” which would “appear on the internal operative video monitor located at the primary operative site.” *Id.* Through control of “the laparoscope, telestration, and audio communication, the remote surgeon guided the primary surgeons through the laparoscopic procedures.” *Id.* For this experiment, the remote site was about 1,000 feet away from the operating room. *Id.* 107. Using this system, 22 of the 23 operative cases were successfully telementored. *Id.* 108; *see also* EX1002 ¶31.

One year later, these researchers were able to extend the distance of the remote site and operative site to 3.5 miles and successfully completed seven laparoscopic procedures using a similar telementoring system. *See* EX1006. This time, the system had cameras and microphones at both the operating room and the remote site “for routine communications.” *Id.* 1002. The physician at the remote site could again “control the pan, tilt, zoom and focus capabilities of the external camera in the operating room” and could “annotate and draw freehand, multi-color figures” that “appeared on both the [operating room] and [remote] monitors.” *Id.* As with the previous experiment, an endoscopic camera was attached to a robotic arm that could be controlled by the remote physician. *Id.* The researchers concluded that

“[t]elesurgical applications have the potential to greatly improve surgical education, credentialing, and patient care by offering patients and their surgeons global access to surgical specialists.” *Id.* 1001; *see also* EX1002 ¶32.

In 1998, another team located at Johns Hopkins was able to telementor surgical procedures performed in Thailand and Austria. EX1007. The system was very similar to the previous systems developed at Johns Hopkins, where the operating room had aa “microphone,” an “external room camera” and a “laparoscope”, and the remote site had “standard teleconferencing camera ... and microphone ... four routine communications” as well as telestration capabilities. *Id.* 368-69. In addition, the operating room had a “surgical robot ... for manipulation of the endoscopic camera” where the “remote surgeon was capable of driving the robot via a hand controller.” *Id.* 369. Experienced surgeons located in Baltimore successfully mentored junior surgeons at the Thailand and Austria locations. *Id.*; *see also* EX1002 ¶33.

Similarly, a 1998 paper describes a successful telementoring session where physicians in Hawaii performed an endoscopic laser-assisted dacryocystorhinostomy procedure that was transmitted in real-time to ophthalmologists in the Philippines. EX1008. This telementoring system used a “PictureTel videoconferencing system with digital camera positioned over the monitor.” *Id.* 376; *see* Figure 1 (reproduced below). Using this system, the surgeons

in the Phillipines were “able to view the entire procedure, ask questions, clarify details, and give feedback in real time.” *Id.* 377; *see also* EX1002 ¶34.



**FIG. 1.** PictureTel videoconferencing system with digital camera positioned over monitor.

These papers as well as the prior art references reflect the fact that videoconferencing for telemedicinal uses, including telementoring of surgical procedures, was well-known and commonplace by 2006. EX1002 ¶35.

## **B. The asserted prior art**

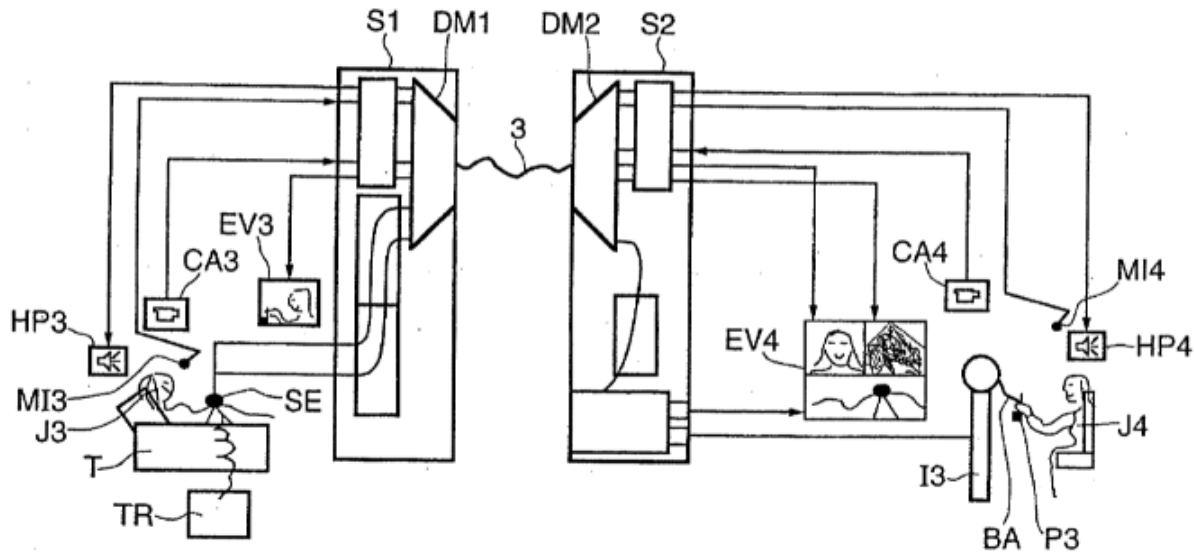
### **1. US 2003/0144768 (“Hennion”) (EX1013)**

United States Pat. App. No. 2003/0144768, issued to Hennion, *et al.*, was published on July 31, 2003, and therefore constitutes prior art under 35 U.S.C. §102(b). EX1002 ¶¶36-37. Hennion is directed to a telemedicine system, specifically a system having a “control system S1 installed ... in an institution which

does not specialize in obstetrics” and a “system S2 installed in a specialized hospital institution where highly qualified operators are available to carry out the echography operations, for example, in a regional or university hospital.” EX1013 ¶60. System S1, which is co-located with the patient, comprises “[a]n echographic probe SE in contact with [the patient’s] abdomen,” a “camera CA3 oriented toward the patient,” “microphone MI3” and “loudspeaker HP3,” which together “allow[] the patient to converse with the remotely located operator.” *Id.* Systems S1 and S2 transfer data “over the network 3.” *Id.*

At the remote system S2, there is an operator “who may be a doctor specialized in echography” who can “manipulate[] a handle P3, the position in space of which will be replicated by the probe SE.” *Id.* ¶61. The remote system also comprises “a camera CA 4 directed toward the operator J4 and whose images can be displayed on the screen EV3 [of system S1] to converse with the patient J3.” *Id.* ¶62. The remote system also has “[a] large video screen EV4” that can “simultaneously ... display a plurality of images, for example, an echographic image, an image of the face of the patient J3 and an image showing the position of the probe SE on the patient’s abdomen.” Figure 1, reproduced below, depicts these elements, including the video screen EV4 that simultaneously displays multiple camera outputs. EX1002 ¶37.

**FIG.1**

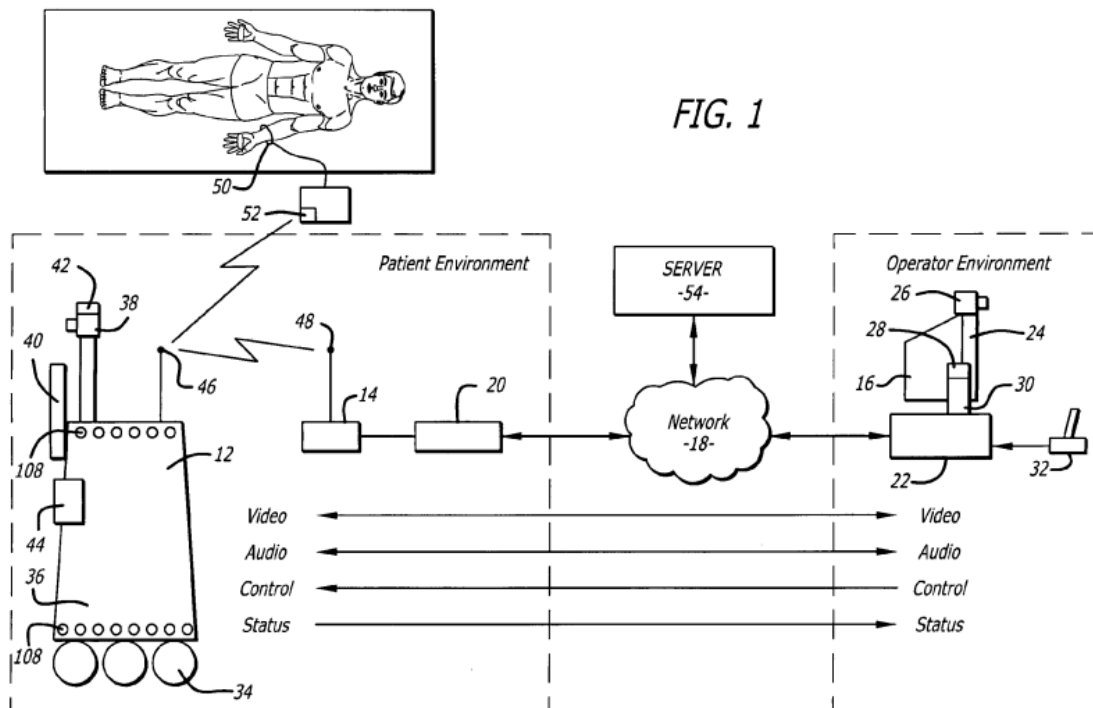


## 2. US 2005/0204438 (“Wang” (EX1012))

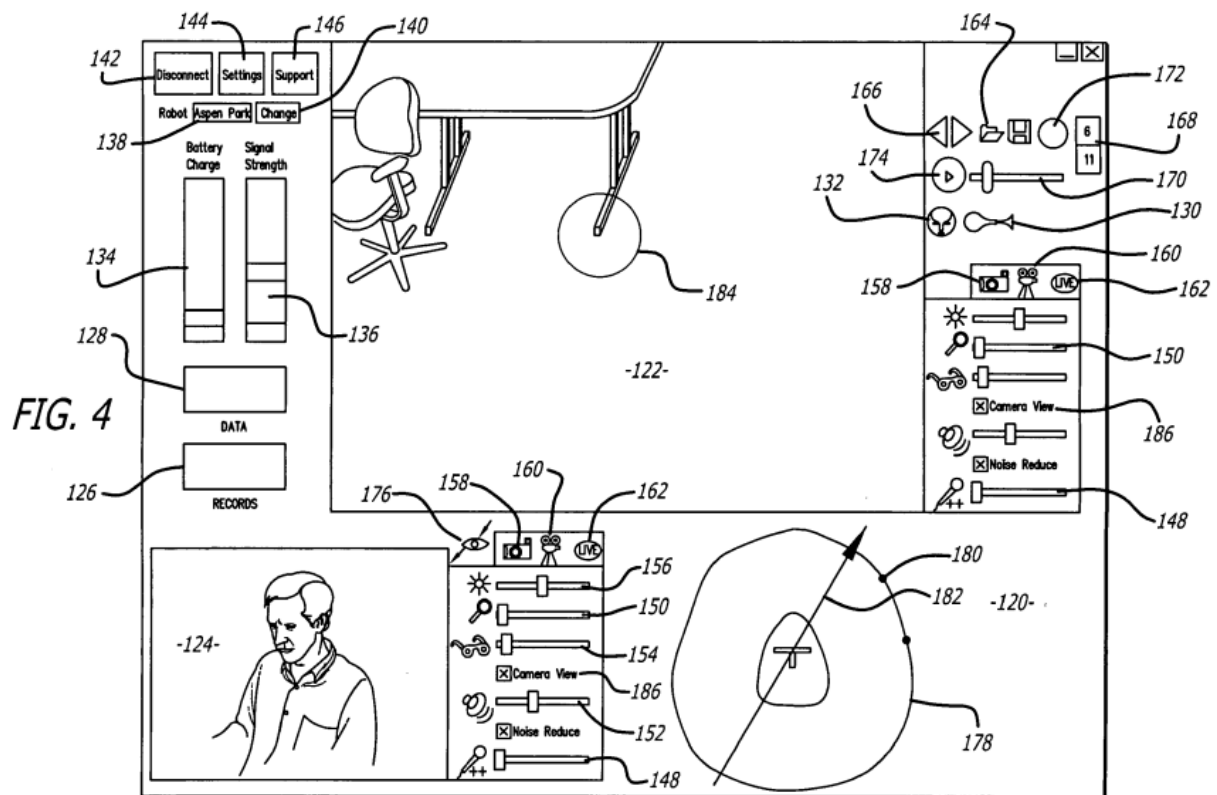
United States Pat. App. No. 2005/0204438, filed by Wang, *et al.*, was filed on October 11, 2004 and claims priority to a provisional application filed February 26, 2004. It is therefore prior art under 35 U.S.C. §102(e). Wang was initially assigned to InTouch Technologies, the same original assignee of the '679 patent. Wang also discloses a similar system using similar, if not identical, language as the '679 patent. EX1002 ¶¶38-41.

Wang discloses “a robot system that includes a robot and a remote station.” EX1012 Abstract. The robot “includes a movement platform 34” with “a camera 38, a monitor 40, a microphone(s) 42 and a speaker(s) 44,” where the monitor and camera are coupled together. *Id.* ¶18. Wang also discloses a remote control station

that includes “a monitor 24, a camera 26, a microphone 28 and a speaker 30,” wherein the remote station may control “any number of robots 12.” *Id.* ¶17. The remote station also has a “display user interface (‘DUI’)” with a “robot view field 122 that displays a video image captured by the camera of the robot.” *Id.* ¶30.



Wang discloses “[t]he DUI 120 may include a robot view field 122 that displays a video image captured by the camera of the robot” and “a station view field 124 that displays a video image provided by the camera of the remote station 16” which are simultaneously displayed. *Id.* ¶30; *see* Figure 6 (reproduced below). Wang also discloses that “view field 122 may be split to simultaneously display both the video image and the electronic medical record.” *Id.* ¶31.



Wang was recently abandoned on March 26, 2021 after numerous rejections by the examiner and a failed appeal to the Board. On appeal, the Board affirmed the examiner's finding that the applicant's claims were obvious. EX1029. Those claims were very similar to the claims in the '679 patent and, among other things, disclosed a "mobile robot that has a robot monitor and a robot camera," a "remote station [that] includes a station camera and a station monitor," where the station monitor had views for displaying the video captured by the robot camera and the station camera, as well as an input for taking a still image of the robot monitor. *Id.*

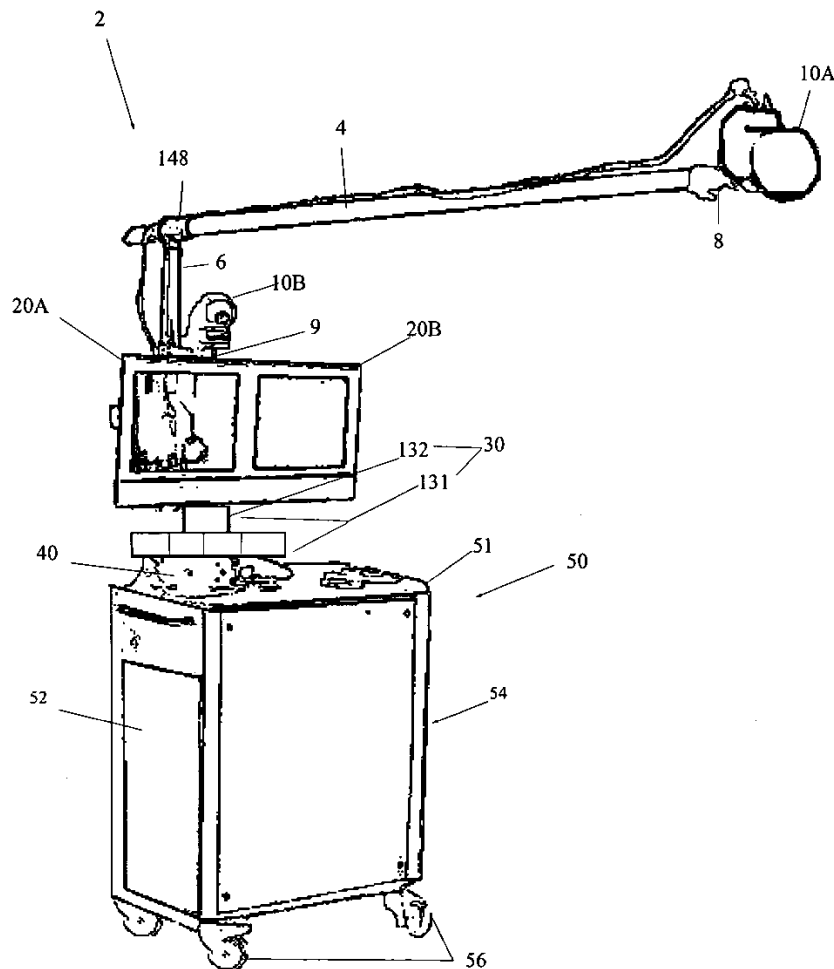


**3. US 2005/0052527 (“Remy”) (EX1015)**

United States Pat. App. No. 2005/0052527, filed by Remy, *et al.*, was filed on August 20, 2004 and claims priority to a provisional application filed August 20, 2003. It is therefore prior art under 35 U.S.C. §102(e). EX1002 ¶42.

Remy discloses a “mobile self-powered videoimaging, video communication, video production (VCVP) system designed specifically for health care industry that provides high-resolution audio, video and data communications, production and recording capabilities at hospital operating room/procedure room or field environments for transmission to other remote locations.” EX1015 Abstract. In particular, Remy discloses a “mobile VCVP station 2” which “generally comprises a multi-camera video and control system ... mounted on a mobile platform 50.” *Id.* ¶26. The platform includes “a plurality of remote control Pan-Tilt-Zoom cameras (at least two are preferred ...)” which “are controlled by ... wireless remote controls, and their outputs are coupled both to the video production equipment as well as the teleconferencing and networking equipment inside the platform 50.” *Id.* ¶27. Platform 50 also “includes a plurality of auxiliary inputs for connection of external (remote) endoscopes, laparoscopes [sic], or other medical imaging devices or remote video cameras as desired to completely capture a given surgical procedure.” *Id.* ¶27. Remy further discloses that “[t]his combination of video/audio sources,” including the auxiliary inputs, “facilitates the complete and unobstructed capture of surgical

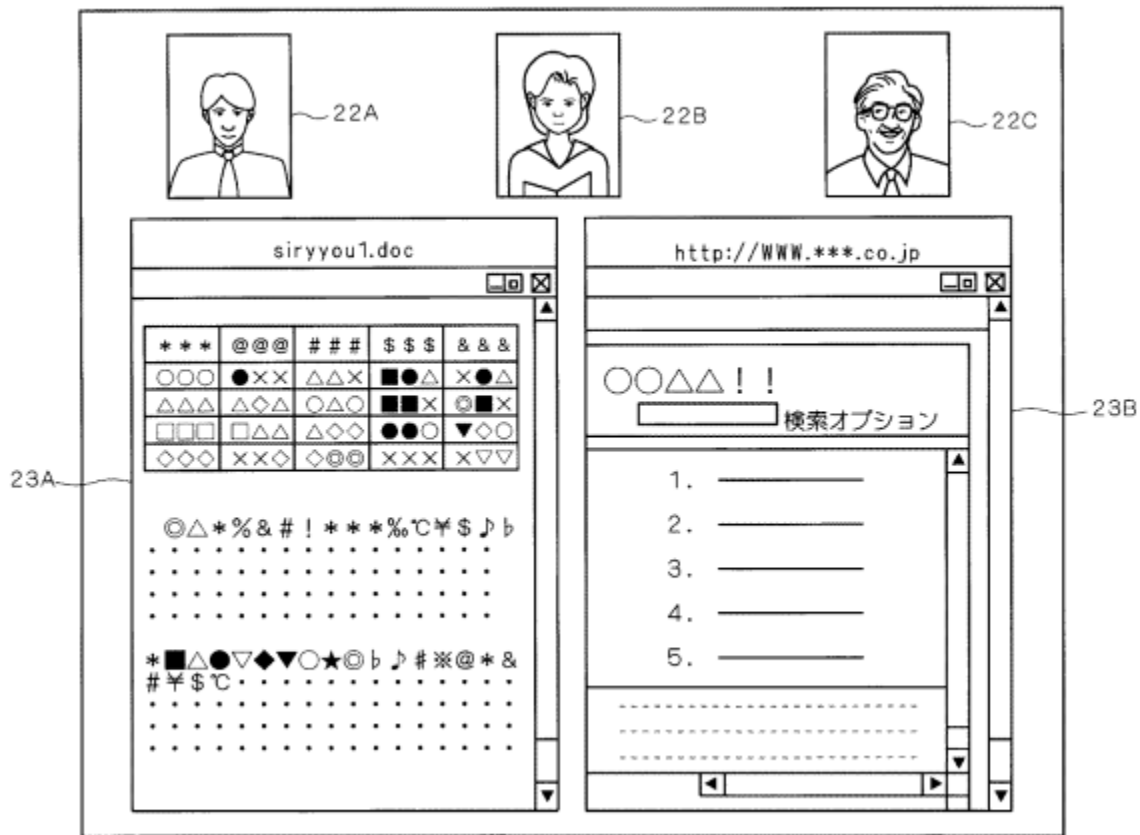
procedures from multiple selectable angles and proximities, all from a singular point of control.” *Id.* Figure 1, reproduced below, depicts mobile platform 50. *See also* EX1002 ¶42.



#### 4. JP 2004-187126 (“Akihiro”) (EX1023)

Exhibit 1022 is Japanese Patent No. 2004-187126 issued to Akihiro, *et al.*, which was published July 2, 2004 and therefore constitutes prior art under 35 U.S.C. §102(b). Exhibit 1023 is a certified translation of Akihiro. Akihiro discloses “a

video meeting system for transmitting and receiving audio and video signals among terminal stations connected via a network,” which can be used to provide “medical service[s].” EX1023 ¶¶1, 65. Akihiro teaches “a user interface of the video meeting system according to the present embodiment,” which includes “video display areas 22A to 22C for displaying images from each terminal station.” EX1023 ¶56; *see* Figure 7 (reproduced below). Akihiro gives an example where “a medical service is provided,” where a “doctor” “is a user of a specific terminal station 4” and a “patient” is “a user of a general terminal station 5.” *Id.* ¶65. Both of these terminal stations “function[] as a videophone” and have “a camera, a speaker, and a microphone.” *Id.* ¶¶22, 25. *See also* EX1002 ¶43.



## 5. US 5,701,904 (“Simmons”) (EX1025)

U.S. Patent No. 5,701,904, issued to Simmons, *et al.*, was published on December 30, 1997 and therefore constitutes prior art under 35 U.S.C. §102(b). Simmons discloses “a portable medical diagnostic apparatus which includes three types of data-gathering instruments” which take images that are “transmitted to a remote site for analysis by medical personnel.” EX1025 Abstract. Simmons discloses that one of those instruments is “a video otoscope 20 which allows imaging of the ear canal and tympanic membrane.” EX1025 2:66-67. Simmons further

discloses that the video signal of the otoscope is “transmi[tted] to a remote location.”

*Id.* 3:13-14. *See also* EX1002 ¶44.

**6. US 7,889,791 (“Taubman”) (EX1026)**

U.S. Patent No. 7,889,791 to Taubman was filed June 14, 2002 and claims priority to a foreign patent filed December 21, 2000. The patent application for Taubman was also published February 20, 2003. It therefore constitutes prior art under 35 U.S.C. §§102(b) and 102(e). Taubman discloses that “the present invention provides a method for providing a video signal for use in telemedicine.” EX1026 6:60-61. As Taubman explains, “a senior surgeon could remotely monitor the procedures being carried out by a junior surgeon” and “the senior surgeon [could] wish[] to focus on an aspect of the signal.” *Id.* 20:41-46. The senior remote surgeon could then choose to view a “higher quality bit stream over the lower quality bit stream” of a video of a procedure. EX1026 20:41-46. *See also* EX1002 ¶45.

**C. Summary of the ’679 patent**

U.S. Patent No. 8,849,679 issued to Wang, *et al.* was filed November 25, 2008 and claims priority to an application filed June 15, 2006. EX1002 ¶¶46-47. The patent is titled “Remote controlled robot system that provides medical images.” In total, there are 11 claims, 2 of which are independent. Claim 1 is exemplary:

1. A remote controlled robot system, comprising:

a robot with a robot monitor, and a robot camera that captures a

patient image of a patient, said robot having an auxiliary video port, said robot including a microphone and a speaker;

a medical image device that is coupled to said auxiliary video port and can capture a medical image of a patient; and,

a remote control station that has a microphone and a speaker and transmits commands to control said robot, said remote control station includes a control station camera that captures a medical image of a medical personnel and a control station monitor that displays a display user interface, said display user interface simultaneously displays the patient image captured by said robot camera in a robot view field, said medical personnel image in a station view field, and said medical image in an auxiliary view field, wherein a doctor located at said remote control station can conduct a video conference with a technician located at said robot while viewing the patient image and the medical image.

The specification of the '679 patent does not clearly explain what improvements the purported invention had over the prior art. EX1002 ¶48. In the “Background Information” section, the applicant discussed several prior art systems developed by the original assignee, InTouch Technologies, Inc.: “COMPANION, RP-6 and RP-7.” EX1001 1:19. The '679 patent describes these systems as “a mobile robot ... controlled by a user at a remote station,” both of which “have cameras, monitors, speakers and microphones to allow for two-way video/audio

communication.” *Id.* 1:18-28. The specification does note, however, that “[e]xamination of the patient is limited to visual inspection and audio feedback” and that “[i]t would be desirable if the system would also allow other devices to be used to examine and interact with a patient.” *Id.* 1:33-36. It would therefore appear that the alleged novelty of the ’679 patent was the inclusion of an auxiliary port coupled to a medical imaging device—technology that was well-known at the time of the patent’s earliest priority date. EX1002 ¶48.

However, and as discussed in further detail below, during prosecution of the patent, the examiner rejected the initial set of claims which did include an auxiliary port for medical imaging devices. EX1004 2842-58. Over a series of rejections, the applicant added additional limitations, including the remote station camera capturing a “medical image of a medical personnel” (*Id.* 584), the robot having “a microphone and a speaker” (*Id.* 97), and the requirement of a video conference between doctor and technician (*id.*). Following the addition of those last two limitations, the examiner allowed the claims. *Id.* 18.

## **VI. PERSON OF ORDINARY SKILL IN THE ART**

A person of ordinary skill in the art (“POSITA”) as of the filing date would have had at least a B.S. in Computer Science, Electrical Engineering, or similar field of study and at least two years of research or work experience in designing or

engineering teleconferencing systems, such as those used in telemedicine. EX1002 ¶¶14-17.

## **VII. CLAIM CONSTRUCTION**

In an IPR proceeding, claim terms are to be construed using the standard under *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005), that is, in accordance with its plain and ordinary meaning as understood by a POSITA. The terms of the challenged claims are all understandable, ordinary English words, and have not been imparted any special meaning by the specification. EX1002 ¶56. Thus, none of the claims need to be expressly construed, and should be given their ordinary meaning to a person of ordinary skill in the art. *Id.*

## **VIII. INSTITUTING THIS IPR WOULD BE EQUITABLE**

### **A. 35 U.S.C. § 325(d) Factors Support Institution**

The Board should not exercise its discretion to deny under § 325(d). Under the Board's precedential decision in *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 7 (PTAB Feb. 13, 2020), the Board analyzes § 325(d) discretion under a “two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material



to the patentability of challenged claims.” *Id.* 8. The six factors in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17-18 (PTAB Dec. 15, 2017) (precedential), “provide useful insight into how to apply the [two-part] framework.” IPR2019-01469, Paper 6 at 9.

**1. The Same or Similar Art and Arguments in this Petition were Not Previously Presented to the Office**

This petition relies on the following prior art references: Hennion (US 2003/0144768), Remy (US 2005/0052527), Akihiro (JP 2004187126), Simmons (US 5,701,904), Taubman (US 7,889,791), and Wang (US 2005/0204438). Hennion, Akihiro, and Taubman were neither cited nor discussed during prosecution. Simmons and Wang were cited but not discussed. Only Remy was discussed by the examiner. EX1002 ¶49.

The first three grounds of challenge in this petition rely on Hennion as the base reference as modified by the teachings of Remy, Akihiro, Simmons, and/or Taubman. Hennion was never discussed or cited during prosecution, nor is Hennion duplicative of any reference relied upon by the examiner during prosecution. Thus, on this basis alone, grounds 1-3 present unpatentability arguments that do not present the same or substantially the same prior art or arguments previously presented to the Office. Likewise, Petitioner’s reliance on Remy does not change this analysis. Grounds 1-3 only rely on Remy’s teachings of an auxiliary input for medical

imaging devices. This was precisely the teaching in Remy that the Examiner relied upon in every rejection and was never disputed during prosecution. *See, e.g.*, EX1004 489. Thus, there can be no dispute here that Remy discloses the claimed auxiliary input. Moreover, the examiner did not consider Remy in the context of modifying Hennion. A petition that presents a non-cumulative base reference not previously part of the record modified by a reference discussed by the examiner is not grounds for denial under Section 325(d). *See Oticon Medical AB v. Cochlear Limited*, IPR2019-00975, Paper 15 at 18-19 (PTAB Oct. 16, 2019) (precedential) (declining to deny under Section 325(d) when petition uses base reference not of record modified with references discussed by examiner); *Unified Patents Inc. v. Berman*, IPR2016-01571, Paper 10 at 12-13 (PTAB Dec. 14, 2016) (informative) (same); *Edwards Lifesciences Corp. v. Boston Scientific SciMed, Inc.*, IPR2017-01295, Paper 9 at 26-27 (PTAB Oct. 25, 2017) (declining to deny under Section 325(d) because prior art discussed by examiner was used in a different obviousness combination in the IPR petition).

Instead, the examiner relied on either Wang (US 2004/0019406) (“Wang2004”)<sup>2</sup> or Finlay (US 2008/0201016) as the base reference to be modified by Remy. Yet neither Wang2004 or Finlay are similar to Hennion, as neither include the “video conference” limitation added to the claims to overcome the rejection. EX1002 ¶¶50-55. Specifically, in the final amendment before allowance, the applicant amended claim 1 to include the last limitation of “wherein a doctor located at said remote control station can conduct a video conference with a technician located at said robot while viewing the patient image and the medical image.” EX1004 97. The applicant successfully argued that none of the references discussed by the examiner disclosed this limitation, including the ability to simultaneously view the patient image and medical image. By contrast, Hennion discloses that its system at the remote site is operated by “the operator J4 who may be a doctor” and has “a microphone MI4 and a loudspeaker HP4 allowing the operator J4 to converse with the patient J3,” as well as “video screen EV4 [that] simultaneously ... display[s] a plurality of images, for example, an echographic image [and] an image of the face

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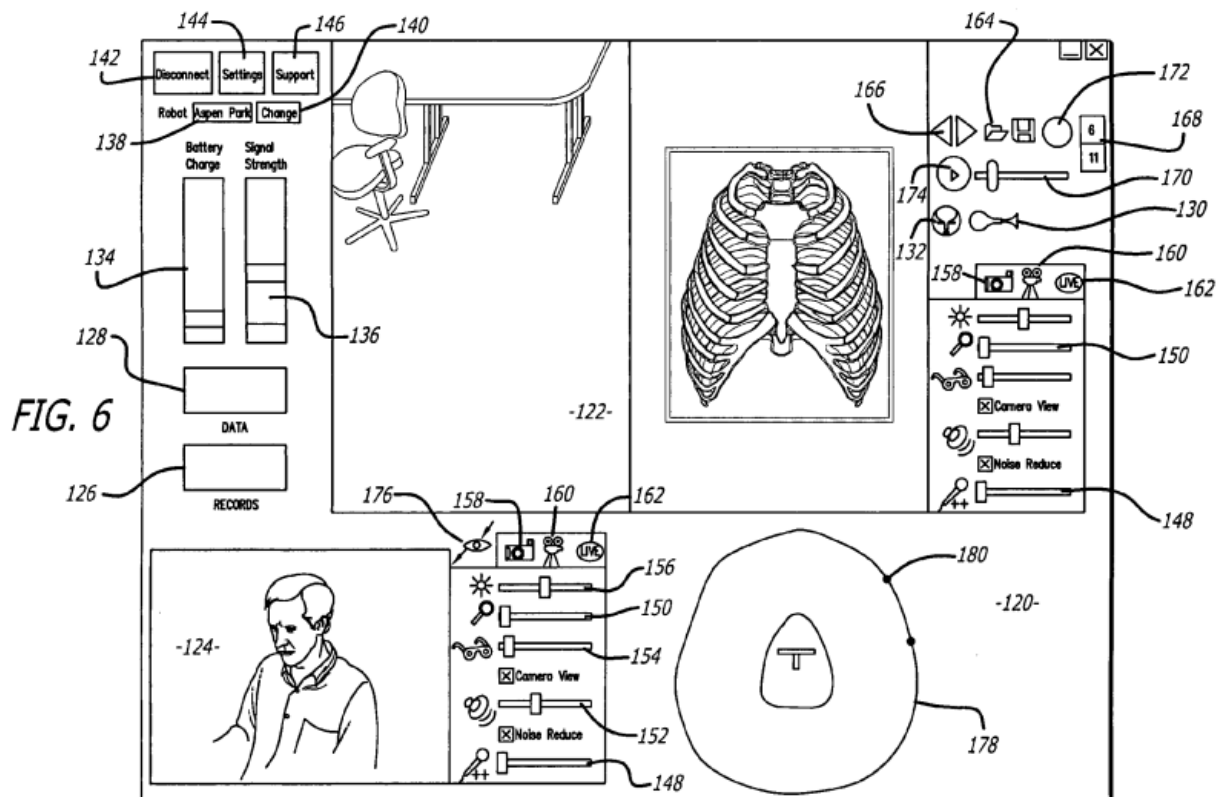
<sup>2</sup> As discussed below, although Wang2004 shares the same named inventor as the Wang reference relied upon in this petition, Wang2004 is significantly different from Wang.

of the patient J3.” EX1013 ¶61. Hennion further discloses that a technician is present in order to “generally coat[]” the “skin of the [patient] ... with a gel for suitable transmission of the ultrasound” and “place[]” “the echographic probe SE ... close to the patient P.” *Id.* ¶¶90, 97. Moreover, since Remy does disclose that its station is operated “by a single trained person” (EX1015 ¶10), Hennion combined with Remy would render obvious this video-conferencing limitation that the examiner found was missing in the discussed art. Thus, the combination of Hennion in view of Remy and Akihiro is not the same or similar to any art or arguments presented to the Board. EX1002 ¶52.

With respect to Wang, which is the base reference used in grounds 4 through 7, although Wang was cited in the prosecution history and is very similar to the ’679 patent, it was never discussed by the examiner. *See Microsoft Corp. v. Parallel Networks Licensing, LLC*, IPR2015-00486, Paper 10 at 15 (PTAB ) (declining to deny under Section 325(d) when references disclosed in an IDS were not applied by the examiner). Instead, Wang was submitted in an Information Disclosure Statement filed soon after the filing of the patent application that in total disclosed over 300 references. Despite Wang having disclosures highly similar if not identical to the specification of the ’679 patent, the examiner never discussed this reference. Indeed, despite their similarities with the ’679 patent, Wang was not disclosed until the very

middle of the IDS—out of the 309 references disclosed with the IDS, Wang was the 167<sup>th</sup> reference disclosed.

In addition, the arguments in this petition based on Wang were never previously presented before the patent office, nor are they substantially the same as any argument presented during prosecution. Patent owner may argue that the examiner relied on a different Wang reference, Wang2004. However, that reference is fundamentally different than the Wang reference relied on in this petition, the only similarity being the same named inventor. EX1002 ¶53. Specifically, Wang2004 lacks any disclosure of a user interface at the remote site, whereas Wang discloses that its user interface “may include a robot view field 122 that displays a video image captured by the camera of the robot” and “a station view field 124 that displays a video image provided by the camera of the remote station 16” which are simultaneously displayed. EX1012 ¶30; *see* Figure 6 (reproduced below). Wang also discloses that “view field 122 may be split to simultaneously display both the video image and the electronic medical record.” *Id.* ¶31.



Moreover, as with the combination of Hennion and Remy, Wang discloses a video-conference between a doctor and technician where the doctor views the patient image and a medical image, which was the last limitation added to the claims before allowance. EX1002 ¶54. Specifically, Wang discloses that its invention “relates to the field of mobile two-way teleconferencing” and that a remote “doctor [can] instruct personnel at the robot site.” EX1012 ¶43. Similar disclosures are not found in any of the references discussed by the examiner, including Wang2004.

Finally, with respect to Simmons, this petition only relies on Simmons for its disclosure of a video otoscope used in a telemedicine system. The examiner relied

on a different reference, U.S. Patent Pub. No. 2002/0055917 (“Muraca”), that similarly disclosed an otoscope in a telemedicine system. However, the examiner never considered Simmons or Muraca in the context of Hennion or Wang, which as discussed above contain disclosures relevant to the ’679 patent that were not disclosed in the references discussed by the examiner. EX1002 ¶55.

Thus, none of the references or combinations of references that the examiner discussed during prosecution were the same or substantially the same as the grounds of challenge brought forth in this petition.

## **2. The Office Erred in Not Discussing Wang**

To the extent the Board considers Wang to have been presented to the patent office during prosecution, in failing to discuss Wang, the patent office erred in a manner material to the patentability of the challenged claims. As discussed below in the grounds of analysis, Wang discloses the user interface elements and a video conference between doctor and technician as recited in the challenged claims. It was error for the examiner to not discuss Wang, especially following the applicant’s amendment of the claims to include a video conference between doctor and technician where the doctor views a patient image and medical image.

The examiner’s error is compounded by the fact that Wang is extremely similar to the ’679 patent. First, Wang and the ’679 patent are assigned to the same entity: InTouch Technologies, Inc. Second, they all share at least one inventor.

Third, the figures depicting the user interface are very similar. *Compare* EX1012 Figure 4 *with* EX1001 at *Figure 5*.

The specifications for Wang and the '679 patent are also very similar, and in several cases identical. For example, both disclose a “robot 12” that “includes a movement platform 36 that is attached to a robot housing 38,” which is attached at least one “camera,” “a monitor 44, microphone(s) 46 and a speaker(s) 48.” EX1012 ¶18; EX1001 at 2:45-48. Both also disclose a “remote control station 16 ... that has a monitor 24, a camera 26, a microphone 28 and a speaker 30.” EX1012 ¶17; EX1001 at 2:33-35. Both also disclose a “display user interface (‘DUI’)” that is “displayed at the remote station.” EX1012 ¶30; EX1001 at 4:51-52. Both further disclose that “[t]he DUI ... may include a robot view field ... that displays a video image” captured by the camera of the robot and “a station view field ... that displays a video image provided by the camera of the remote station 16” which are simultaneously displayed. EX1012 ¶30; EX1001 at 4:52-57.

Despite the similarities between Wang and the '679 patent, the patent office never rejected any of the claims as double patenting nor required applicant to file a terminal disclaimer. Even though Wang was cited in an IDS (along with several hundred other references), it is likely that the examiner did not give Wang due consideration given their similarities with the '679 patent. Thus, the examiner erred, and this was material to the patentability of the challenged claims.



Discretionary denial under § 325(d) is thus unwarranted. *Pure Storage, Inc. v. Realtime Data LLC*, Case No. IPR2018-00549, Paper 7 at 11 (PTAB July 23, 2018).

**B. NHK-Fintiv Factors Support Institution**

The Board balances six factors in considering denial under 35 U.S.C. §314(a); here, the weight of these factors strongly favors institution. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). Given the lack of a trial date, how little resources have been invested in the parallel litigation, and Petitioner’s diligence in bringing this petition, all but one of the factors are neutral or favor institution.

**1. Likelihood of a Stay**

Neither party has requested a stay in the parallel Litigation. This factor is neutral.

**2. Proximity of the Court’s Trial Date to a FWD**

The District Court recently entered a scheduling order that sets a late trial date. Specifically, trial is currently scheduled for October 2, 2023, which is nearly two years from the date of the filing of this petition. EX1021. If this petition were instituted, trial would start several months after the statutory due date for the final written decision. Thus, this factor weighs strongly in favor of institution.

### **3. Investment in the Parallel Proceeding**

Investment in the parallel proceeding has been minimal. As just discussed, a scheduling order has only recently been entered. The District Court litigation is therefore in its earliest stages, with minimal discovery having been produced , and no infringement or invalidity contentions having been served.

Under this factor, the Board may consider the Petitioner's diligence in filing this petition. Petitioner filed this petition 7 months after service of the complaint. In view of how little has occurred in the district court, Petitioner has been very diligent.

This factor therefore weighs strongly in favor of institution.

### **4. Overlap Between Issues Raised in the Petition and in the Parallel Proceeding**

At the moment, it is unclear to what extent there will be an overlap between the issues raised in the petition and in the parallel proceeding. Patent Owner's complaint alleges that Petitioner infringes "at least claim 1 of the '679 Patent," and includes an infringement chart of claim 1. EX1020. However, since Patent Owner has not yet submitted infringement contentions, as of the filing of this petition, there is little overlap between the 10 claims challenged here and the sole claim explicitly asserted in the Patent Owner's complaint. It is also unlikely that Patent Owner will be allowed to assert all 10 claims of the '679 patent.

Thus, the factor favors institution.

**5. Whether the Petitioner and the Defendant in the Parallel Proceeding are the Same Party**

The parties are the same in this IPR and in the litigation.

**6. Other Circumstances, that Impact the Board's Exercise of Discretion, Including the Merits**

Other circumstances strongly favor institution. In particular, the merits of the present petition are particularly strong. Patent Owner is attempting to monopolize the use of video conferencing equipment within the telemedicine industry, even though its patent was filed over 10 years after the earliest telemedicine demonstrations. The prior art references Hennion and Wang both cover nearly every limitation except an auxiliary port, which was hardly a novel idea in the telemedicine industry or in general. Thus, the factor weighs in favor of institution.

**IX. GROUND 1: HENNION IN VIEW OF REMY AND AKIHIRO RENDERS OBVIOUS CLAIMS 1, 2, 4-6, AND 8-10**

Hennion in view of Remy and Akihiro renders obvious claims 1, 2, 4-6, and 8-10. EX1002 ¶¶57-99. This ground relies on Hennion for the majority of limitations and combines it with Remy's disclosure of an auxiliary input for medical imaging devices and Akihiro's disclosure of simultaneously display of a doctor and patient in a videoconferencing system user interface. EX1002 ¶57.

More specifically, Hennion discloses a robotic telemedicine system for remote echographic procedures wherein a remote doctor can remotely operate a

robotic echographic probe on a distant patient with the assistance of a technician. Hennion discloses that the system is a video-conferencing system where the patient can view the image of the doctor, and the doctor can simultaneously view an image of the patient and medical device. While Hennion does not expressly disclose that the echographic probe is connected to an auxiliary port, Remy does, and a POSITA would have readily modified Hennion to include this teaching. EX1002 ¶58. Remy is a telemedicine system that does disclose an auxiliary port for connection with medical imaging devices. And while Hennion does disclose the simultaneous display of a plurality of images at the remote site, it does not expressly disclose that one of the images is the image of the remote doctor itself. Akihiro, however, does disclose a video-conferencing telemedicine system where a doctor provides medical advice to a patient through a user interface that displays both the doctor and patient's images. Because of the known benefits that auxiliary video inputs provide flexibility and future-proof upgrades, and that simultaneous display of local and remote video feeds provides confidence that the local user's video provides an adequate view, a POSITA would have found it obvious to combine these references, and together they disclose each and every limitation of claims 1, 2, 4-6, and 8-10. EX1002 ¶59.

**A. Rationale to Combine Hennion with Remy and Akihiro**

Hennion, Remy and Akihiro all disclose video conferencing telemedicine systems. Hennion and Remy also both disclose telemedicine systems for use in

monitoring or mentoring surgical procedures. Remy specifically teaches an auxiliary port for connecting any variety of medical imaging devices, which had the well-known benefits of allowing unobstructed views from the medical imaging device and flexibility in terms of which imaging device to use and the ability to replace or upgrade the device with ease. Akihiro specifically teaches a video conferencing user interface where both the doctor and the patient's image is displayed, which had the well-known benefits of providing the doctor with the assurance that the patient had an adequate and unobstructed view of the doctor. In view of these known benefits, a POSITA would have found it obvious to incorporate Remy and Akihiro's teachings into Hennion. EX1002 ¶¶60-69.

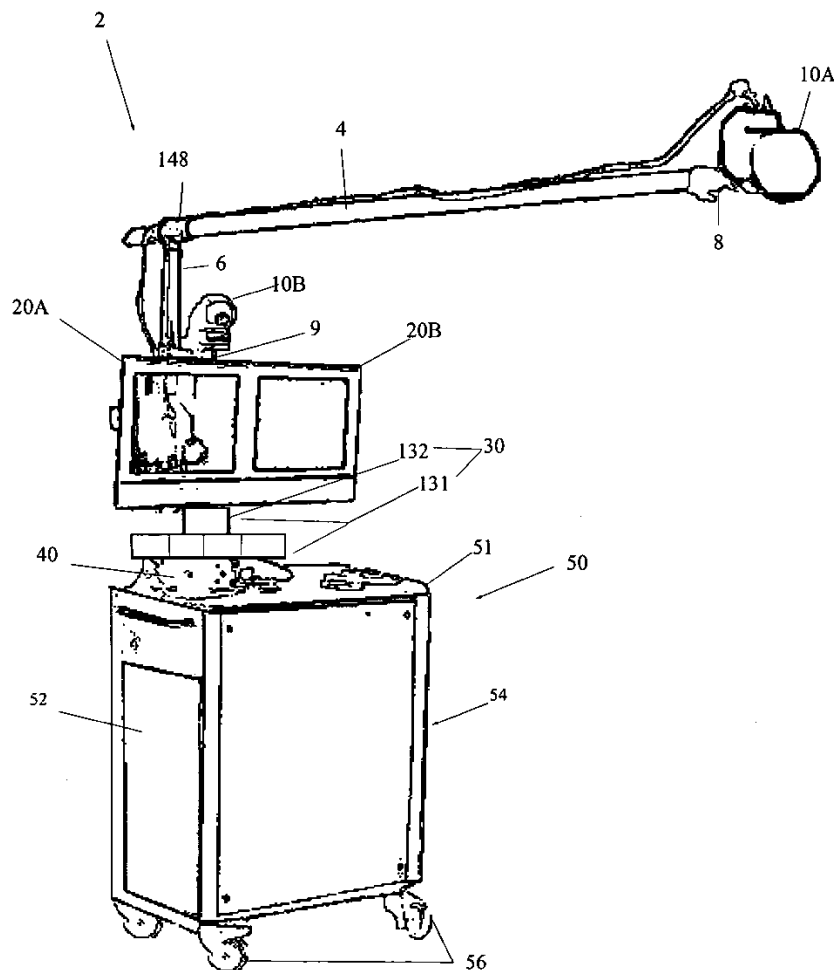
Hennion, Remy and Akihiro are all analogous art and directed to the same field of endeavor as the '679 patent, that is, systems for telemedicine. EX1002 ¶61. The '679 patent discloses "[a] remote controlled robot system that includes a mobile robot and a remote control station" which "allows the remote operator to conduct a video conference with someone at the robot site while viewing medical images in real time." EX1001 at Abstract, 2:15-17. Hennion discloses that its "invention is advantageously applied to bidirectional systems, for example robot tele-echography which may be used in the field of obstetrics and abdominal examinations." EX1013 ¶48. Remy similarly discloses a "mobile self-powered videoimaging, video communication, video production (VCVP) system designed specifically for health

care industry that provides high-resolution audio, video and data communications, production and recording capabilities at hospital operating room/procedure room or field environments for transmission to other remote locations.” EX1015 Abstract. And Akihiro discloses “technology related to a video meeting system,” which can be used to provide “medical service[s].” EX1023 ¶¶1, 65.

As explained below, there are teachings from both Remy and Akihiro that a POSITA would have been motivated to combine with Hennion and would have reasonably expected it to succeed. EX1002 ¶62.

### **1. Hennion combined with Remy**

A POSITA would have been motivated to combine Hennion and Remy by incorporating Remy’s auxiliary port into Hennion’s system in order to have the flexibility, robustness and future-proofing that an auxiliary port was known to provide. EX1002 ¶¶63-65. Remy discloses a “mobile platform” which “a plurality of auxiliary inputs for connection of external (remote) endoscopes, laparoscopes [sic], or other medical imaging devices or remote video cameras as desired to completely capture a given surgical procedure.” EX1015 ¶27. Remy discloses that “[t]his combination of video/audio sources,” including the auxiliary inputs, “facilitates the complete and unobstructed capture of surgical procedures from multiple selectable angles and proximities, all from a singular point of control.” *Id.* Figure 1, reproduced below, depicts mobile platform 50.



Hennion discloses that its telemedicine system includes an “echographic probe [that is] remotely manipulated by an operator.” EX1013 ¶48. Such a probe is used for remote “echo graphy operations.” *Id.* ¶60. A POSITA would have found it obvious to incorporate Remy’s teaching of an auxiliary port to connect Hennion’s echographic probe. EX1002 ¶64. A POSITA would be motivated to do this in order to achieve the benefits of “complete and unobstructed capture of [medical] procedures from multiple selectable angles and proximities, all from a singular point

of control,” as described in Remy. EX1015 ¶27. A POSITA would also be motivated by the well-known understanding that auxiliary ports allow for flexibility, redundancy and future-proofing. EX1002 ¶64. For example, a POSITA would be motivated by the fact that the auxiliary port could be used with other medical imaging devices, such as the endoscopes and laparoscopes disclosed in Remy. *See* EX1015 ¶27. Hennion further discloses that its system has other applications beyond echographic operations, such as allowing “people having defective sight ... to apprehend a shape” or “remote palpations,” both of which would require the use of some other device that is not an echographic tool. EX1013 ¶¶50-51. A POSITA would be motivated by the fact that incorporating Remy’s teaching of an auxiliary port into Hennion would facilitate these other usages of the system described by Hennion. EX1002 ¶64. A POSITA would be further motivated by the fact that an auxiliary port in Hennion’s system would allow for easy replacement or upgrade of the echographic probe, or any other medical imaging device. Such benefits were well-known by a POSITA and would have provided the motivation to combine Hennion and Remy. *Id.*

A POSITA would have known this combination of Hennion and Remy would have been reasonably expected to succeed and yield predictable results. EX1002 ¶65. The use of Hennion’s echographic probe through an auxiliary port would not have changed the functioning of the probe or the ability for the remote operator to



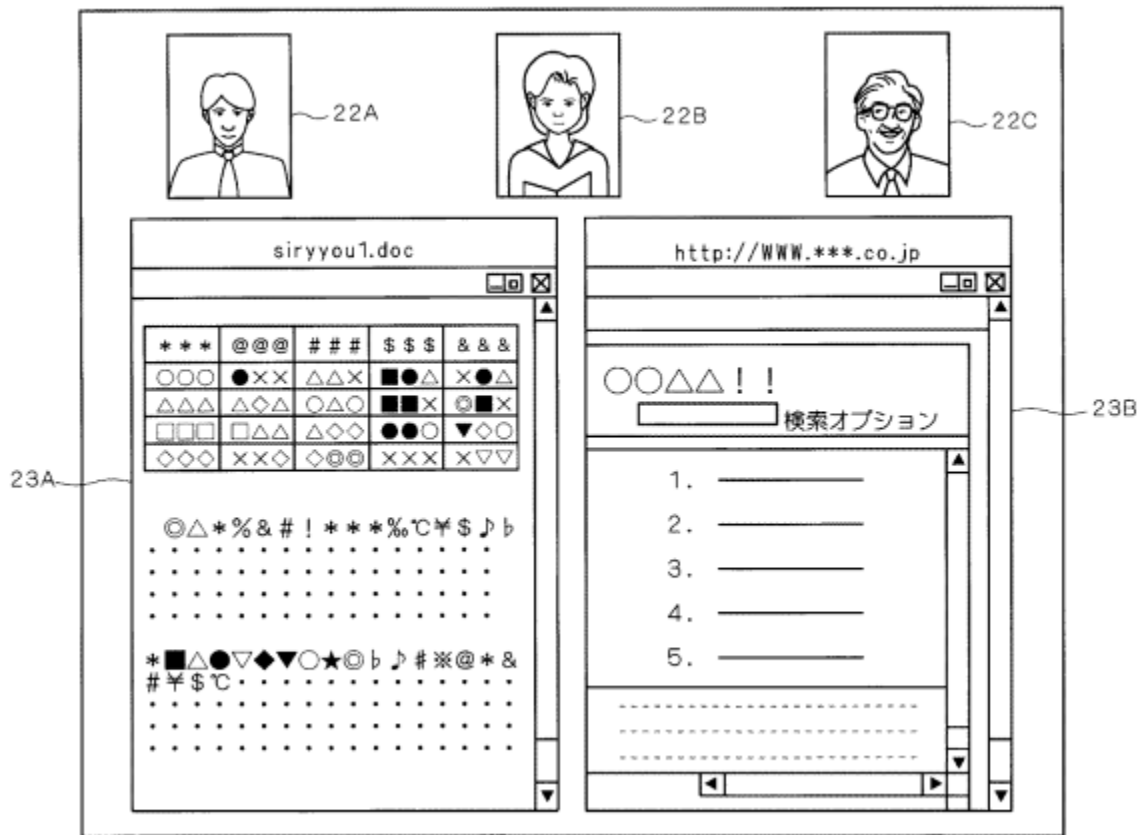
control it. *Id.* Indeed, Hennion discloses that the system located proximal to the patient “may be in the form of a computer” and contains “input and output ports.” EX1013 ¶65. A POSITA would have understood that connecting the echographic probe to system S1 via an auxiliary port, such as one of the disclosed input ports, would have been expected to succeed. EX1002 ¶65.

## **2. Hennion combined with Akihiro**

A POSITA would have also been motivated to combine Hennion and Akihiro by modifying Hennion’s user interface at the remote site to simultaneously display both the image of the patient and the image of the remote user in order to provide the remote user the confidence that his or her video image provides an adequate and unobstructed view. EX1002 ¶¶66-69. Hennion discloses a robotic system at the patient site that includes “a camera CA3 oriented toward the patient J3.” EX1013 ¶60. Hennion further discloses at that the system at the remote site includes “camera CA4 directed toward the operator J4” and a “large video screen EV4” that can “simultaneously ... display a plurality of images, for example, an echographic image, an image of the face of the patient J3 and an image showing the position of the probe SE on the patient’s abdomen.” *Id.* ¶62. Thus, Hennion already teaches the simultaneously display of a plurality of images at the remote site system, including the patient image from camera CA3, but does not expressly disclose that the plurality

of images can also include the image from the remote operator's camera CA4.  
EX1002 ¶66.

Akihiro discloses a telemedicine system where a user interface includes both the video image of a doctor and the video image of a patient. EX1002 ¶67. Akihiro teaches “a user interface of the video meeting system according to the present embodiment,” which includes “video display areas 22A to 22C for displaying images from each terminal station.” EX1023 ¶56; *see* Figure 7 (reproduced below). Akihiro gives an example where “a medical service is provided,” where a “doctor” “is a user of a specific terminal station 4” and a “patient” is “a user of a general terminal station 5.” *Id.* ¶65. Both of these terminal stations “function[] as a videophone” and have “a camera, a speaker, and a microphone.” *Id.* ¶¶22, 25. Thus, Akihiro discloses a video conferencing user interface for provision of a medical service where the image of the patient and doctor are simultaneously displayed on the screen. EX1002 ¶67.



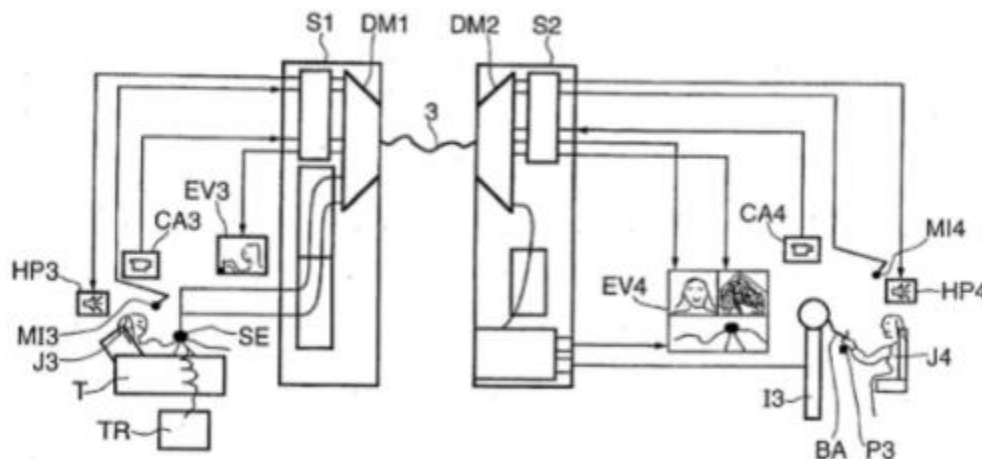
A POSITA would also have been motivated to incorporate these teachings from Akihiro into Hennion’s remote user interface. EX1002 ¶68. By the time of the earliest priority date of the ’679 patent, June 15, 2006, the benefits of simultaneously displaying a local user and remote user in a video conferencing system were well-known. *Id.* Akihiro is just but one example of such a system. For example, a paper from 1998, entitled “Some advantages of video conferencing over high-quality audio conferencing: fluency and awareness of attentional focus,” describes a system where “[t]he views provided will normally include the faces of the people at the remote end” and “a view of what the remote parties can see of the

local parties (the ‘confidence’ monitor).” EX1027 29. In other words, it was well-known that one benefit of simultaneously displaying both remote and local image was so that the local party could be assured that the remote party’s view of the local party was adequate and unobstructed. EX1002 ¶68. For example, by simultaneously displaying the local party’s image, the local party could be confident that the remote party had a full view of the local party’s face, as that would facilitate communication. *Id.* Thus, a POSITA would have been motivated to include the image from Hennion’s remote camera among the plurality of images displayed on the remote monitor. *Id.*

A POSITA would have known this combination of Hennion and Akihiro would have been reasonably expected to succeed and yield predictable results. EX1002 ¶69. For example, incorporating Akihiro’s teachings into Hennion would only require the simple modification of routing the image from remote “camera CA4 directed toward the operator J4” to the “large video screen EV4” which already allows for “simultaneously ... display[ing] a plurality of images, for example, ... an image of the face of the patient J3.” EX1013 ¶62. Both the camera CA4 and screen EV4 “are connected to the [remote] system S2.” *Id.* Given that system S2 already receives the image from camera CA4 (in order to send it to system S1 where it is “displayed on the [patient-side] screen EV3” (*id.*), it would be a simple modification for system S2 to also send the image from camera CA4 (along with the image from

patient camera CA3) to screen EV3. EX1002 ¶69. The user interface at screen EV3 could easily be modified to accommodate the image from camera CA4, such as further dividing the screen from three subparts into four subparts (such as horizontally dividing the bottom half of the image depicted in Figure 1, reproduced below). *Id.* These modifications would be simple modifications that would reasonably be expected to succeed and yield predictable results. *Id.*

**FIG.1**



**B. Claim 1**

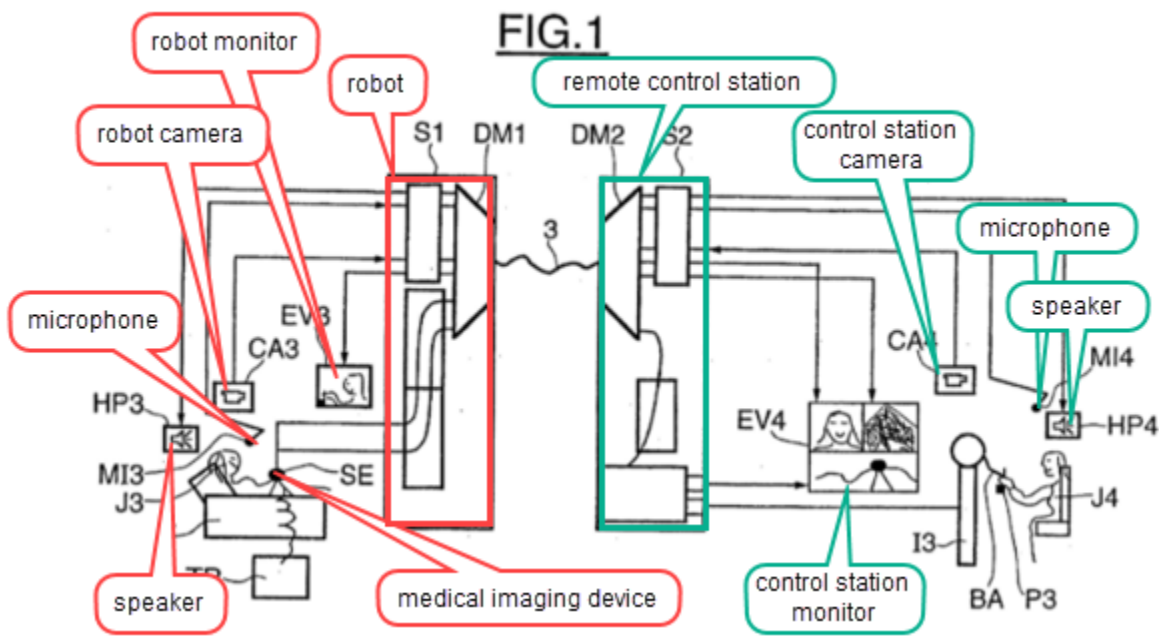
**1. [1.pre] A remote controlled robot system, comprising:**

To the extent the preamble is limiting, Hennion discloses that its “invention is advantageously applied to bidirectional systems, for example *robotic tele-echography* which may be used in the field of obstetrics and abdominal examinations.” EX1013 ¶48. Hennion further discloses that “[t]he echographic

probe could be remotely manipulated by an operator.” *Id.* ¶49. Hennion further discloses a “remote-controlled robot.” *Id.* ¶21. EX1002 ¶70.

2. [1.a] a robot with a robot monitor, and a robot camera that captures a patient image of a patient, said robot having an auxiliary video port, said robot including a microphone and a speaker;

Hennion discloses that its “robotic tele-echography” system (*i.e.* a robot) comprises “a control system S1,” which is “installed, for example, in an institution which does not specialize in obstetrics,” to which a “camera CA3” and “video screen EV3” are connected (*i.e.* robot camera and monitor). EX1013 ¶¶49, 60. Hennion further discloses that “a microphone MI3 and a loudspeaker HP3 [are] connected to the system S1 and allow[] the patient to converse with the remotely located operator.” *Id.* ¶60; *see also* Fig. 1 (annotated below). EX1002 ¶71.



Hennion does not expressly disclose an auxiliary video port to which a medical imaging device is connected. EX1002 ¶72. Hennion does disclose an “echographic probe SE” (*i.e.* a medical imaging device) that “is connected to the system S1.” *Id.* Hennion also discloses that the “system S1” is “provided with ... input and output ports.” *Id.* ¶65. However, Hennion does not expressly disclose that the echographic probe is connected to those auxiliary input ports, but as discussed above, it would have been obvious to combine Hennion and Remy such that Hennion’s system S1 is modified to include an “auxiliary input[] for connection of external (remote) endoscopes, laparoscopes, or other medical imaging devices.” EX1015 ¶27; EX1002 ¶72. An echographic probe is one such medical imaging device that would have been obvious to connect to an auxiliary input. EX1002 ¶72.

**3. [1.b] a medical image device that is coupled to said auxiliary video port and can capture a medical image of a patient; and,**

Hennion discloses that its “echographic probe SE [*i.e.* a medical image device] is in contact with [the patient’s] abdomen” and “transmits echographic image data to said system S1.” EX1013 ¶60. Hennion’s echographic image data is the claimed “medical image of a patient.” EX1002 ¶¶73-74.

As discussed above, it would have been obvious to combine Hennion and Remy such that the echographic probe is connected to the system via an “auxiliary

input for connection of external (remote) endoscopes, laparoscopes, or other medical imaging devices” as taught by Remy. EX1015 ¶¶27; EX1002 ¶74.

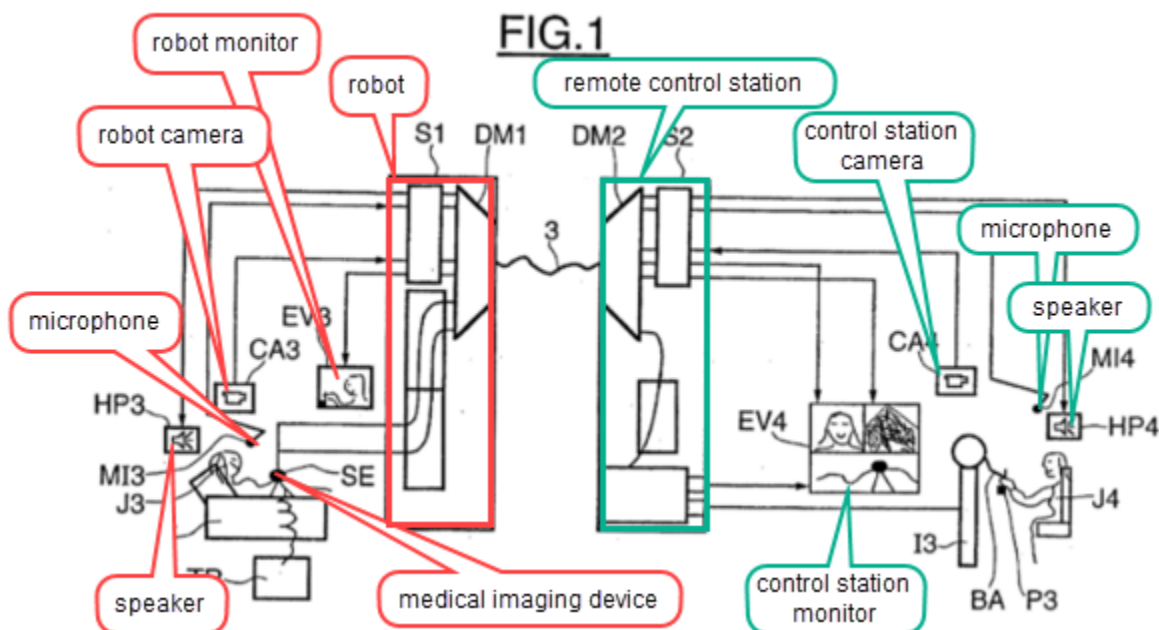
4. **[1.c] a remote control station that has a microphone and a speaker and transmits commands to control said robot, said remote control station includes a control station camera that captures a medical image of a medical personnel and a control station monitor that displays a display user interface,**

Hennion discloses a “remote control station has has a microphone and a speaker and transmits commands to control said robot,” specifically, a “system S2 ... installed in a specialized hospital institution” (*i.e.* a “remote control station”) which comprises “a microphone MI4” and a “loudspeaker HP4.” EX1013 ¶¶60, 62; EX1002 ¶75. System S2 is coupled to System S1 (which is the claimed robot and located near the patient) via a network 3. *Id.* ¶66. Hennion discloses that “[o]n the side of the system S2, operator J4, who may be a doctor specialized in echography, manipulates a handle P3, the position in space of which will be replicated by the probe SE [connected to S1]” which meets the claimed “remote control station that ... transmits commands to control said robot.” *Id.* ¶61.

Hennion also discloses that the remote control station “includes a control station camera that captures a medical image of a medical personnel.” Specifically, Hennion discloses that “system S2” comprises “a camera CA4 directed toward the operator J4 whose images can be displayed on the screen EV3,” *i.e.* the claimed robot monitor. *Id.* ¶¶60-62; EX1002 ¶76.

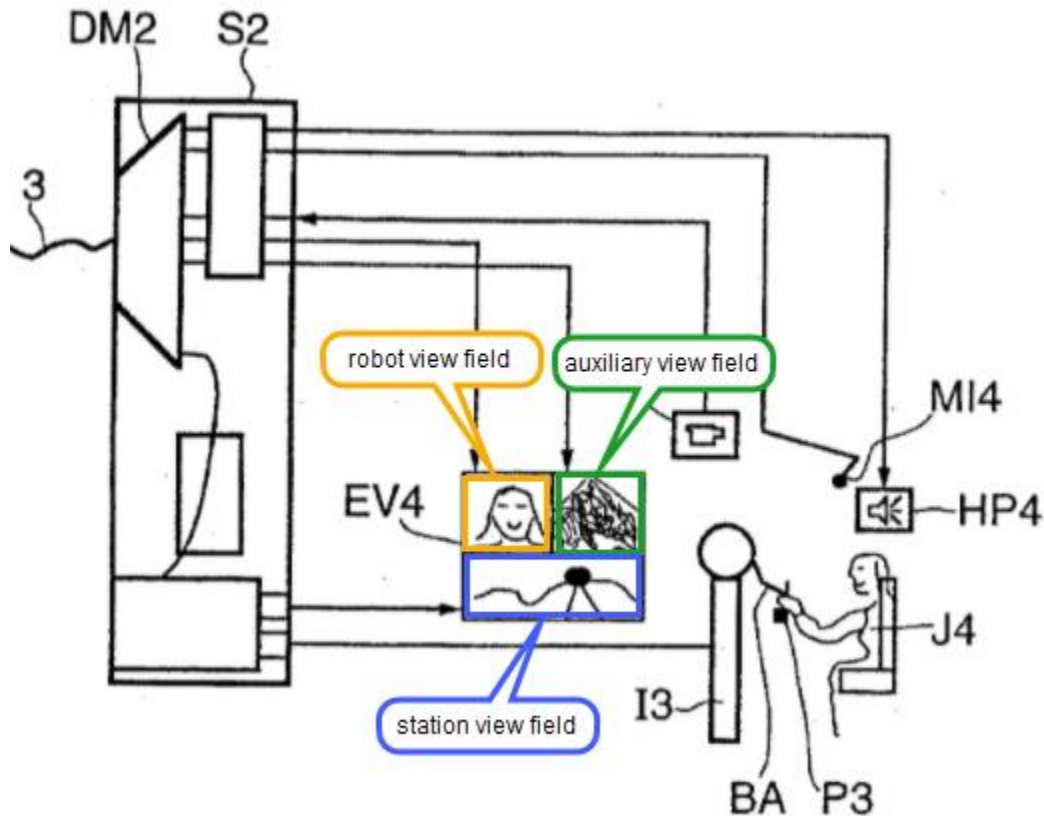


Hennion also discloses that the remote station includes “a control station monitor that displays a display user interface.” EX1002 ¶77. Specifically, Hennion discloses that system S2 has a “large video screen EV4” that can “simultaneously ... display a plurality of images, for example, an echographic image, an image of the face of the patient J3 and an image showing the position of the probe SE on the patient’s abdomen.” EX1013 ¶62; *see* Fig. 1 (annotated to highlight screen EV4 below). Since the position of the echographic probe is controlled by the remote user’s use of handle P3, a POSITA would understand that screen EV4’s display of an echographic image and position of the probe is a display of a user interface. EX1002 ¶77. Specifically, by interacting with the handle P3, a user can change what is displayed on screen EV4, which makes it an interface for user-display interactions. EX1002 ¶77.



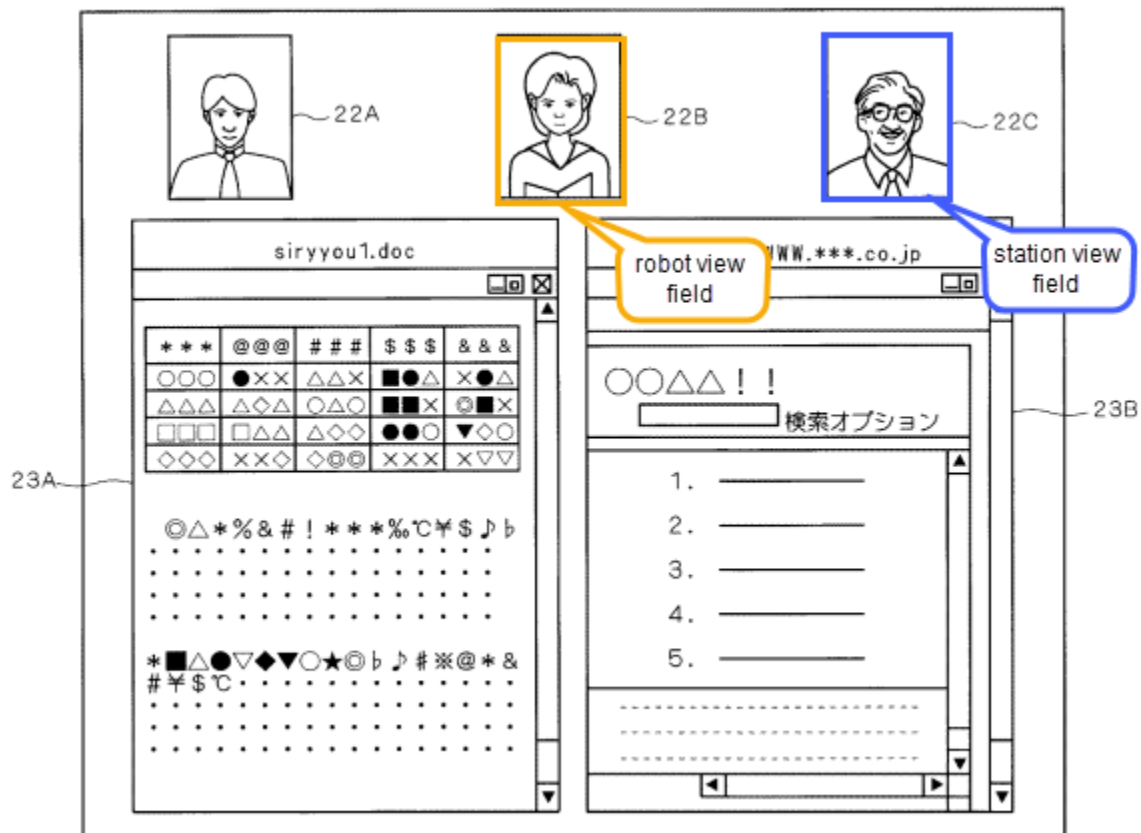
5. [1.d] said display user interface simultaneously displays the patient image captured by said robot camera in a robot view field, said medical personnel image in a station view field, and said medical image in an auxiliary view field,

Hennion discloses that system S2 has a “large video screen EV4” that can “simultaneously ... display a plurality of images, for example, an echographic image, an image of the face of the patient J3 and an image showing the position of the probe SE on the patient’s abdomen.” EX1013 ¶62; EX1002 ¶78. The portion of EV4 that displays “an image of the face of the patient J3” is the “robot view field” and the portion of EV4 that displays “an echographic image” is the “auxiliary view field.” EX1002 ¶78. Hennion does not expressly disclose that the screen displays an image of the remote user, but does not limit its “plurality of images” to the three explicitly mentioned. *Id.* A POSITA would have found it obvious that Hennion’s screen EV4 could also simultaneously display the image from “camera CA4 [that is] directed toward the operator J4.” *Id.*; EX1013 ¶62. That image is already “displayed on the screen EV3,” and it would have been obvious to a POSITA to also display it on screen EV4, especially since the images displayed on EV4 come from “multiplexer-demultiplexer ... DM2,” which also receives the image from camera CA4. *Id.*; see Fig. 1 (annotated below); EX1002 ¶78.



As explained above, it also would have been obvious to combine Hennion's user interface with the user interface teachings of Akihiro. EX1002 ¶79. Akihiro teaches "a user interface of the video meeting system according to the present embodiment," which includes "video display areas 22A to 22C for displaying images from each terminal station." EX1023 ¶56; *see* Figure 7 (reproduced below). Akihiro gives an example where "a medical service is provided," where a "doctor" "is a user of a specific terminal station 4" and a "patient" is "a user of a general terminal station 5." *Id.* ¶65. Both of these terminal stations "function[] as a videophone" and have "a camera, a speaker, and a microphone." *Id.* ¶¶22, 25. Thus,

Akihiro discloses a video conferencing user interface for provision of a medical service where the image of the patient and doctor are simultaneously displayed on the screen. EX1002 ¶79.



6. [1.e] wherein a doctor located at said remote control station can conduct a video conference with a technician located at said robot while viewing the patient image and the medical image.

Hennion discloses that the remote system S2 is operated by “the operator J4 who may be a doctor,” *i.e.* “a doctor located at said remote control station.” EX1013 ¶61; EX1002 ¶80. Hennion further discloses that the robot “camera CA3 [is] oriented toward the patient J3” that allows “operator J4 [*i.e.* a doctor] to converse

with the patient J3,” *i.e.* a doctor at said remote control station can conduct a video conference with a patient located at said robot. EX1013 ¶¶60-61. Hennion also describes that the doctor at the remote station can view “video screen EV4 [that] simultaneously ... display[s] a plurality of images, for example, an echographic image [and] an image of the face of the patient J3,” *i.e.* the doctor can conduct a video conference “while viewing the patient image and the medical image.” *Id.* ¶61.

A POSITA would understand that these disclosures teach video conferencing between the doctor at the remote site and the patient at the patient site, while the doctor views the patient image and the medical image. EX1002 ¶81.

While Hennion does not expressly disclose a “technician” at the patient site, Hennion does teach that “the skin of the [patient] is generally coated with a gel for suitable transmission of the ultrasound.” *Id.* ¶49. Hennion also teaches that “[t]he echographic probe SE ... is placed close to the patient P” and that “the probe [is] placed in a standby or rest position, allowing the patient P to get onto an examination table or to leave such a table.” *Id.* ¶¶90, 97. Because the remote doctor may be up to “a few thousand kilometers” away from the patient, a POSITA would therefore understand and consider it obvious that there would be another individual at the patient site who is capable of applying gel to the patient and placing the echographic in its initial, standby positions, such as a technician. *Id.* ¶66; EX1002 ¶82. Indeed, the ’679 patent itself describes “medical personnel ... at the robot site to move the

medical image device to vary the captured images.” EX1001 at 2:11-15; *see also* 5:32-33 (“The technician may move the ultrasound device to different positions on the patient.”). A POSITA would therefore understand that the claimed “technician” could include any medical personnel at the patient site that moves the medical imaging device, such as Hennion’s echographic probe. EX1002 ¶82. Moreover, because of the presence of a microphone and loudspeaker at the patient site, a POSITA would understand that the remote doctor would also be having a videoconference with the technician. *Id.*

As discussed above, a POSITA would have also found it obvious to incorporate Remy’s teachings of a “mobile VCVP station ... designed to be manned and controlled by a single operator.” EX1015 ¶28; *see also id.* ¶10 (“It is therefore an object of the present invention to provide a mobile video imaging, video communication, video production (VCVP) system designed specifically for health care and surgical video imaging and suitable for operation by a *single trained person.*”); EX1002 ¶83. A POSITA would have found it obvious that Hennion’s patient site system could be operated by an operator or trained person that would be videoconferencing with the remote doctor. EX1002 ¶83.

**C. Claim 2: “The system of claim 1, wherein said medical image device is an ultrasound device.”**

Hennion discloses an “echographic probe,” and further discloses that “[i]n the case of echography, the skin of the person is generally coated with a gel for suitable transmission of the ultrasound.” EX1013 ¶49. A POSITA would understand that an echographic probe is an ultrasound device. EX1002 ¶84.

**D. Claim 4: “The system of claim 1, wherein said medical image device is an echocardiogram.”**

Hennion discloses an “echographic probe.” *Id.* A POSITA would understand that one type of echographic probe is an echocardiogram. EX1002 ¶85. Moreover, echocardiograms were well-known in the field and POSITA would have found it obvious to use an echocardiogram as a medical image device within a telemedicine system, and would have reasonably expected successful results. *Id.* For example, a paper from 2003 entitled “Real-Time Telescreening of Echocardiography Using Satellite Telecommunication” discloses transmitting “ultrasound images ... using satellite links (JCSAT-1B) to the telemedicine laboratory room of Shinshu University.” EX1028, 563.

**E. Claim 5: “The system of claim 1, further comprising a broadband network coupled to said robot and said remote control station.”**

Hennion discloses that “systems S1 and S2 ... transmit[t] data over the network 3 which may, for example, be of ADSL type.” *Id.* ¶60. A POSITA would understand that an ADSL network is a broadband network. EX1002 ¶86.

**F. Claim 6: “The system of claim 1, wherein said robot camera and said robot monitor are mechanically coupled to always move together.”**

Hennion in view of Remy and Akihiro renders obvious this limitation. Remy discloses that displays 20A and 20B as well as camera 10B are all mounted to mast 6. EX1015 ¶33. A POSITA would understand that the camera and displays are therefore coupled to always move together, such as when the cart is moved. EX1002 ¶87.

**G. Claim 8**

Unlike claim 1, claim 8 does not recite an auxiliary video port. Thus, Hennion in view of Akihiro also renders obvious this claim. EX1002 ¶¶89-96.

**1. [8.pre] A method for reviewing images of a patient, comprising:**

*See* limitation [1.e], *supra*; EX1002 ¶89.

**2. [8.a] moving a robot that has a microphone, a speaker, a monitor and a camera adjacent to a patient with commands from a remote control station that includes a microphone, a speaker, a camera and a monitor;**

*See* limitations [1.a] and [1.c], *supra*. Hennion further discloses that “camera CA3 [is] oriented toward the patient J3,” and depicts an adjacent camera in Figure 1. EX1013 ¶60. The ability for a doctor to remotely control the robot’s echographic probe discloses this step of moving a robot with commands from a remote control station. EX1002 ¶90.



3. **[8.b] capturing a patient image of a patient with the robot camera; transmitting the patient image to the remote control station; displaying the patient image on the remote control station monitor;**

*See* limitation [1.d], *supra*; EX1002 ¶91. The patient image is captured by camera CA3 and is transmitted over “network 3” to be displayed on the remote station’s video screen EV4. *Id.* ¶¶60-61.

4. **[8.c] moving a medical image device relative to a patient by a technician; capturing a medical personnel image of the patient with the medical image device, the captured medical image being provided to the robot; transmitting the medical image from the robot to the remote control station;**

*See* limitation [1.b], [1.c], and [1.e], *supra*; EX1002 ¶92.

5. **[8.d] capturing a medical personnel image of a medical personnel with a remote control station camera;**

*See* limitation [1.c], *supra*; EX1002 ¶93

6. **[8.e] capturing a medical personnel image of a medical personnel with a remote control station camera;**

*See* limitation [1.c], *supra*; EX1002 ¶94.

7. **[8.f] displaying the medical image on a display user interface of the remote control station monitor simultaneously with the display of the patient image and the remote station medical personnel image;**

*See* limitation [1.d], *supra*. EX1002 ¶95.

8. **[8.g] and, conducting a video conference between the technician and a doctor, while the doctor views the medical image and the patient image.**

*See* limitation [1.e], *supra*. EX1002 ¶96.

**H. Claim 9: “The method of claim 8, wherein the medical image device captures ultrasound images.”**

*See* Claim 2, *supra*. EX1002 ¶97.

**I. Claim 10: “The method of claim 8, further comprising selecting a graphical input of a graphical user interface displayed by the remote control station monitor to display the medical image.”**

*See* limitation [1.d], *supra*; EX1002 ¶98. Akihiro discloses “various buttons” that causes the display of “material data,” such as a doctor pulling up “a medical chart of a user” that the doctor is video conferencing with. EX1023 ¶¶58, 65. While Hennion does not expressly disclose a user interface, a POSITA would have found it obvious in view of Akihiro’s teachings to incorporate a user interface button that would toggle the display of the image from the medical device, *i.e.* the echographic probe. EX1002 ¶98.

**X. GROUND 2: HENNION, REMY AND AKIHIRO IN FURTHER VIEW OF SIMMONS RENDER OBVIOUS CLAIM 3**

Claim 3 recites “[t]he system of claim 1, wherein said medical image device is an otoscope.” Simmons discloses “a video otoscope 20 which allows imaging of the ear canal and tympanic membrane.” EX1025 2:66-67. Simmons further discloses that the video signal of the otoscope is “transmi[tte]d to a remote location.” *Id.* 3:13-14. As with Hennion, Remy, and Akihiro, Simmons is analogous art to the ’679 as it is directed to the same field of endeavor, *i.e.* telemedicine systems. Simmons discloses “a portable medical diagnostic apparatus which includes three

types of data-gathering instruments” which take images that are “transmitted to a remote site for analysis by medical personnel.” EX1025 Abstract; EX1002 ¶99.

As explained above, it would have been obvious for a POSITA to modify Hennion to include Remy’s “plurality of auxiliary inputs for connection of external (remote) endoscopes, laparasopes [sic], or other medical imaging devices or video cameras as desired to completely capture a given surgical procedure.” EX1015 ¶27; EX1002 ¶100. A POSITA would have further found it obvious to incorporate Simmons’s teachings such that one of the auxiliary inputs taught in Remy is coupled to a video otoscope and its video signal sent to the remote site. EX1002 ¶100. The benefits of otoscopes were well-known in the art, as Simmons discloses they “allow[] imaging of the ear canal and tympanic membrane.” EX1025 2:66-67. Motivated by such a teaching, a POSITA would have found it obvious to connect a video otoscope to one of the auxiliary inputs disclosed by Remy and incorporated into Hennion. EX1002 ¶100. A POSITA would have also reasonably expected such a combination to succeed and yield the predictable result of a video otoscope whose image was remotely sent to the remote site for viewing by a remote user, such as a doctor. *Id.*

**XI. GROUND 3: HENNION, REMY AND AKIHIRO IN FURTHER VIEW OF TAUBMAN RENDER OBVIOUS CLAIMS 7 AND 11**

As discussed above in Ground 1, Hennion in view of Remy and Akihiro render obvious independent claims 1 and 8. Hennion, Remy and Akihiro in further view of Taubman render dependent claims 7 and 11 obvious. EX1002 ¶¶101-104.

**A. Claim 7: “The system of claim 1, wherein a larger portion of a network bandwidth is allocated for the medical image than the patient image.”**

Taubman discloses a remote surgeon choosing to view a “higher quality bit stream over the lower quality bit stream” of a video of a procedure. EX1026 20:41-46. A POSITA would have found it obvious to incorporate this teaching into Hennion such that the remote doctor can choose to select a bit stream of the medical image that is of higher-quality than the patient image. EX1002 ¶102. A POSITA would understand that a higher-quality bit stream uses a larger portion of network bandwidth than a lower-quality bit stream. *Id.*

Taubman is analogous art to Hennion, Remy, Akihiro and the '679 patent, as it is directed to the same field of endeavor, *i.e.* telemedicine systems. EX1002 ¶103. Taubman discloses that “the present invention provides a method for providing a video signal for use in telemedicine.” EX1026 6:60-61. A POSITA would have been motivated to incorporate Taubman’s teaching of using a higher quality bit stream over a lower quality bit stream because, as Taubman explains, “a senior

surgeon could remotely monitor the procedures being carried out by a junior surgeon” and “the senior surgeon [could] wish[] to focus on an aspect of the signal.” *Id.* 20:41-46; EX1002 ¶103. In other words, a POSITA would be motivated by the fact that a higher quality bit stream allows the viewer to view a higher resolution of the image that allows the viewer to focus on a portion of the image. EX1002 ¶103. Taubman also discloses that the techniques that it discloses are “part of a congestion management strategy.” EX1026 19:56-57. A POSITA would also have reasonably expected the combination to succeed and yield the predictable result of a higher quality medical image on the remote system. EX1002 ¶103.

**B. Claim 11: “The method of claim 8, wherein the medical image is transmitted at a higher frame rate than the patient image.”**

Taubman discloses a remote surgeon choosing to view a “higher quality bit stream over the lower quality bit stream” of a video of a procedure. EX1026 20:41-46; EX1002 ¶104. As discussed above, a POSITA would have found it obvious to incorporate this teaching into Hennion such that the remote doctor can choose to select a bit stream of the medical image that is of higher-quality than the patient image. EX1002 ¶104. A POSITA would understand that a higher-quality bit stream allows for a higher frame rate compared to a lower-quality bit stream. *Id.*

**XII. GROUND 4: WANG IN VIEW OF REMY RENDERS OBVIOUS CLAIMS 1, 5, 6, 8, AND 10**

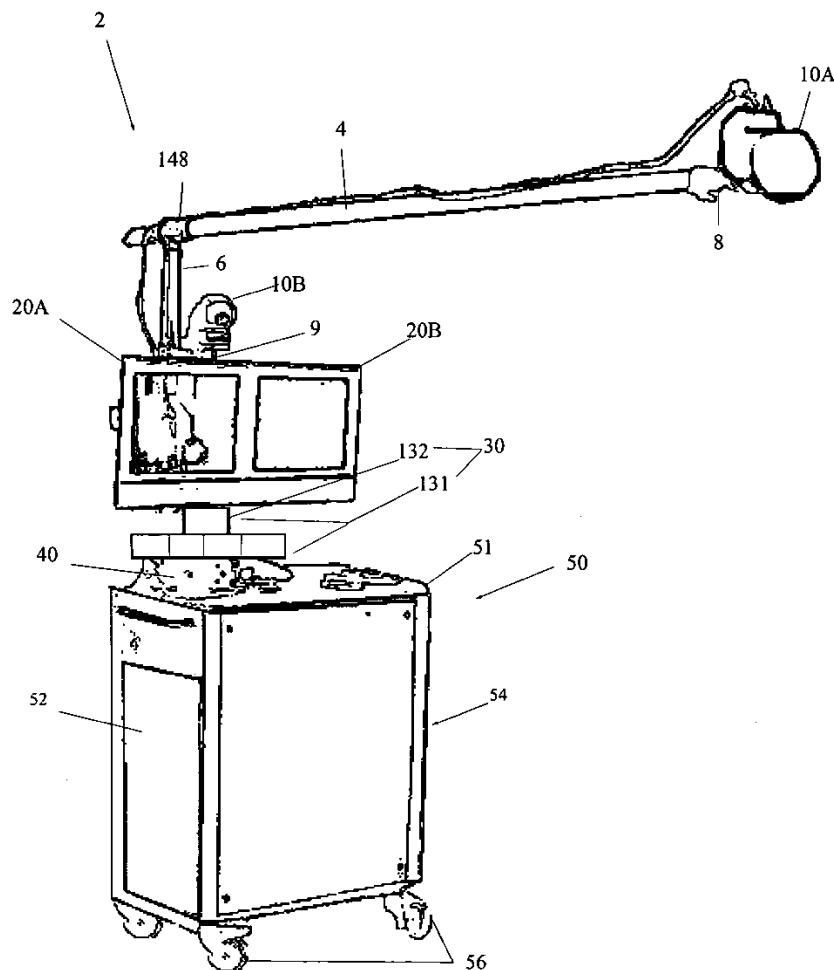
Wang in view of Remy renders obvious Claims 1, 5, 6, 8, and 10. EX1002 ¶¶105-134. Wang, an abandoned application that was originally assigned to the same entity as the '679 patent's original assignee, InTouch, discloses a system that is very similar to that disclosed in the '679 patent, oftentimes using identical language. EX1002 ¶105. Wang discloses a robotic system where a technician at a robot can video-conference with a doctor at a remote site, with the remote site providing the ability to control the robot. While Wang discloses the use of medical monitoring devices, it does not expressly disclose an auxiliary port for the connection of medical imaging devices. Remy, however, does disclose a video-conferencing telemedicine system comprising an auxiliary port for medical imaging devices. A POSITA would have found it obvious to combine the two references and together they disclose each and every limitation of claims 1, 5, 6, 8 and 10. EX1002 ¶105.

**A. Rationale to Combine Wang with Remy**

Wang and Remy both disclose video conferencing telemedicine systems for use in monitoring patients. Remy specifically teaches an auxiliary port for connecting any variety of medical imaging devices. A POSITA would have found it obvious to incorporate Remy's teachings into Wang. EX1002 ¶¶106-113.

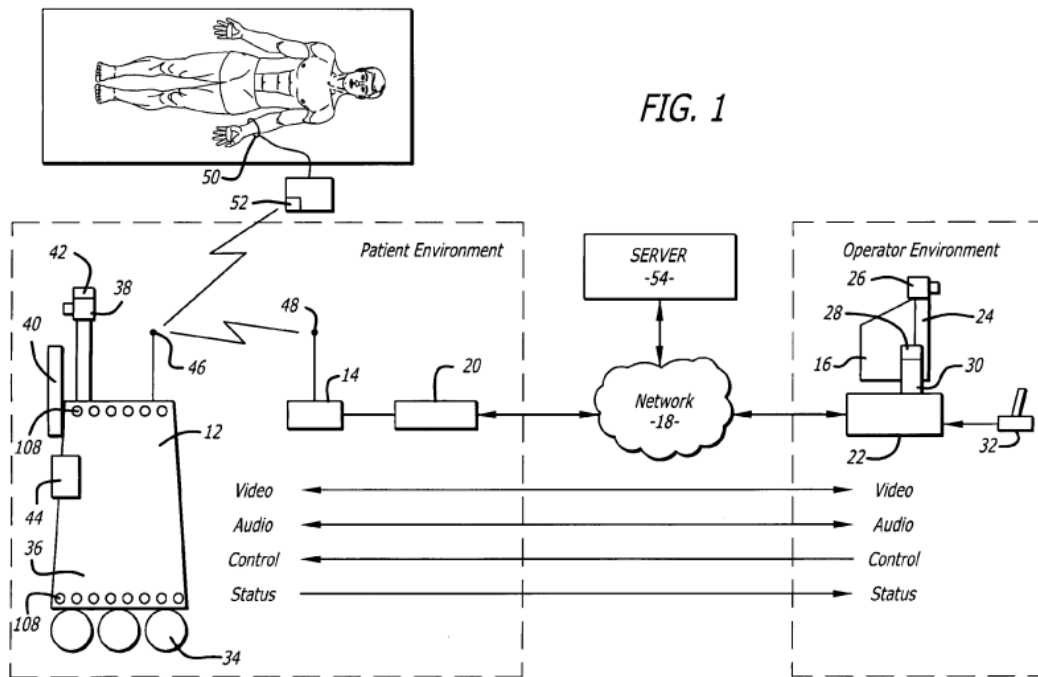
As discussed above, Remy is analogous art with the '679 patent, because both are directed to telemedicine systems. Wang is also analogous art, as it discloses “[a] robot system that includes a robot and a remote station” that allows “a health care provider to remotely care for a patient without being physically present.” EX1012 Abstract, ¶5; EX1002 ¶107.

A POSITA would have been motivated to combine Wang and Remy by incorporating Remy’s auxiliary port into Wang’s system. EX1002 ¶108. Remy discloses a “mobile platform” which “a plurality of auxiliary inputs for connection of external (remote) endoscopes, laparascopes [sic], or other medical imaging devices or remote video cameras as desired to completely capture a given surgical procedure.” EX1015 ¶27. Remy discloses that “[t]his combination of video/audio sources,” including the auxiliary inputs, “facilitates the complete and unobstructed capture of surgical procedures from multiple selectable angles and proximities, all from a singular point of control.” *Id.* Figure 1, reproduced below, depicts mobile platform 50.



Wang similarly discloses a “robot 12” that has “a robot housing 36” which are attached “camera 38, a monitor 40, a microphone(s) 42 and a speaker(s) 44.” EX1012 ¶18; *see also* Fig. 1, reproduced below; EX1002 ¶109. Wang also discloses that “robot 12 may be coupled to one or more medical monitoring devices 50” which “take medical data from a patient” and “transmits the patient data to the robot 12.” *Id.* ¶20.

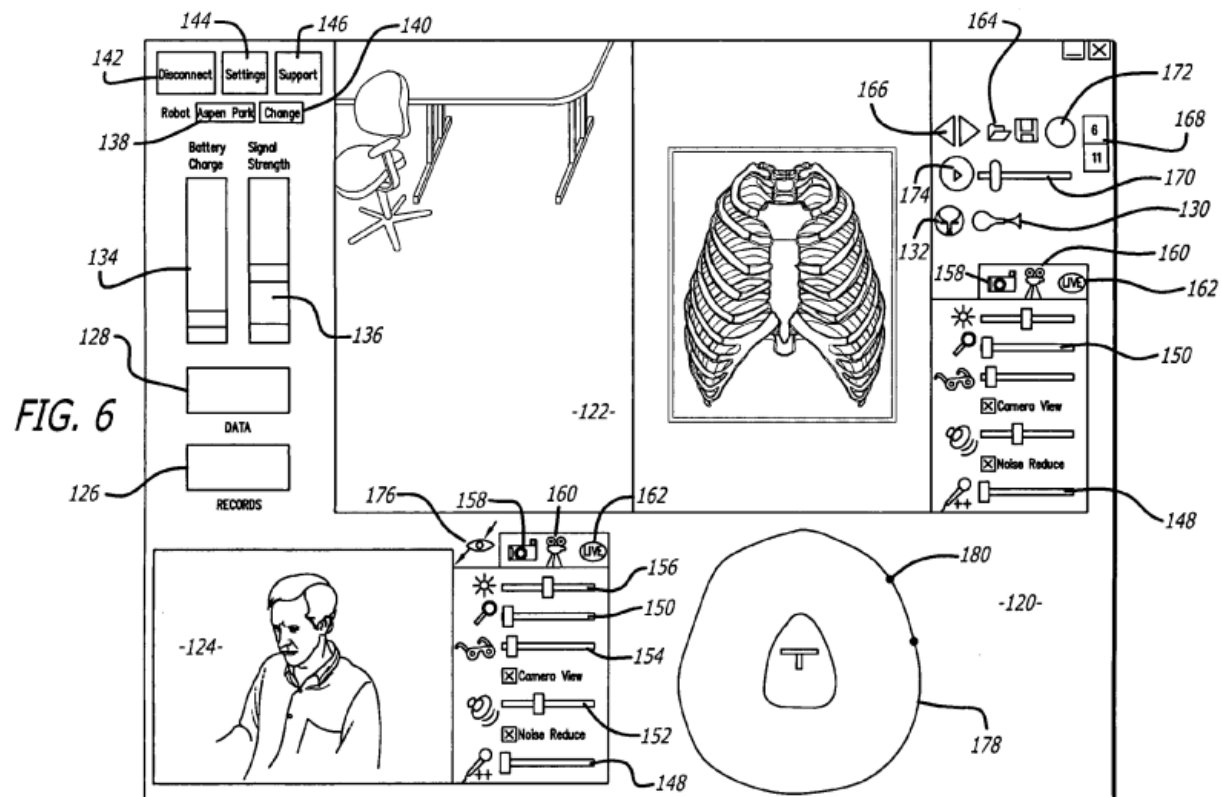




A POSITA would have found it obvious to incorporate Remy's teaching of auxiliary inputs to connect medical imaging devices. EX1002 ¶110. Remy explains that, along with the cameras mounted to its system, the plurality of auxiliary inputs allow for "complete and unobstructed capture of [medical] procedures from multiple selectable angles and proximities, all from a singular point of control," as described in Remy. EX1015 ¶27. A POSITA would have been motivated to combine Wang and Remy to achieve this benefit, as well as the benefit of additional patient information that such auxiliary tools (like an endoscope) would provide to the remote user. EX1002 ¶110. Wang already discloses the use of medical monitoring devices, and a POSITA would find it further beneficial to modify Wang's robot to allow for additional devices through auxiliary inputs as taught by Remy. *Id.*

A POSITA would have known this combination of Wang and Remy would have been reasonably expected to succeed and yield predictable results. EX1002 ¶111. Modifying Wang’s robot to include auxiliary inputs in which devices such as an endoscope could be connected would have been a simple modification, especially in view of Wang’s disclosure that the robot already contains an “input/output (I/O) port 68” and operates well-known operating systems including “LINUX OS” and MS WINDOWS.” EX1012 ¶25; EX1002 ¶111. A POSITA would understand that such operating systems already provide support for auxiliary inputs like those disclosed in Remy. EX1002 ¶111. Modifying Wang’s robot to include auxiliary inputs to allow for the connection of medical imaging devices like otoscope would have been reasonably expected to succeed and yield the predictable result of a robot in which an otoscope could be connected and output to the remote station. *Id.*

In view of the above obvious modification of incorporating auxiliary inputs connected to remote medical imaging devices like an otoscope, a POSITA would have further found it obvious that, like the output of the “camera 38” and “medical monitoring devices 50,” the output of the remote device would also be transmitted from robot 12 to remote station 16. EX1012 ¶18, 20; EX1002 ¶112. Wang discloses a user interface where the output of camera 38 and medical monitoring device 50 is simultaneously displayed. *Id.* ¶¶30, 32; *see also* Fig. 6, reproduced below.



Since Wang already makes provision for simultaneously displaying device data transmitted from the robot (*i.e.* robot camera and medical monitoring device), a POSITA would have found it obvious to likewise include the image from the medical imaging device connected to the auxiliary input. EX1002 ¶113. Wang already discloses a that “view field 122 may be split to simultaneously display both the video image and the electronic medical record,” and it would have been a simple and obvious modification to replace the electronic medical record with the image from the medical imaging device. *Id.* A POSITA would have been motivated to make this modification because of the benefits of actively monitoring the status of a

patient using a medical imaging device from a remote location. *Id.* Such a modification would have been reasonably expected to succeed and yield the predictable result of a user interface that simultaneously displays both the image of the patient and the image from the medical imaging device. *Id.*

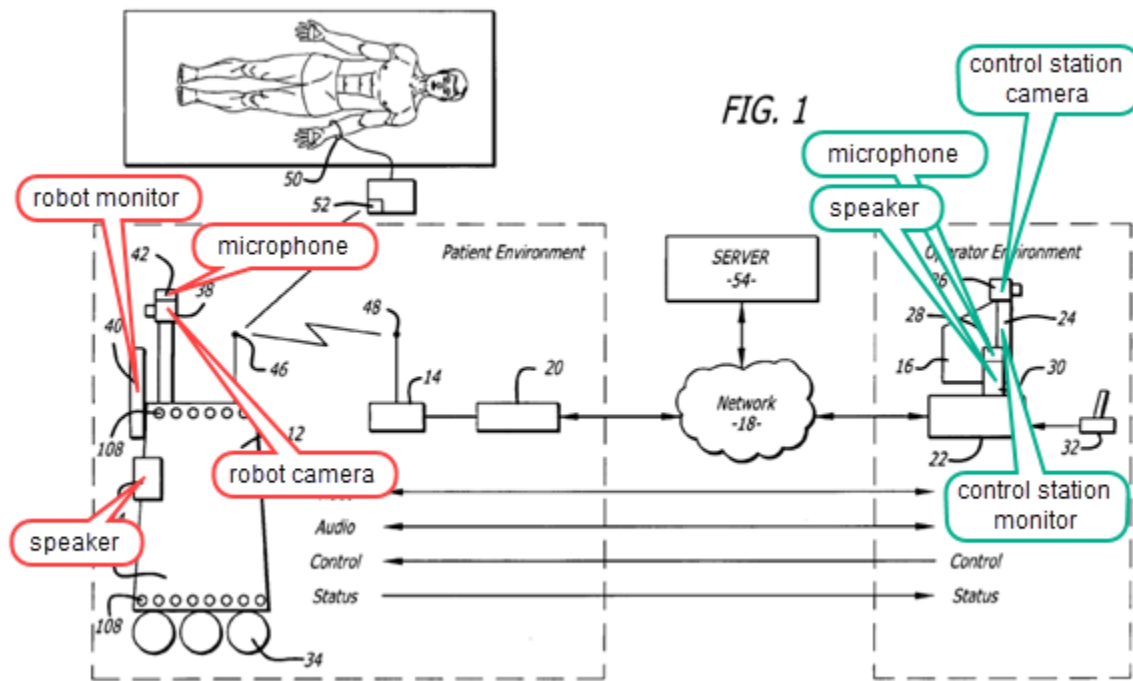
**B. Claim 1**

**1. [1.pre] A remote controlled robot system, comprising:**

Wang discloses “[a] robot system that includes a robot and a remote station.” EX1012 Abstract. Wang further discloses “any number of robots 12 may be controlled by any number of remote stations 16.” *Id.* ¶17; EX1002 ¶114.

**2. [1.a] a robot with a robot monitor, and a robot camera that captures a patient image of a patient, said robot having an auxiliary video port, said robot including a microphone and a speaker;**

Wang discloses that “[e]ach robot 12 includes ... a camera 38, a monitor 40, a microphone(s) 42 and a speaker(s) 44.” *Id.* ¶18; *see also* Figure 1 (reproduced below); EX1002 ¶115. Wang also discloses that the monitor is a “robot monitor 40” and that the camera is a “robot camera 38 ... so that a user at the remote station 16 can view a patient.” *Id.*



Wang does not expressly disclose an “auxiliary video port.” However, Remy discloses “auxiliary inputs for connection of external (remote) endoscopes, laparoscopes, or other medical imaging devices.” EX1015 ¶27. As discussed above, a POSITA would have found it obvious to incorporate these teachings into Wang. EX1002 ¶116.

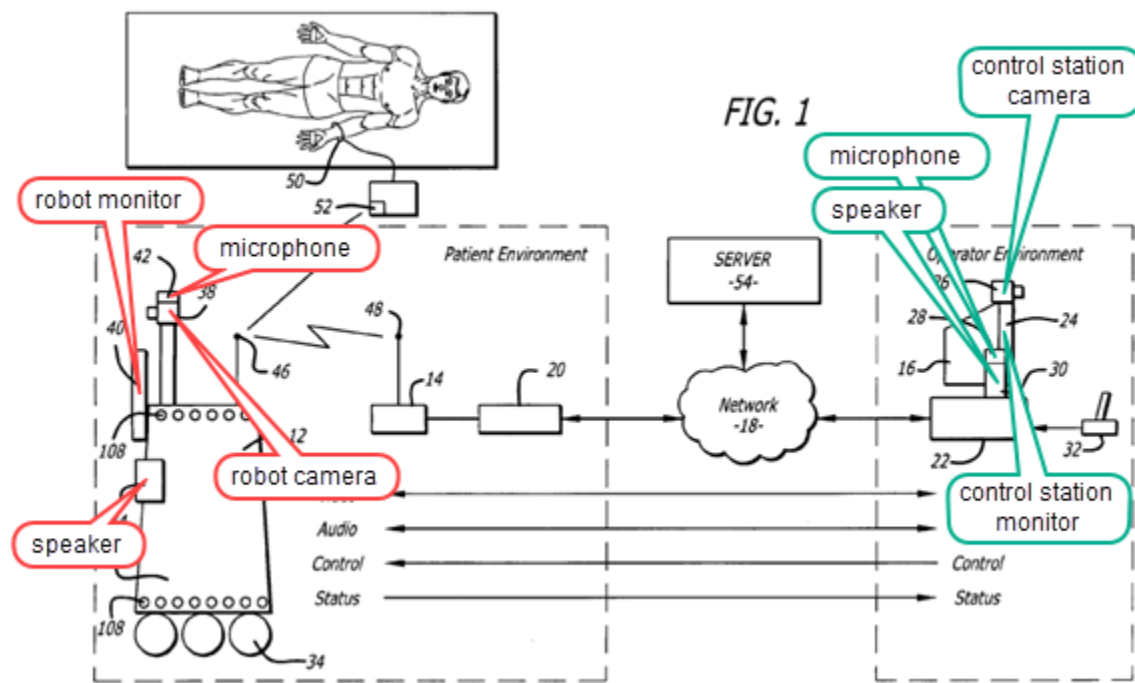
**3. [1.b] a medical image device that is coupled to said auxiliary video port and can capture a medical image of a patient; and,**

Remy discloses a “platform 50” that “includes a plurality of auxiliary inputs for connection of external (remote) endoscopes, laparoscopes, or other medical imaging devices or remote video cameras as desired to completely capture a given surgical procedure,” which meets the claimed “auxiliary video port.” EX1015 ¶27.

A POSITA would understand that medical imaging devices like endoscopes and laparoscopes are used to capture a medical image of a patient. EX1002 ¶117. As discussed above, it would have been obvious to combine these teachings with Wang. *Id.*

4. **[1.c] a remote control station that has a microphone and a speaker and transmits commands to control said robot, said remote control station includes a control station camera that captures a medical image of a medical personnel and a control station monitor that displays a display user interface,**

Wang discloses a “remote control station 16” that “include[s] a computer 22 that has a monitor 24, a camera 26, a microphone 28 and a speaker 30,” which meets the claimed “remote control station.” EX1012 ¶17; EX1002 ¶118. Wang further discloses that the system “allows a user at the remote control station 16 to move the robot 12 through operation of the input device 32,” *i.e.* transmits commands to control said robot. *Id.* The “remote camera 26” allows “the patient [to] view the user [at the remote station]” via the “robot monitor 40,” *i.e.* the control station camera captures an image of a medical personnel. *Id.*

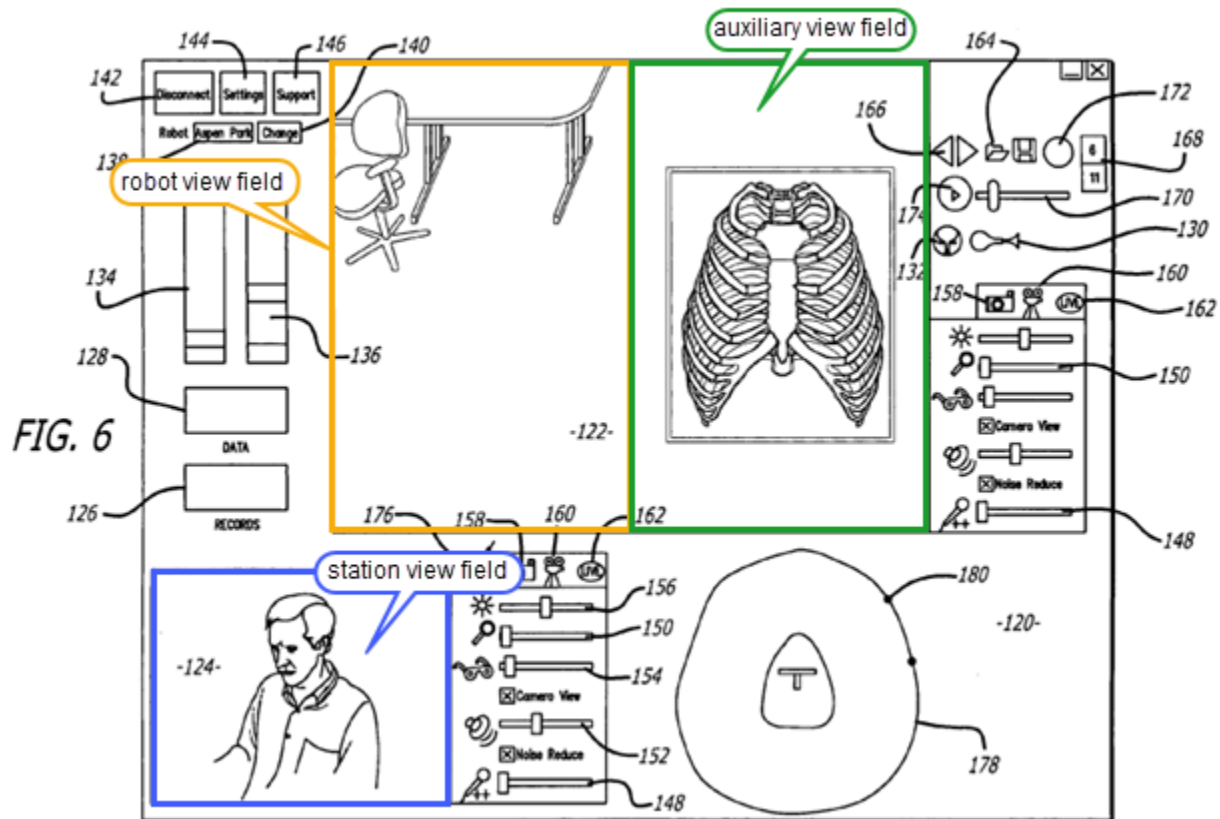


Finally, Wang discloses a “display user interface (‘DUI’) 120 that can be displayed at the remote station 16.” *Id.* ¶30; EX1002 ¶119. As explained below, this DUI has a robot view field, a station view field, and an auxiliary view field.

5. [1.d] said display user interface simultaneously displays the patient image captured by said robot camera in a robot view field, said medical personnel image in a station view field, and said medical image in an auxiliary view field,

Wang discloses that “[t]he DUI 120 may include a robot view field 122 that displays a video image captured by the camera of the robot” and simultaneously “a station view field 124 that displays a video image provided by the camera of the remote station 16” which meets the claimed simultaneously displays the patient image and medical personnel image. *Id.* ¶30; see Figure 6 (reproduced below);

EX1002 ¶120. Wang also discloses that “view field 122 may be split to simultaneously display both the video image and the electronic medical record,” which meets the claimed medical image. *Id.* ¶31; EX1002 ¶120.



As discussed above, Wang does not expressly disclose a medical imaging device, but it would have been obvious to incorporate Remy’s teachings of “auxiliary input for connection of external (remote) endoscopes, laparoscopes, or other medical imaging devices.” EX1015 ¶27. As discussed above, it also would have been obvious to simultaneously display the medical image from the medical



imaging device by, for example, replacing the medical imaging record view in Figure 6. EX1002 ¶121.

6. **[1.e] wherein a doctor located at said remote control station can conduct a video conference with a technician located at said robot while viewing the patient image and the medical image.**

Wang discloses that its invention “relates to the field of mobile two-way teleconferencing” and that a remote “doctor [can] instruct personnel at the robot site,” which meets the claimed video conference between doctor and technician. EX1012 ¶43. Because both the robot and the remote station have cameras, microphones and speakers, a POSITA would understand that a doctor at the remote site can conduct a video conference with a technician at the patient site. EX1002 ¶122.

As discussed in the previous limitation, the remote station monitor can simultaneously display the patient image and medical image. EX1002 ¶123. Wang discloses that the doctor at the remote station views the monitor. For example, Wang discloses that “a doctor at the remote station may annotate some portion of the image captured by the robot camera.” EX1012 ¶43. This meets the claimed video conference while viewing the patient image and the medical image.

- C. **Claim 5: “The system of claim 1, further comprising a broadband network coupled to said robot and said remote control station.”**

Wang discloses that “[t]he remote station may be a personal computer coupled to the robot through a broadband network.” EX1012 Abstract; EX1002 ¶124.

**D. Claim 6: “The system of claim 1, wherein said robot camera and said robot monitor are mechanically coupled to always move together.”**

Remy discloses that displays 20A and 20B as well as camera 10B are all mounted to mast 6. EX1015 ¶33; EX1002 ¶124. A POSITA would understand that the camera and displays are therefore coupled to always move together, such as when the cart is moved. EX1002 ¶125.

**E. Claim 8**

Unlike claim 1, claim 8 does not recite an auxiliary video port. Thus, Wang in view of Remy also renders obvious this claim. EX1002 ¶¶126-134.

**1. [8.pre] A method for reviewing images of a patient, comprising:**

*See* limitation [1.e], *supra*; EX1002 ¶127.

**2. [8.a] moving a robot that has a microphone, a speaker, a monitor and a camera adjacent to a patient with commands from a remote control station that includes a microphone, a speaker, a camera and a monitor:**

*See* limitations [1.a] and [1.c], *supra*; EX1002 ¶128. A POSITA would understand that the “robot camera 38” is adjacent to the patient because it captures a “view [of the] patient” and because the patient can view the “robot monitor 40” which is depicted to be right next to the robot camera 38 in Figure 1. EX1012 ¶18; EX1002 ¶128.

3. **[8.b] capturing a patient image of a patient with the robot camera; transmitting the patient image to the remote control station; displaying the patient image on the remote control station monitor;**

*See* limitation [1.d], *supra*. Wang discloses that “robot camera 38 is coupled to the remote monitor 24 so that a user at the remote station 16 can view a patient.” EX1012 ¶18; EX1002 ¶129. Since the robot and remote control station are connected via “network 18,” a POSITA would understand that the patient image is transmitted from the robot camera 38 to the remote monitor 24. EX1012 ¶¶16, 22; EX1002 ¶129.

4. **[8.c] moving a medical image device relative to a patient by a technician; capturing a medical personnel image of the patient with the medical image device, the captured medical image being provided to the robot; transmitting the medical image from the robot to the remote control station;**

*See* limitation [1.b], [1.c], and [1.e], *supra*; EX1002 ¶130. A POSITA would understand that Remy’s teachings of “endoscopes” and “laparoscopes” would require a technician to operate the endoscope or laparoscope. EX1002 ¶130.

5. **[8.d] capturing a medical personnel image of a medical personnel with a remote control station camera;**

*See* limitation [1.c], *supra*; EX1002 ¶131.

6. **[8.e] displaying the medical image on a display user interface of the remote control station monitor simultaneously with the display of the patient image and the remote station medical personnel image;**

*See* limitation [1.d], *supra*; EX1002 ¶132.

7. [8.f] and, conducting a video conference between the technician and a doctor, while the doctor views the medical image and the patient image.

*See* limitation [1.e], *supra*; EX1002 ¶133.

- F. **Claim 10: “The method of claim 8, further comprising selecting a graphical input of a graphical user interface displayed by the remote control station monitor to display the medical image.”**

*See* limitation [1.d], *supra*; EX1002 ¶134. Wang further discloses that “[t]he DUI 120 may include a graphic button 126 that ... can be toggled” to allow “the view field 122 [to be] split to simultaneously display both the video image and the electronic medical record as shown in Fig. 6.” As discussed above, it would have been obvious in view of Remy to replace the electronic medical record view with the display of the medical image. EX1002 ¶134.

### **XIII. GROUND 5: WANG IN VIEW OF REMY IN FURTHER VIEW OF HENNION RENDERS OBVIOUS CLAIMS 2, 4, AND 9**

As discussed above in Ground 1, Hennion discloses the ultrasound and echocardiogram imaging devices recited in claims 2, 4, and 9. As explained below, it would have been obvious to further combine Wang and Remy with Hennion, which would render obvious claims, 2, 4, and 9. EX1002 ¶¶135-36.

As already discussed, Wang, Remy, and Hennion are all analogous art to the '679 patent. Since it would have been obvious to modify Wang's robot in view of Remy to include auxiliary inputs for medical imaging devices, it would have been further obvious for devices such as ultrasound and echocardiogram imaging devices

as disclosed in Hennion to also be connected to said auxiliary inputs. EX1002 ¶136. A POSITA would have been motivated to do this in order to achieve the benefits of remote monitoring of ultrasound or echocardiogram results of a patient. *Id.* A POSITA also would have expected the combination to succeed and yield the predictable result of an ultrasound or echocardiogram device being connected to an auxiliary input of the robot. *Id.*

#### **XIV. GROUND 6: WANG IN VIEW OF REMY IN FURTHER VIEW OF SIMMONS RENDERS OBVIOUS CLAIM 3**

As discussed above in Ground 2, Simmons discloses an otoscope used in a telemedicine system, as recited in claim 3. As explained below, it would have been obvious to further combine Wang and Remy with Simmons, which would render obvious claim 3. EX1002 ¶¶137-38.

As discussed above, Wang, Remy, and Simmons are all analogous art to the '679 patent. A POSITA would have further found it obvious to incorporate Simmons's teachings such that one of the auxiliary inputs taught in Remy is coupled to a video otoscope and its video signal sent to the remote site. EX1002 ¶138. The benefits of otoscopes were well-known in the art, as Simmons discloses they "allow[] imaging of the ear canal and tympanic membrane." EX1025 2:66-67. Motivated by such a teaching, a POSITA would have found it obvious to connect a video otoscope to one of the auxiliary inputs disclosed by Remy and incorporated into Wang.

EX1002 ¶138. A POSITA would have also reasonably expected such a combination to succeed and yield the predictable result of a video otoscope whose image was remotely sent to the remote site for viewing by a remote user, such as a doctor. *Id.*

**XV. GROUND 7: WANG IN VIEW OF REMY IN FURTHER VIEW OF TAUBMAN RENDERS OBVIOUS CLAIMS 7 AND 11**

As discussed above in Ground 3, Taubman discloses higher bandwidth allocation and transmission of higher frame rates for the patient image as recited in claims 7 and 11. As explained below, it also would have been obvious to further combine Wang and Remy with Taubman, which would render obvious claims 7 and 11. EX1002 ¶¶139-40.

As discussed above, Wang, Remy, and Taubman are all analogous art to the '679 patent. A POSITA would have been motivated to incorporate Taubman's teaching of using a higher quality bit stream over a lower quality bit stream because, as Taubman explains, "a senior surgeon could remotely monitor the procedures being carried out by a junior surgeon" and "the senior surgeon [could] wish[] to focus on an aspect of the signal." EX1026 20:41-46; EX1002 ¶140. In other words, a POSITA would be motivated by the fact that a higher quality bit stream allows the viewer to view a higher resolution of the image that allows the viewer to focus on a portion of the image. EX1002 ¶140. Taubman also discloses that the techniques that it discloses are "part of a congestion management strategy." EX1026 19:56-57.

A POSITA would also have reasonably expected the combination to succeed and yield the predictable result of a higher quality medical image on the remote system.

EX1002 ¶140.

## **XVI. CONCLUSION**

For foregoing reasons, the challenged claims of the '679 patent are unpatentable. Petitioner requests that an *inter partes* review of these claims be instituted.

DATED: January 19, 2022

/s/ James Glass

James Glass (Reg. No. 46729)

**CERTIFICATION UNDER 37 C.F.R. § 42.24**

Under the provisions of 37 C.F.R. § 42.24, the undersigned hereby certifies that the word count for the foregoing Petition for *inter partes* review (excluding the table of contents, table of authorities, mandatory notices, certificate of service or word count, and appendix of exhibits or claim listing) totals 13,970 words, which is within the word limit allowed under 37 C.F.R. § 42.24(a)(i).

Date: January 19, 2022

/s/ James Glass

James Glass (Reg. No. 46729)



**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. §§ 42.6(e), 42.105(a), the undersigned hereby certifies service on the Patent Owner of a copy of this Petition and its respective exhibits at the official correspondence address for the attorney of record for the '679 Patent as shown in USPTO PAIR via FedEx:

John Albright  
Christopher Lambrecht  
Teladoc Health c/o Clarivate  
3133 W Frye Road  
Suite 400  
Chandler, AZ 85226

Additionally, a copy of this Petition and its respective exhibits were served via FedEx to the following address:

NORTON ROSE FULBRIGHT US LLP  
1301 Avenue of the Americas  
New York, NY 10019-6022

Courtesy copies were also sent via electronic mail to Patent Owner's counsel of record in the related district court proceeding, Case No. 1:21-cv-00820 (D. Del.) at the following addresses:

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