

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZOOM COMMUNICATIONS, INC.
Petitioner

v.

RICOH COMPANY, LTD.
Patent Owner

IPR2026-00407

**PETITION FOR INTER PARTES REVIEW
OF U.S. PATENT NO. 10,904,487**

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PETITIONER’S EXHIBIT LIST

No.	Reference	Referred To As
1001	U.S. Patent No. 10,904,487	’487 Patent
1002	Prosecution History of U.S. Patent No. 10,904,487	’487 Patent File History
1003	Declaration of Dr. Kevin Almeroth	Almeroth Decl.
1004	U.S. Patent No. 8,593,502	Saleh-502
1005	U.S. Patent Publication No. 2016/0301729	Gurevich
1006	U.S. Patent Publication No. 2015/0002435	Shimizu
1007	U.S. Patent Publication No. 2002/0085030	Ghani
1008	U.S. Patent No. 8,872,879	Saleh-879
1009	U.S. Patent No. 9,363,448	Segal
1010	U.S. Patent No. 9,716,861	Poel
1011	U.S. Patent No. 7,694,234	Fleisher
1012	U.S. Patent No. 9,648,057	Thomas
1013	Chinese Patent CN 104135484	CN-484
1014	Chinese Utility Model CN 203984563	CN-563
1015	German Patent DE102004041884	Han
1016	“SMART Board(TM) Interactive Whiteboard Reaches 20-Year Milestone.”	SMART Board 20-Year

	NBC News, 12 Jan. 2011, www.nbcnews.com/id/wbna41034457 .	
1017	SMART Technologies. “SMART Action Research.” 2010, downloads.smarttech.com/media/edcompass/may2010/smartactionresearch.pdf .	Smart Technologies Research
1018	Patrick, Andrew S. “The Human Factors of Mbone Videoconferences: Recommendations for Improving Sessions and Software.” June 23, 2006	Mbone Video Conferences
1019	Rollins, S., and K. Almeroth. Seminal: Additive Semantic Content for Multimedia Streams. Proceedings of Internet and Multimedia Systems and Applications (IMSA 2002), Aug. 2002	Content for Multimedia Streams
1020	Almeroth, Kevin, et al. Creating a Demarcation Point Between Content Production and Encoding in a Digital Classroom. Proceedings of ED-MEDIA 2003—World Conference on Educational Multimedia, Hypermedia & Telecommunications	Encoding in a Digital Classroom
1021	<i>Intel. 2nd Generation Intel® Core™ Processor Family Desktop, Intel® Pentium® Processor Family Desktop, and Intel® Celeron® Processor Family Desktop Datasheet</i> , Volume 1. June 2013	2nd Generation Intel Core
1022	<i>Panasonic Announces Panaboard Interactive Whiteboards with Integrated PC</i> . Tom’s Hardware,	Panaboard Interactive Whiteboards
1023	von Neumann, John. Draft of a Report on the EDVAC. Moore School of Electrical Engineering, University of Pennsylvania, 1945	Von Neuman 1945

LISTING OF CHALLENGED CLAIMS

Claim	Limitation
[1.pre]	A whiteboard device comprising:
[1.a]	a display;
[1.b]	a network interface;
[1.c]	one or more processors; and
[1.d]	one or more memories communicatively coupled to the one or more processors, the one or more memories storing instructions which, when processed by the one or more processors; cause:
[1.e]	an interactive whiteboard session window, including at least an interactive whiteboard session content area, to be displayed on the display,
[1.f]	wherein a selection menu to receive an instruction for starting a video conference session is overlaid on the interactive whiteboard session window; and
[1.g]	after receiving the instruction for starting the video conference session via the selection menu overlaid on the interactive whiteboard session window, a videoconference window to be overlaid on the interactive whiteboard session window.
2	The whiteboard device of claim 1, wherein the videoconference window displays at least content from a device of a participant of the video conference session.
3	The whiteboard device of claim 1, wherein processing of the instructions further causes: after the videoconference window being overlaid on the interactive whiteboard session window, display a second selection menu to receive an instruction for

	stopping the video conference session overlaid on the interactive whiteboard session window.
4	The whiteboard device of claim 1, wherein the videoconferencing window is maintained on top of the interactive whiteboard window during a videoconferencing session.
5	The whiteboard device of claim 1, wherein processing of the instructions further causes the interactive whiteboard session window to be moved on top of the videoconference window in response to termination of the video conference session.
6	The whiteboard device of claim 1, wherein processing of the instructions further causes an interactive whiteboard session to be shared with the one or more client devices that are external to the whiteboard device by invoking functionality provided by a collaboration library on the whiteboard device.
7	The whiteboard device of claim 1, wherein processing of the instructions further causes the selection menu to be updated in response to detecting a user selection of a particular control on the selection menu for switching between an interactive whiteboard session and the video conference session.
[8.pre]	One or more non-transitory computer-readable media storing instructions which, when processed by one or more processors, cause:
[8.a]	an interactive whiteboard session window, including at least an interactive whiteboard session content area, to be displayed on a display of a whiteboard device,
[8.b]	wherein a selection menu to receive an instruction for starting a video conference session is overlaid on the interactive whiteboard session window; and
[8.c]	after receiving the instruction for starting the video conference session via the selection menu overlaid on the interactive whiteboard session window, a videoconference window to be overlaid on the interactive whiteboard session window.

9	The one or more non-transitory computer-readable media of claim 8, wherein the videoconference window displays at least content from a device of a participant of the video conference session.
10	The one or more non-transitory computer-readable media of claim 8, further comprising additional instructions which, when processed by the one or more processors, causes: after the videoconference window being overlaid on the interactive whiteboard session window, display a second selection menu to receive an instruction for stopping the video conference session overlaid on the interactive whiteboard session window.
11	The one or more non-transitory computer-readable media of claim 8, wherein the videoconferencing window is maintained on top of the interactive whiteboard window during a videoconferencing session.
12	The one or more non-transitory computer-readable media of claim 8, further comprising additional instructions which, when processed by the one or more processors, causes the interactive whiteboard session window to be moved on top of the videoconference window in response to termination of the video conference session.
13	The one or more non-transitory computer-readable media of claim 8, further comprising additional instructions which, when processed by the one or more processors, causes an interactive whiteboard session to be shared with the one or more client devices that are external to the whiteboard device by invoking functionality provided by a collaboration library on the whiteboard device.
14	The one or more non-transitory computer-readable media claim 8, further comprising additional instructions which, when processed by the one or more processors, causes the selection menu to be updated in response to detecting a user selection of a particular control on the selection menu for switching between an interactive whiteboard session and the video conference session.
[15.pre]	A computer-implemented method comprising:

[15.a]	an interactive whiteboard session window, including at least an interactive whiteboard session content area, to be displayed on a display of a whiteboard device,
[15.b]	wherein a selection menu to receive an instruction for starting a video conference session is overlaid on the interactive whiteboard session window; and
[15.c]	after receiving the instruction for starting the video conference session via the selection menu overlaid on the interactive whiteboard session window, a videoconference window to be overlaid on the interactive whiteboard session window.
16	The computer-implemented method of claim 15, wherein the videoconference window displays at least content from a device of a participant of the video conference session.
17	The computer-implemented method of claim 15, further comprising: after the videoconference window being overlaid on the interactive whiteboard session window, display a second selection menu to receive an instruction for stopping the video conference session overlaid on the interactive whiteboard session window.
18	The computer-implemented method of claim 15, wherein the videoconferencing window is maintained on top of the interactive whiteboard window during a videoconferencing session.
19	The computer-implemented method of claim 15, further comprising causing the interactive whiteboard session window to be moved on top of the videoconference window in response to termination of the video conference session.
20	The computer-implemented method of claim 15, further comprising causing an interactive whiteboard session to be shared with the one or more client devices that are external to the whiteboard device by

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	invoking functionality provided by a collaboration library on the whiteboard device.
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I. INTRODUCTION

Petitioner requests *inter partes* review and cancellation of claims 1-20 of U.S. Patent 10,904,487 (“the ’487 Patent”) (EX1001).

As admitted in the ’487 Patent, the alleged invention is directed at nothing more than the intersection of three well-established fields: videoconferencing systems, interactive electronic whiteboard devices, and graphical user interfaces (GUIs). As explained below, each of these fields was individually mature well before the priority date of May 9, 2015. Moreover, the integration of videoconferencing with electronic whiteboard devices was also well developed and the specific techniques for using GUIs to manage overlapping application windows—including maintaining one window “on top” of another using operating-system-level functions—were commonplace long before the alleged invention. At bottom, the integration of these fields for the same stated goal as the ’487 Patent was disclosed in numerous prior art references before the claimed priority date. More specifically, the exact limitation the Examiner found as the basis for allowance was disclosed in the prior art as explained in the Grounds below.

Petitioner therefore respectfully requests institution of *inter partes* review and cancellation of all claims of the ’487 Patent.

II. TECHNOLOGY BACKGROUND

The '487 Patent generally relates to integrating videoconferencing with interactive electronic whiteboard appliances using an application manager that coordinates window display and provides a collaboration menu. EX1001, Abstract. But the substance of the '487 Patent is nothing new. The patent describes the well-known process of managing multiple application windows on an interactive whiteboard appliance running a standard operating system—a concept that was well-documented and commercially deployed for over a decade before the May 2015 priority date. EX1021; EX1023; EX1003, ¶¶28-30.

A. Interactive Electronic Whiteboard Devices Were Known

Interactive electronic whiteboard devices were well established prior to 2015. EX1016; EX1017; EX1022; EX1003, ¶31. **Products such as the SMART Board interactive whiteboard had been commercially available for well over a decade before the '487 Patent's priority date.**¹ EX1004, 1:54-65, 4:66-5:3; EX1016 EX1003, ¶31. Shimizu (EX1006) describes a shared whiteboard system where multiple attendees simultaneously perform real-time handwriting input via touch-panel terminals connected over a wireless LAN, operating under an OS with application programming interfaces. Shimizu, ¶¶[0040]-[0043], [0067]-[0068]; EX1003, ¶32. Ghani (EX1007), published in July 2002, discloses a full online

¹ All emphasis is added unless otherwise noted.

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collaboration system with a whiteboard applet supporting presentations, annotations, and shared content viewing. EX1007, ¶¶[0075]-[0076], FIG4; EX1003, ¶33.



EX1007 Fig. 4a.

B. Integration of Videoconferencing and Whiteboard Systems Was Known

By 2015, the integration of videoconferencing and whiteboard systems on a single appliance was itself a well-known concept. EX1018; EX1019; EX1020 EX1003, ¶37. Videoconferencing systems with sophisticated graphical user interfaces were well known long before the alleged invention and it was

commonplace to integrate the two systems. EX1018; EX1020; EX1003, ¶37. **For example, Polycom’s 3000iPower system—which combined a Polycom iPower 9800 videoconferencing unit with a Rear Projection SMART Board 3000i interactive whiteboard—was commercially available by at least 2006 and “allows computer images to be projected and viewed within a videoconference call” while “touchscreen controls . . . provide access to conference applications.”**

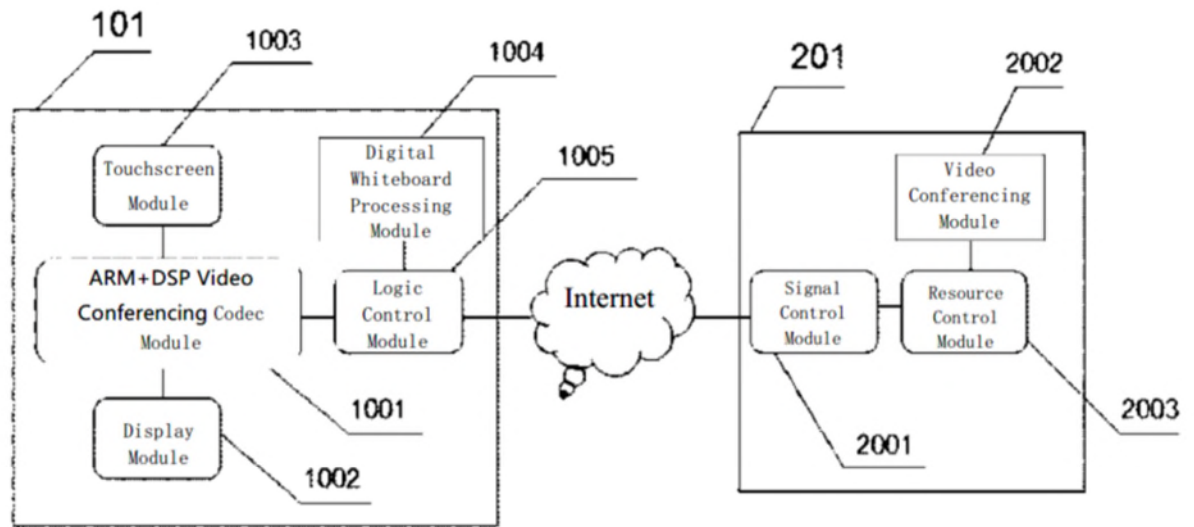
Saleh-502 (EX1004), 1:53-1:65; Saleh-879 (EX1008), 1:30-41; EX1003, ¶37. The Saleh references show transparent GUI menus displayed over video content, automatic switching between annotation mode and touch-control mode based on pen state, and overlaid controls for placing calls, hanging up, and selecting camera sources on a whiteboard device—all prior to 2015. EX1003, ¶38.

As another example, Chinese Utility Model CN 203984563 (EX1014), published December 3, 2014, discloses an integrated electronic whiteboard and video conferencing system that simultaneously displays video and whiteboard content on one screen to achieve “the effect of saving resources and reducing complexity.” EX1014, ¶¶[0016]-[0018]; EX1003, ¶39. It expressly addresses the shortcomings of using two separate displays or switching between video and whiteboard on a single display—the same problem the ’487 Patent purports to solve. EX1003, ¶39. Chinese Patent CN 104135484 B (EX1013), published November 5, 2014, criticizes the prior combined solution of separate electronic whiteboard and

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video conferencing systems as requiring “expensive video conference terminal systems” with “complicated peripherals and wires” and solves this by integrating both functions into a single terminal. EX1013, ¶¶[0003]-[0005]; EX1003, ¶40. Gurevich (EX1005), filed April 9, 2015, directly identifies that “the default native presentation or user interfaces of the video application components often do not integrate well with the presentation interfaces of the interactive board application components” and provides a system that separates video from its native window, suppresses borders and control buttons, and presents the video in an interface “better suited for the interactive board.” EX1005, ¶¶[0042], [0052]-[0053]; EX1003, ¶41. Importantly, Gurevich discloses this in a nearly identical system to the ’487 Patent—Microsoft Lync 2010 video application component together with SMART Technologies interactive board application component. EX1005, ¶¶ [0002]-[0003], [0037], [0041]-[0043]; EX1003, ¶41.



Drawing 2

EX1014 Fig. 2

C. GUIs Implementing Window Layering Were Well Known

The concept of layering visual content—displaying one window or image on top of another—was a fundamental and well-known display paradigm in the videoconferencing and collaboration arts prior to May 2015. EX1021; EX1003, ¶43. This concept manifested in multiple well-established forms, including picture-in-picture display, video strips overlaid on whiteboard content, transparent window overlays, and programmatic Z-order (depth) management through operating system API functions.

Picture-in-picture (“PIP”) display—in which a smaller video window is rendered on top of a larger primary display—was a standard feature of

videoconferencing systems. EX1003, ¶43. Saleh-502 discloses a PIP button on the overlaid menu 310 that acts as a “toggling button[] for . . . producing picture-in-picture on the screen 202,” as well as a layout control screen 580 that “include[s] various icons to allow adjustment of video size, picture-in-picture properties, including presence and removal” and a “dual monitor emulation mode, which allows for two image streams to be displayed side-by-side on a single monitor.” EX1004, 11:5-14, 11:32-34, 20:21-37; EX1003, ¶44. CN-484 likewise discloses that after conference-joining terminals receive synchronized content, “they will display the picture-in-picture mode in the display module, the electronic whiteboard is a large screen, and the video conference is a small screen,” i.e., layering a video conference window on top of a whiteboard display. EX1013, ¶[0084]; EX1003, ¶45. CN-563 similarly teaches multi-screen modes “mainly includ[ing] three modes: picture-in-picture, AVTN six-screen and AVTN seven-screen” for combining video conference and whiteboard content on one display. EX1014, ¶[0053]; EX1003, ¶45. Segal (EX1009) discloses that a vApp may appear in “floating style, half screen, full screen, or picture-in-picture” mode overlaid on the coordinated presentation, and that video “continued to run, for example, in a picture-in-picture interface” when a viewer opened another content element. EX1009, 9:45-52, 10:28-35; EX1003, ¶46.



Fig. 6

EX1009 Fig. 6

Beyond PIP, Gurevich expressly discloses presenting multiple processed video streams within configurable **horizontal or vertical “video strips” overlaid on the interactive board surface**, with tool bars comprising selectable control elements for “removing a video stream from the video strip, changing the transparency of the presentation interface,” and repositioning the strip via swiping gestures. EX1005, ¶¶[0059]-[0062]; EX1003, ¶47. Gurevich further teaches dynamically adjusting the transparency of a video stream overlaid on whiteboard annotations “to highlight the visibility of the input annotations” when a participant

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interacts with the interactive surface. EX1005, ¶[0067]; EX1003, ¶47. Poel (EX1010) discloses that when a window is expanded, it “overlaps the sharing window at least somewhat to accommodate the larger size for more detailed viewing,” and that session control overlays are presented only “for a top window when windows are layered on top of each other to avoid confusion.” EX1010, 24:40-56, 46:17-28; EX1003, ¶48. The Poel system further allows any conferee to “drag a document from space 852 to space 274 or vice versa” to switch documents between layered primary and secondary sharing windows. EX1010, 36:41-47; EX1003, ¶48.

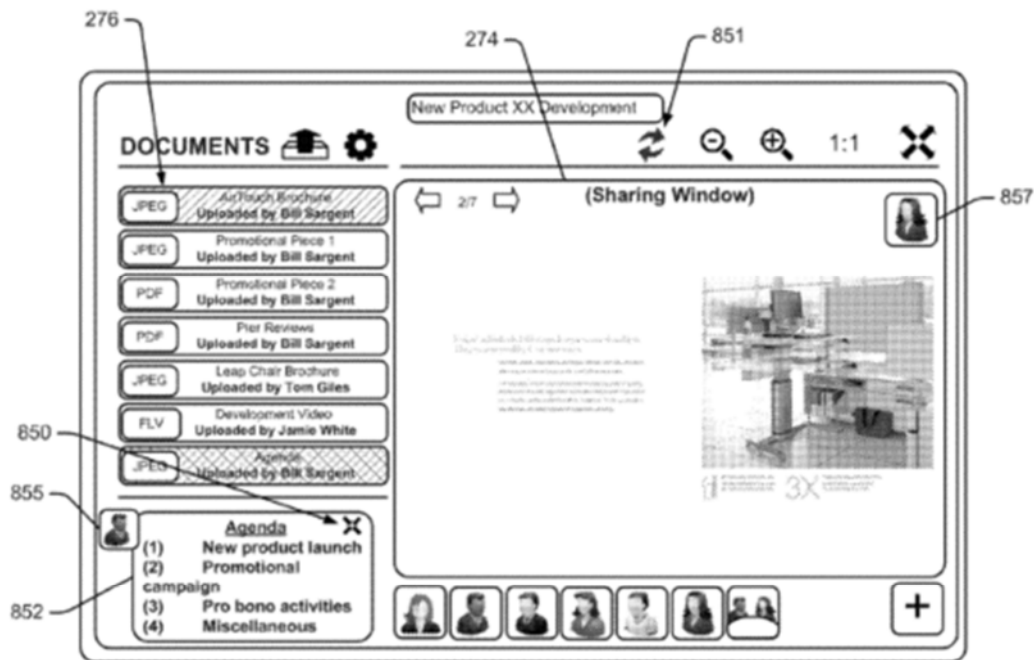


Fig. 41

EX1010 Fig. 41.

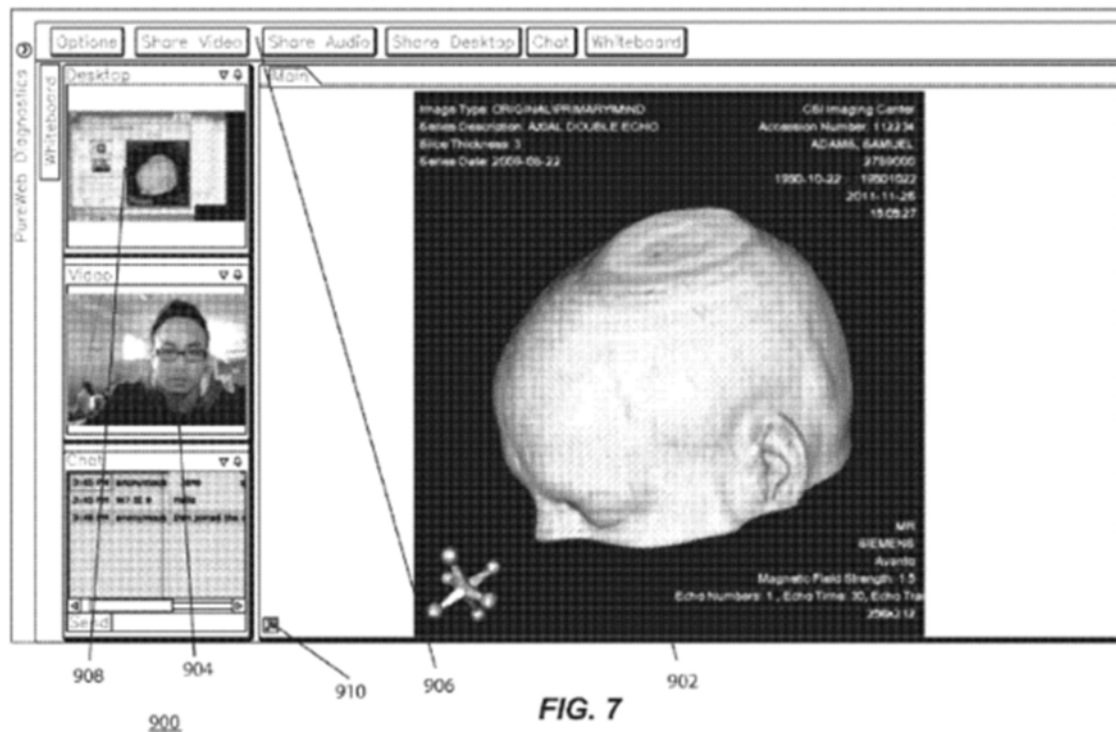
Moreover, the specific technique of **managing window Z-order using Microsoft Windows operating system API functions was standard practice.** EX1003, ¶49. The '487 Patent itself discloses using: FindWindow() to obtain an OS-level identifier and then setting the WS_EX_TOPMOST bit in the GWL_EXSTYLE field to maintain one window on top of another. EX1001, 6:25-38, 7:18-31.

These are publicly documented Windows API functions that were available from at least Windows 2000 onward. EX1003, ¶49. Fleisher (EX1011), assigned to Microsoft Corporation and filed in 2005, describes a virtual magnifying glass that uses WS_EX_TOPMOST, WS_EX_TRANSPARENT, WS_EX_LAYERED, and other extended window styles to maintain a window on top of all desktop content by leveraging “resources made available by application programming interfaces (APIs) of an operating system, namely a windows style.” EX1011, 5:15-17, 6:28-7:14; EX1003, ¶49. These OS-level window layering functions were standard tools available to any Windows developer well before 2015 and are precisely the same mechanisms disclosed in the '487 Patent for laying the videoconference window on top of the whiteboard window. EX1003, ¶¶49-50.

D. Updatable Display Selection Menus Were Well Known

Selection menus and overlaid graphical user interface controls displayed on top of active application content were also well known in the art prior to May 2015.

EX1019; EX1021; EX1003, ¶51. **Specifically, overlaying context-sensitive menus on active content to control collaboration functions was a fundamental user interface paradigm that pervaded the prior art.** EX1019; EX1003, ¶51. Saleh-879 and Saleh-502 each disclose a transparent menu 310 overlaid on the touch screen while video is being displayed, invoked when the user selects a button 302 that “is transparent or hidden and is available from all screens including those containing video of participants and content.” EX1008, 8:17-28; EX1004, 10:61-11:5; EX1003, ¶52. The menu includes touch controls for a Home button, Call button, Hang-Up button, Volume button, Mute button, Cameras button, and picture-in-picture button—each selectable to invoke videoconferencing functions directly from the overlaid interface. EX1008, 8:29-35; EX1004, 11:5-15; EX1003, ¶52. Thomas (EX1012) similarly discloses a “floating tool bar” persistently overlaid on the active collaboration view that provides functional controls for “activating the interactive digital surface layer, capturing an image of the participants desktop,” sharing media, and manipulating views via a “swap view button or a full screen button.” EX1012, 10:31-42; EX1003, ¶53.



EX1012 Fig. 7

Other references confirm the ubiquity of this approach. Ghani, published in 2002, discloses that pressing a whiteboard button on the presenter menu “makes whiteboard 400 appear to every participant computer 120 in the session” and that pressing a poll button causes “a small window 500 appearing with a text box” overlaid on the session interface. EX1007, ¶¶[0075], [0088]; EX1003, ¶54.

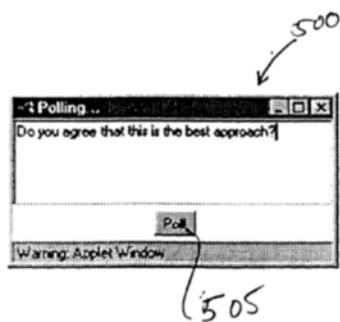


Figure 5a

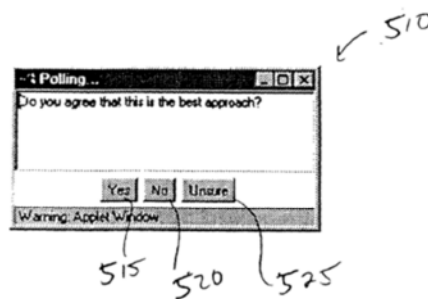


Figure 5b

EX1007 Figs. 5a, 5b

Hans (EX1015) teaches that buttons may be software-implemented graphical control elements displayed on a graphical display and selected using an input device. EX1015, ¶[0038], [0126]-[0127]; EX1003, ¶55. Poel discloses session control overlays—including sharing icons—presented “for a top window when windows are layered on top of each other to avoid confusion.” EX1010, 46:18-28; EX1003, ¶56. The ’487 Patent’s collaboration/selection menus—overlaid menus providing options to start/stop videoconferencing, show a videoconferencing session, share a whiteboard or other content, or access a keyboard—are simply an instance of this well-known technique. EX1003, ¶57.

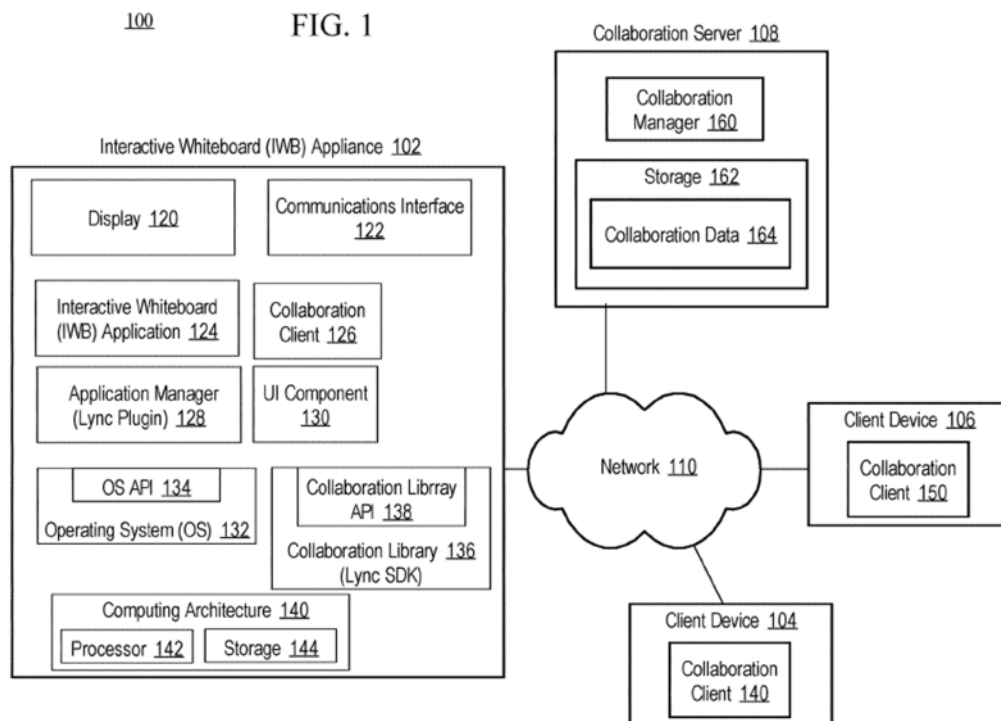
Thus, the ’487 Patent describes nothing more than the application of well-known videoconferencing and whiteboard technologies, combined using standard OS-level window management APIs, to address a problem that was widely recognized and already solved by multiple prior art references. EX1003, ¶58. The

grounds of this Petition demonstrate that the Challenged Claims should not have been issued and should be canceled.

III. '487 PATENT

A. Overview

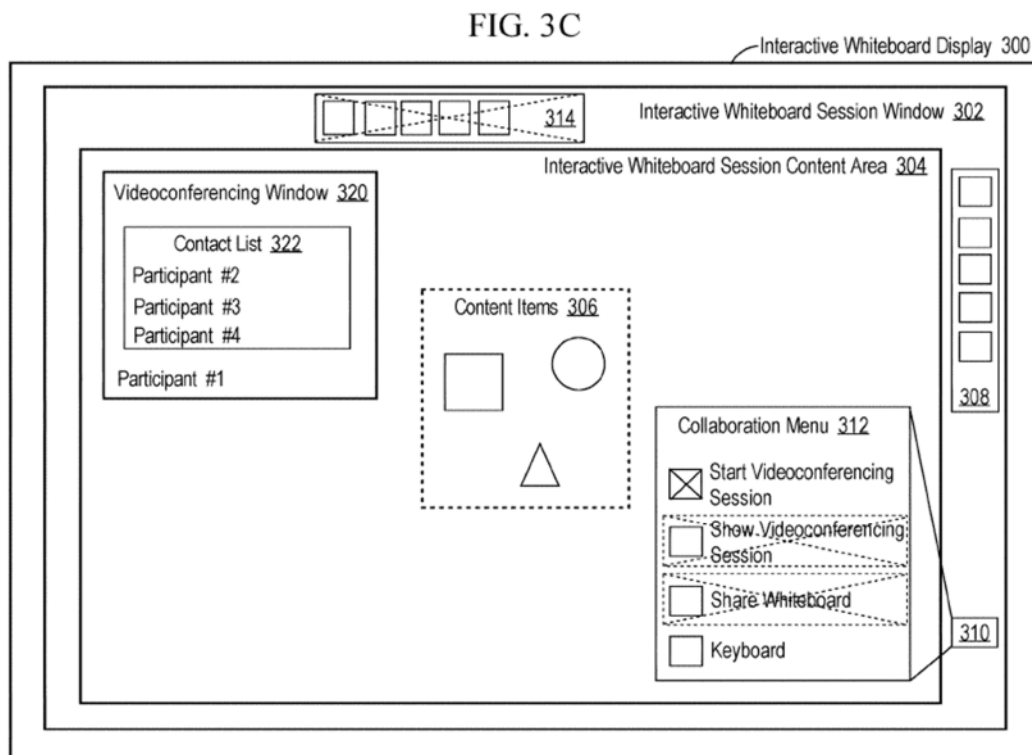
The '487 Patent is directed to integrating videoconferencing with interactive electronic whiteboard appliances. EX1001, 1:19–22. The patent discloses an interactive whiteboard appliance 102 that includes a display 120, a communications interface 122, an interactive whiteboard (IWB) application 124, a collaboration client 126, an application manager 128, and a user interface (UI) component 130, all executing on an operating system (OS) 132 having an OS application programming interface (API) 134. *Id.* 3:62–4:1, FIG1.



The patent expressly identifies the collaboration client 126 as a “Microsoft Lync Client,” the collaboration library 136 as the “Microsoft Lync SDK,” and the collaboration server 108 as a “Microsoft Lync Server.” *Id.* 4:40-45, 5:4-14, 5:30-37, FIG1. Thus, the ’487 Patent is directed to combining a known videoconferencing application (Microsoft Lync) with a known interactive whiteboard device to manage whiteboard sessions and videoconferencing sessions in a user-friendly manner. EX1003, ¶60.

The ’487 Patent’s application manager 128 manages the display layering of the interactive whiteboard session window and the videoconferencing window using known Microsoft Windows OS-level functions. *Id.* 6:26–38; 7:18–31. Specifically, the patent discloses that to ensure the interactive whiteboard session window remains on top during startup, the application manager 128 invokes a “FindWindow()” function using a class name of the interactive whiteboard session window 302 to determine an OS-level identifier, and then sets the “WS_EX_TOPMOST bit in the GWL_EXSTYLE field” for that window. *Id.* 6:28–38. To move the collaboration client window (videoconference) on top of the interactive whiteboard session window when starting a videoconference, the application manager 128 invokes FindWindow() using the class name of the collaboration client window to determine its OS-level identifier, sets the WS_EX_TOPMOST bit in the GWL_EXSTYLE field for the collaboration client

window, and removes or unsets the WS_EX_TOPMOST bit for the interactive whiteboard session window 302 to move it below. *Id.* 7:18–31. These are standard, well-known Windows OS API functions for managing window z-order that were available to any software developer working with the Microsoft Windows operating system at the time of the invention. EX1003, ¶61.



The '487 Patent thus does not disclose any novel hardware, any novel videoconferencing protocol, or any novel whiteboard technology. EX1003, ¶62. Rather, it combines a known videoconferencing application (Microsoft Lync) with a known interactive whiteboard device and uses known Microsoft Windows OS-level functions (FindWindow() and WS_EX_TOPMOST) to layer the

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videoconference window on top of the whiteboard session window, thereby providing an improved user experience for managing both sessions on a single display. *Id.* 4:40-45, 5:4-14, 6:26-38; 7:18-31. As discussed below, this combination of known elements to achieve a predictable result was obvious in view of the Saleh and Gurevich references. EX1003, ¶63.

B. Prosecution History

U.S. Patent Application No. 16/507,952 was filed on July 10, 2019, as a continuation of U.S. Patent Application No. 15/637,006, filed on June 29, 2017, which is itself a continuation of U.S. Patent Application No. 14/708,186, filed on May 9, 2015. EX1001. The application was initially filed with a single claim directed to an interactive whiteboard appliance that integrates videoconferencing with a shared whiteboard session. EX1002, 11-12. The claim covered a device and software components and a manager that presents a collaboration menu with controls that switch between whiteboard and video, share content with external client devices, and control the videoconference, allowing both whiteboard content and the videoconference feed to be displayed simultaneously. EX1002, 11-12. On October 30, 2019, the Applicant filed preliminary amendments cancelling claim 1 and adding new claims 2-21, which recast the invention across device, computer-readable media, and computer-implemented method formats, and adds specific user interface limitations and related rules (e.g., Z-order behavior of windows). EX1002, 50-54.

In a Non-Final Office Action Rejection dated April 27, 2020, the Examiner allowed claims 2-14 and 16-21, and rejected claim 15 under 35 U.S.C. §112(b) for lack of antecedent basis in the preamble of the claim. EX1002, 63-65. Under the section titled “Allowable Subject Matter,” the Examiner explained that independent claims 2, 9, and 16 (and their dependent claims) were allowed because the prior art of record—U.S. Patent Publication No. 2006/0167996 (“Orsolini”), U.S. Patent Publication No. 2008/0098295 (“Nelson”), U.S. Patent Publication No. 2008/0184115 (“Back”), U.S. Patent No. 8,713,454 (“Sriraghavan”) and U.S. Patent Publication No. 2015/0009278 (“Modai”)²—fails to teach all the limitations of the claims. EX1002, 63-65. In particular, the Examiner noted that the prior art “failed to teach a whiteboard session window with overlaid menu on to it to enable selection to start videoconference and then overlaying the videoconference window on the interactive whiteboard session window.” EX1002, 63-65.

On July 24, 2020, the Applicant amended claim 15’s preamble to address the §112 (b) rejection. EX1002, 79. On September 11, 2020, the Examiner issued a Notice of Allowance for all pending claims, without providing any additional reasons for the allowance. EX1002, 91-92. **As explained below, the prior art**

² These are the only references considered during prosecution and cited on the face of the ’487 Patent.

explicitly discloses the limitation the Examiner found as the basis for allowance.

EX1003, ¶70.

IV. POSITA

A person of ordinary skill in the art (“POSITA”) relevant to the ’487 Patent as of May 9, 2015 would have had at least: (1) a bachelor’s degree in computer science, software engineering, electrical engineering, or a comparable field of study, with at least two years of work experience in software application development, graphical user interface design, videoconferencing systems, and/or interactive display systems; or (2) a master’s degree in computer science, software engineering, electrical engineering, or a comparable field of study, with a focus in software application development, graphical user interface design, videoconferencing systems, and/or interactive display systems. An individual with additional education could have less work experience and vice versa. EX1003, ¶¶71-72.

V. CLAIM CONSTRUCTION

Because there is no need for claim construction to determine that the cited prior art renders all Challenged Claims obvious, Petitioner does not present any constructions.

VI. OVERVIEW OF CHALLENGE

Petitioner requests cancellation of claims 1-20 as set forth below:

Ground	Claims	Statutory Basis	References
1A	1-20	§102	Saleh-502
1B	1-20	§103	Saleh-502

2	1-20	§103	Gurevich with Saleh-502
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The '487 Patent was filed on July 10, 2019, and claims priority to U.S. Patent Application No. 14/708,186, filed on May 9, 2015. Petitioner's challenge is based on the following references, which are prior art under 35 U.S.C. §102 (AIA). None of these references were considered or cited during prosecution of the '487 Patent.

Exhibit	Reference	Date(s)	Availability as Prior Art
EX1004	U.S. Patent No. 8,593,502 ("Saleh-502")	Filed Jan. 18, 2011; Issued Nov. 26, 2013	§102(a)(1)
EX1005	U.S. Patent Application Publication No. 2016/0301729 ("Gurevich")	Filed Apr. 9, 2015; Published Oct. 13, 2016	§102(a)(2)

VII. THE ASSERTED GROUNDS OF INVALIDITY

A. Ground 1A/1B: Saleh-502 Anticipates And/or Renders Obvious Claims 1-20

Saleh-502, titled "Controlling Videoconference with Touch Screen Interface," issued November 26, 2013, and is assigned to Polycom, Inc. EX1004, 1. Saleh-502 acknowledges that a prior art system known in the art was the "3000iPower," which combined a Polycom iPower 9800 videoconferencing unit with a Rear Projection SMART Board 3000i interactive whiteboard from SMART Technologies, Inc. *Id.* 1:54-65. The 3000iPower "allows computer images to be projected and viewed within a videoconference call," "offers touchscreen controls that provide access to conference applications," and allows "[a] user [to] use a pen from a pen tray . . . and

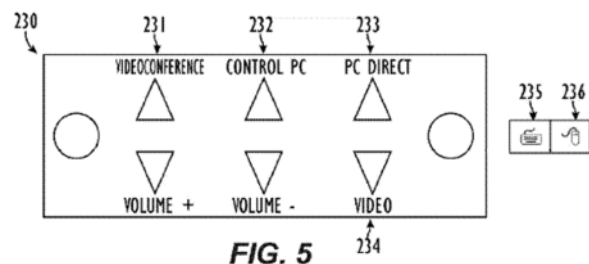
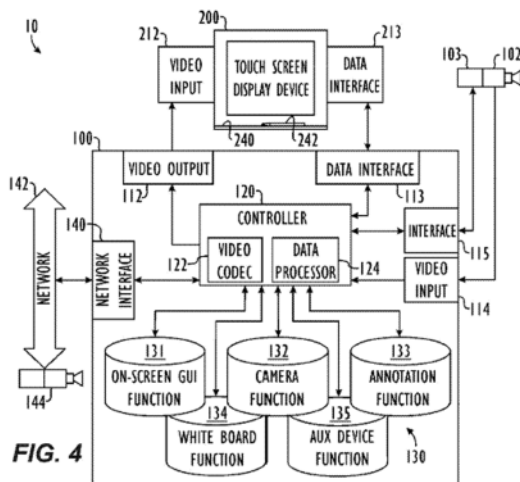
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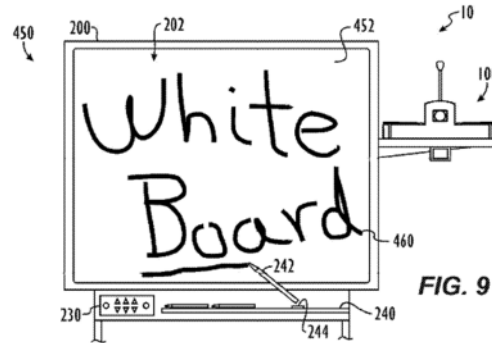
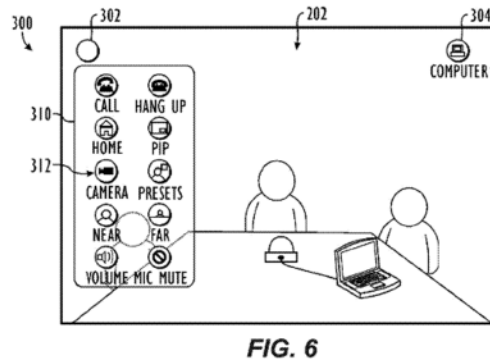
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make notes on a whiteboard or highlight important information.” *Id.* 1:60-65. Saleh-502 improves on that combination by coupling a Polycom VSX 8000 videoconferencing unit to a 3000i model SMART Board display device, with the goal of simplifying user interaction and integrating various peripheral devices for an enhanced videoconferencing experience. *Id.* 4:55-5:14. Like the ’487 Patent, Saleh-502 recognizes that users would benefit from a more user-friendly experience combining both technologies into a single, cohesive interface. *Id.* 1:54-2:16; EX1003, ¶¶78-86.

The combined system enables the SMART Board to both display video and receive touch inputs, “incorporat[ing] features of input and display for the videoconferencing system.” EX1004, 5:10-14. The videoconferencing unit includes a controller 120 (including video codec 122 and data processor 124) coupled to memory 130 storing an on-screen GUI function 131, a camera function 132, an annotation function 133, a whiteboard function 134, and an auxiliary device function 135. EX1004, 7:4-67. The controller 120 is coupled to a network interface 140 connected to a videoconference network 142. EX1004, 7:47-50. The on-screen GUI function 131 displays “touch controls, menus, and dialogs” allowing the user to “place a videoconference call through a directory, speed dial, or manual dial menu; answer an incoming videoconference call; hang-up a videoconference call; mute or change volume of audio; select camera and content sources, swap near and far video

in picture-in-picture (PIP), and other operations.” EX1004, 7:55-8:12. A transparent menu 310 is overlaid on the touch screen while video is being displayed, invoked by selecting a button 302 that “is transparent or hidden and is available from all screens including those containing video of participants and content.” EX1004, 10:61-11:5. Users can also switch between videoconference mode, whiteboard mode, and PC mode using buttons 231-234 on the control panel 230. EX1004, 9:33-10:5. When a user picks up a pen 242, the system automatically switches to annotation or whiteboard mode; when the pen is replaced, the system reverts to touch-control mode. EX1004, 8:55-9:14. The whiteboard function 134 allows the display to be used as a whiteboard, and “the whiteboard’s content 452 with the annotations 460 can be sent to remote endpoints by the videoconferencing unit 100” during a call. EX1004, 13:30-60.





Every structural and functional element of the '487 Patent was expressly disclosed by Saleh-502. EX1003, ¶87. A POSITA would have been motivated to combine these elements in the manner claimed because Saleh-502 expressly sought to improve the user experience of combined whiteboard and videoconferencing systems, through providing intuitive, on-screen controls for managing these functions. EX1003, ¶87.

1. [Claims 1.pre] “A whiteboard device comprising:”

Saleh-502 discloses a touch screen display device 200, identified as a 3000i model SMART Board available from SMART Technologies of Canada, which functions as an interactive whiteboard. EX1004, 4:62–65; EX1003, ¶88. Saleh-502 confirms that it was known to operatively couple or integrate a videoconferencing unit with a SMART Board display device as a combined whiteboard-videoconferencing system. EX1004, 4:55–67, 5:1–14. The SMART Board includes a projection screen 202 and an integrated XGA projector 220, constituting a “display.” *Id.* 5:23–26.

a) Claim 8.pre

Saleh-502 expressly discloses non-transitory computer-readable media. The videoconferencing unit 100 includes memory 130 that “may include one or more memory modules and comprise random access memory (RAM), read only memory (ROM), programmable read only memory (PROM), programmable read-write memory, and solid-state memory.” *Id.* 4:19–23. ROM, PROM, and solid-state memory are all non-transitory storage media. Saleh-502 further discloses a program storage unit 180 that “represents any form of non-volatile storage including, but not limited to, all forms of optical and magnetic storage elements including solid-state storage.” *Id.* 3:67–4:3. Saleh-502 also teaches that “[a] machine-readable medium may include read-only memory (ROM), random-access memory (RAM), magnetic disc storage media, optical storage media, flash-memory devices, electrical, optical, and others.” *Id.* 22:15–20. These are precisely the types of non-transitory media contemplated by claim 8.

The memory 130 stores the operational functions 131–135—including the on-screen GUI function 131, camera function 132, annotation function 133, whiteboard function 134, and auxiliary device function 135—which are executed by the controller 120. *Id.* 7:42–54. These stored functions constitute “instructions which, when processed by one or more processors, cause” the system to perform the operations recited in claim 8, including displaying the interactive whiteboard session

window, overlaying the selection menu, and overlaying the videoconference window. EX1003, ¶¶89-91. The functional limitations of claim 8 are identical to those of claim 1, and as demonstrated in the element-by-element analysis of claim 1, Saleh-502 discloses and/or renders obvious each of those functional limitations. The only additional element in claim 8—the non-transitory computer-readable media—is expressly disclosed by Saleh-502’s ROM, PROM, solid-state memory, and program storage unit 180. EX1004, 4:19–23; 22:45–52, FIGS1, 5; EX1003, ¶91.

b) Claim 15.pre

Claim 15 recites a “computer-implemented method” comprising the same functional steps as claims 1 and 8.

Saleh-502’s system performs these steps. When the videoconferencing unit 100—operating through its controller 120 and stored operational functions 131–135 in memory 130—displays whiteboard content on the SMART Board display device 200, presents on-screen GUI menus for initiating a videoconference, and then displays videoconference video on the same display device upon entering the videoconference mode, each of these operations constitutes a computer-implemented method step. *Id.* 7:42–54; 9:33–40; 13:42–50; EX1003, ¶92. Saleh-502 expressly states that “[a]spects of the invention are described as a method of control or manipulation of data, and may be implemented in one or a combination of hardware, firmware, and software” and that “[e]mbodiments of the invention may

also be implemented as instructions stored on a machine-readable medium, which may be read and executed by at least one processor to perform the operations described herein.” EX1004, 22:6-21. This confirms that Saleh-502 contemplates both apparatus and method implementations of the same functionality. EX1003, ¶93.

2. [Claims 1.a/8.a] “a display”

Saleh-502 discloses a videoconferencing system **10** that includes integrating a videoconferencing unit **100** and a **touch screen display device 200**, further including one or more peripheral devices, such as a computer (either laptop or desktop) **50**, a Video Cassette Recorder (VCR) **70**, and a Digital Versatile Disc (DVD) player **80**. EX1004, 4:55-5:3; EX1003, ¶¶94-96. Saleh-502 explains that in one embodiment, the videoconferencing unit **100** is a VSX 8000 available from Polycom, Inc., the Assignee of the present disclosure, and the **touch screen display device 200** is a 3000i model SMART Board available from SMART Technologies of Canada. *Id*; see FIGS1-4 (showing display block elements); see FIGS. 6-22 (showing exemplary display content).

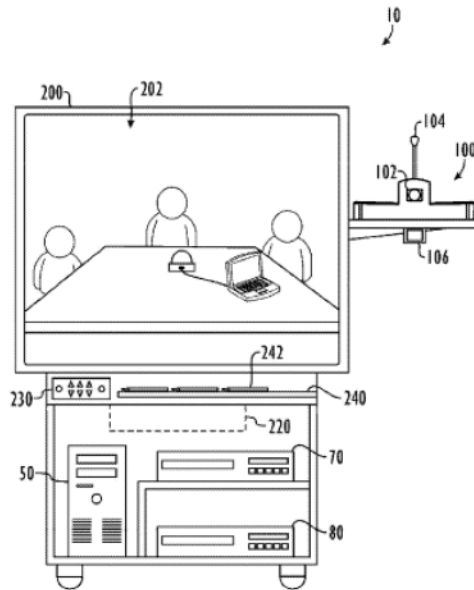


FIG. 2

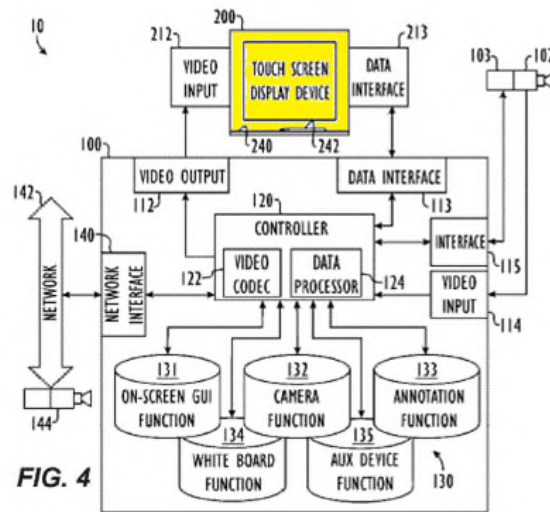
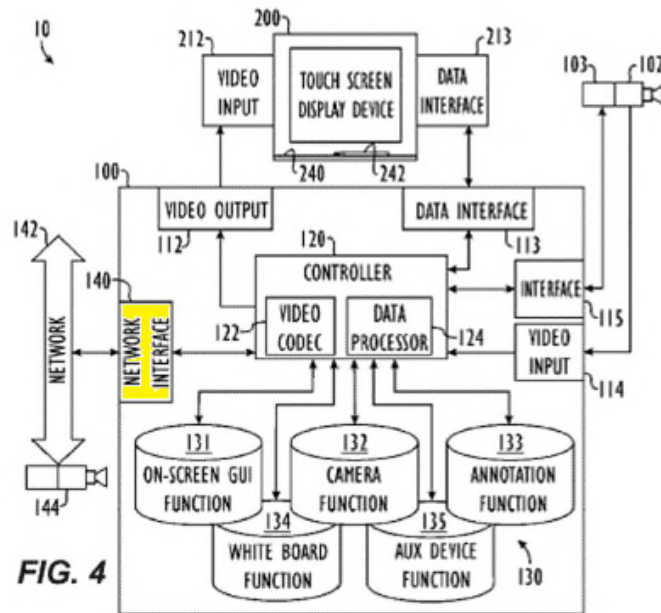


FIG. 4

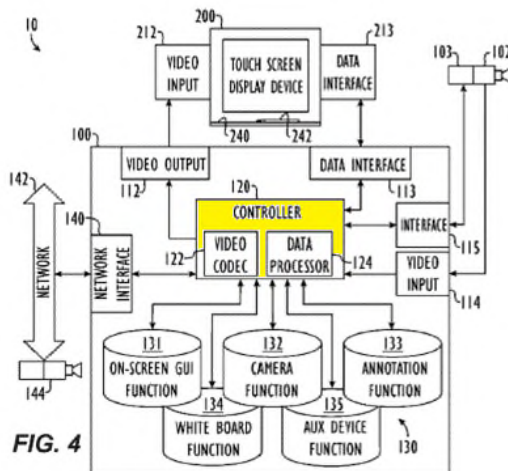
3. [Claims 1.b] “a network interface”

Saleh-502 discloses that the videoconferencing unit 100 includes **a network interface 140** for communication via a network with other conferencing and corporate infrastructure devices. EX1004, 3:60–63; EX1003, ¶97. The videoconferencing unit is operatively coupled to the touch screen display device (SMART Board), and the combined system establishes videoconferences with remote endpoints via a network. EX1003, ¶¶98-99. Saleh-502 supplies the express teaching that the videoconferencing unit includes a network interface for communication over a network and may be integrated with the SMART Board display device for the videoconferencing system. EX1004, 3:60–63, 5:1–3, FIGS1, 4.



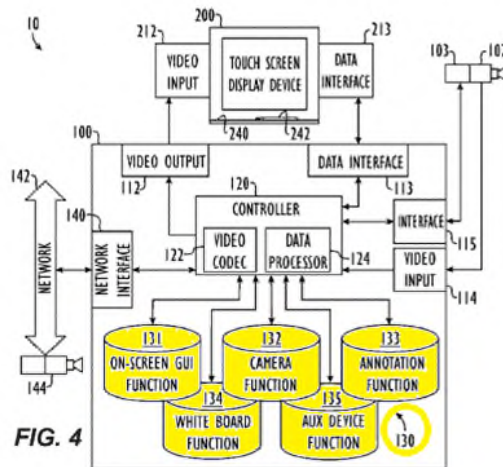
4. [Claims 1.c] “one or more processors; and”

Saleh-502 discloses that the videoconferencing unit 100 includes **a controller 120**, which may include any programmable controller device, including processors from the Intel Core, Pentium, and Celeron families, or the ARM Cortex processor family. EX1004, 4:10–15. Thus, Saleh-502 confirms that the videoconferencing unit in an integrated SMART Board videoconferencing system includes a controller that may be implemented using known processors, including Intel Core, Pentium, Celeron, or ARM Cortex processors. *Id.*; EX1003, ¶¶100-101. Thus, when the videoconferencing unit and the touch screen display device are integrated together, the resulting whiteboard device includes one or more processors. EX1004, 5:1–3, FIGS1, 4; EX1003, ¶102.



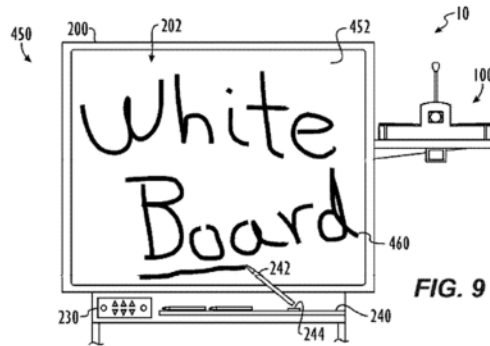
5. [Claims 1.d] “one or more memories communicatively coupled to the one or more processors, the one or more memories storing instructions which, when processed by the one or more processors; cause:”

Saleh-502 discloses that the videoconferencing unit 100 includes **memory 130** storing operational functions 131–135, which are executed by the controller 120. EX1004, 7:42–49; EX1003, ¶103. The memory may include RAM, ROM, PROM, programmable read-write memory, and solid-state memory. EX1004, 4:19–23. These stored functions (on-screen GUI function 131, camera function 132, annotation function 133, whiteboard function 134, and auxiliary device function 135) are instructions that, when processed by the controller/processor, cause the system to perform the operations described. *Id.* 7:45–54, FIGS1, 4; EX1003, ¶¶104–105.



6. [Claims 1.e/8.a/15.a] “an interactive whiteboard session window, including at least an interactive whiteboard session content area, to be displayed on the display,”

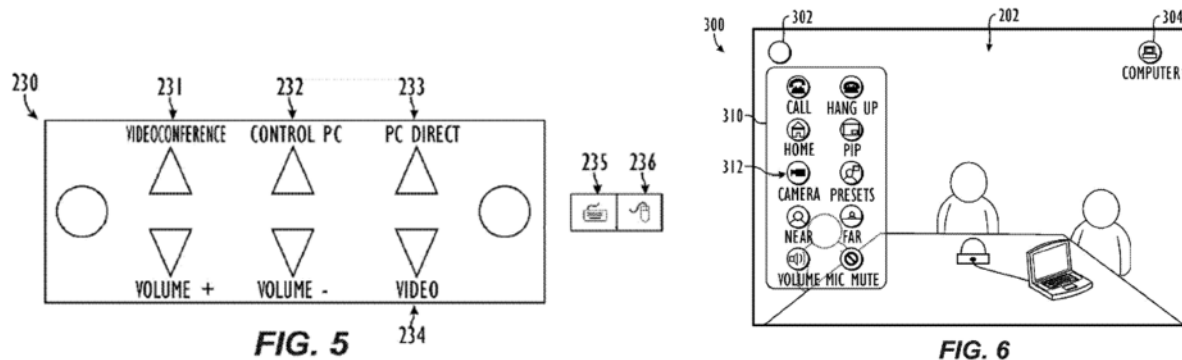
Saleh-502 discloses a whiteboard mode of operation in which whiteboard content 452 is displayed on the whiteboard screen 202 of the SMART Board display device. EX1004, 13:42–53. The whiteboard content 452 is displayed on the screen and the user can make annotations 460 on the whiteboard content. *Id.* 13:53–56. Saleh-502 confirms that a SMART Board videoconferencing system includes a whiteboard mode in which whiteboard content is displayed on the screen and users make annotations on that content. *Id.* 13:55–60; EX1003, ¶¶106-107. This constitutes an interactive whiteboard session window with a content area displayed on the display, as shown below in FIG9. EX1003, ¶¶108-110.



7. [Claims 1.f/8.b/15.b] “wherein a selection menu to receive an instruction for starting a video conference session is overlaid on the interactive whiteboard session window; and”

Saleh-502 discloses that the videoconferencing unit 100 displays graphical user interfaces for controlling operation of the system on the display device 200. EX1004, 7:52–54. The on-screen GUI function 131 allows the videoconferencing unit to display menus and touch controls on the display device. *Id.* 7:52-54, 11:1–5. Saleh-502 further discloses a control panel 230 with a button 231 configured to initiate a videoconference mode of operation. *Id.* 9:33–37. In FIG6, when button 302 is selected, **transparent menu 310** is overlaid on the screen including **a call button** for initiating a call. *Id.* 10:61-11:13; EX1003, ¶¶111-113. Additionally, Saleh-502 teaches menu 310 is designed to be “available from all screens” and to be displayed over whatever video content is currently shown on the screen 202. *Id.* 10:66-11:5, 11:50-51. In another embodiment, a separate touch panel device 500 provides a top-level menu structure including screens for initiating a videoconference, searching a

directory of participants, and other conference operations. *Id.* 14:30-48, 25:53-67, 26:63-67.



As Saleh-502 shows the same device handling both whiteboard and videoconferencing functions through on-screen controls, a POSITA would understand that Saleh-502's GUI menus for initiating a videoconference are displayed on-screen while a whiteboard session is active, constituting a selection menu overlaid on the whiteboard session window. *Id.* 9:33-54; 11:20-22; EX1003, ¶¶114-117.

8. [Claims 1.g/8.c/15.c] “after receiving the instruction for starting the video conference session via the selection menu overlaid on the interactive whiteboard session window, a videoconference window to be overlaid on the interactive whiteboard session window.”

Saleh-502 discloses and/or renders obvious this limitation.

Saleh-502 discloses that when the system enters the videoconference mode, the videoconferencing unit 100 establishes a videoconference connection with remote endpoints and sends video of the videoconference to the display device 200 of the videoconferencing-whiteboard system. EX1004, 9:35-40. The system

displays videoconference video, GUI controls, and other content on the screen 202 of the whiteboard display device. EX1003, ¶118. Saleh-502 teaches that the display device 200 can display video data including videoconference video from the videoconferencing unit, and the user can switch between the videoconference mode and the whiteboard mode. EX1004, 13:42-60. FIG6 below shows the videoconference on the screen 202 of the whiteboard device.

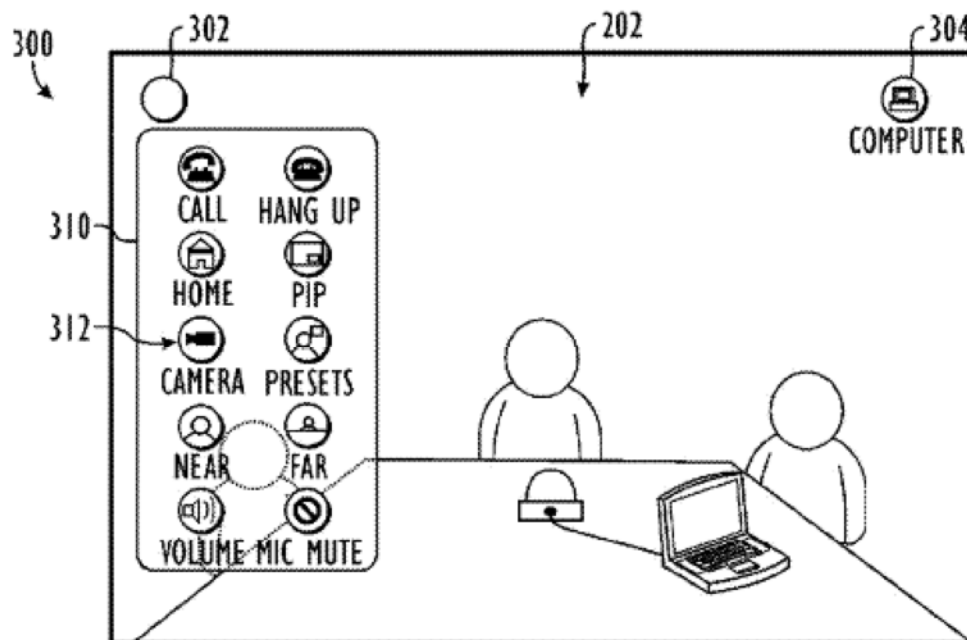


FIG. 6

To the extent it is argued that overlaying the windows requires only a partial overlapping of the videoconference window on the whiteboard session window, Saleh-502 expressly discloses that the menu 310 includes a “picture-in-picture (PIP) button” among its touch controls 312, and that “[t]he Mute and PIP on the menu 310 can be toggling buttons for muting the audio and producing picture-in-picture on the

screen 202.” *Id.* 11:10–20. Saleh-502 further discloses that the graphical user interfaces allow the user to “swap near and far video in picture-in-picture (PIP).” *Id.* 7:62–64. Additionally, Saleh-502 teaches a layout control screen 580 that includes “various icons to allow adjustment of video size, picture-in-picture properties, including presence and removal, and can include a dual monitor emulation mode, which allows for two image streams to be displayed side-by-side on a single monitor.” *Id.* 20:21–27. Thus, Saleh-502 discloses a videoconference window overlaid on the whiteboard session window after receiving an instruction for starting a video conference. EX1003, ¶¶118-120.

Additional Obviousness Rationale: To the extent it is argued that Saleh-502 does not expressly disclose overlaying a videoconference window on a whiteboard session window, it would have been obvious to a POSITA in view of Saleh-502’s disclosures. EX1003, ¶¶121-123.

Picture-in-picture is, by definition, the overlaying of one video window on top of another displayed content on the same screen. Saleh-502’s system already implements this concept: a smaller video feed (e.g., near-end camera video) is displayed as an overlay window on top of the primary video content on the screen 202. EX1004, 7:58-64. A POSITA would have recognized that the same windowing technique used to overlay a PIP video feed on top of the primary video stream could be applied to overlay a videoconference window on top of the interactive whiteboard

session window. EX1003, ¶¶122-124. The only difference is the content of the underlying layer: instead of overlaying a small video window on top of a full-screen videoconference video, the system overlays the videoconference window on top of whiteboard content 452. EX1003, ¶123. Because Saleh-502's display device 200 already displays both videoconference video and whiteboard content (in the whiteboard mode 450), and because Saleh-502's system already implements PIP overlay of one content stream on top of another, it would have been a trivial and predictable extension to overlay the videoconference window on top of the whiteboard session window. EX1003, ¶¶123-124. Moreover, Saleh-502's layout control screen 580, which allows "adjustment of video size, picture-in-picture properties, including presence and removal," demonstrates that the concept of overlaying windows on the display was a well-understood, user-configurable feature in Saleh-502's system—not a novel innovation. EX1004, 20:24–28; EX1003, ¶119.

A POSITA would have been motivated to apply this same PIP overlay approach to the whiteboard-videoconference context because it allows users to simultaneously monitor a videoconference while continuing to view and interact with whiteboard content, thereby enhancing the collaborative user experience that Saleh expressly sought to improve. EX1004, 2:8-12, 13:55-60; EX1003, ¶125. Accordingly, the concept of overlaying a videoconference window on top of an active whiteboard session—such that both functionalities coexist—would have been

obvious to a POSITA in view of Saleh-502's disclosure that both whiteboard content and videoconference video are presented on the same interactive whiteboard display, and that the interface includes various selectable control menus, along with PIP viewing. EX1003, ¶125.

* * *

Because claims 1, 8, and 15 share identical functional limitations and differ only in their statutory category (device, computer-readable media, and method), Saleh anticipates and/or renders obvious all three for the same substantive reasons. EX1003, ¶126. Saleh-502's disclosure of a controller/processor, non-transitory memory storing executable functions, and the computer-implemented operations performed by the videoconferencing system satisfies the preamble and structural elements unique to each claim category. EX1003, ¶126. The functional heart of all three claims—displaying a whiteboard session, overlaying a selection menu, and overlaying a videoconference window—is disclosed and/or rendered obvious by Saleh-502 as detailed in the element-by-element analysis of claim 1. EX1003, ¶127. A POSITA would have understood that the same videoconferencing-whiteboard functionality disclosed by Saleh-502 could be claimed as a device, as instructions stored on a medium, or as a method, and would have found it obvious to implement Saleh-502's system in any of those forms. EX1003, ¶127.

9. [Claims 2/9/16] “wherein the videoconference window displays at least content from a device of a participant of the video conference session”

Saleh-502 discloses that the video codec 122 of the videoconferencing unit 100 is responsible for processing video data to be displayed by the display device 200 and to be sent to remote endpoints of the videoconference. EX1004, 7:23–34. The video data processed by the video codec 122 expressly includes “video from remote end points of the videoconference” as well as “content from a peripheral device (e.g., VCR, DVD player, computer, document camera, etc.).” *Id.* When the system enters the videoconference mode, the videoconferencing unit 100 establishes a videoconference connection with remote endpoints via a network, sends video of the videoconference to the RGB input of the display device 200, and transfers graphical user interfaces and touch data between the display device and the unit. *Id.* 9:35–44; EX1003, ¶128. A second button 232 on the control panel 230 is further configured to initiate control of a personal computer 50 so that “content from the computer (50) can be shown during the videoconference,” including “screens of the computer, video, or other images stored on the computer, PowerPoint presentations, files, etc.” EX1004, 9:44–51.

Because the videoconference window displayed on the touch screen display device 200 shows video received from remote endpoints, i.e., content from a device of a remote participant in the videoconference session, this limitation is expressly

disclosed. EX1003, ¶¶129-130. Additionally, Saleh-502's disclosure that content from a connected computer can be shown during the videoconference further confirms that the videoconference window displays "at least content from a device of a participant." EX1004, 9:44-51; EX1003, ¶130.

- 10. [Claims 3/10/17] "after the videoconference window being overlaid on the interactive whiteboard session window, display a second selection menu to receive an instruction for stopping the video conference session overlaid on the interactive whiteboard session window"**

Saleh-502 discloses and/or renders obvious claims 3/10/17.

Saleh-502 discloses that the on-screen GUI function 131 displays a menu 310 on the touch screen 202 of the display device 200 while video is being displayed. EX1004, 11:1-10.

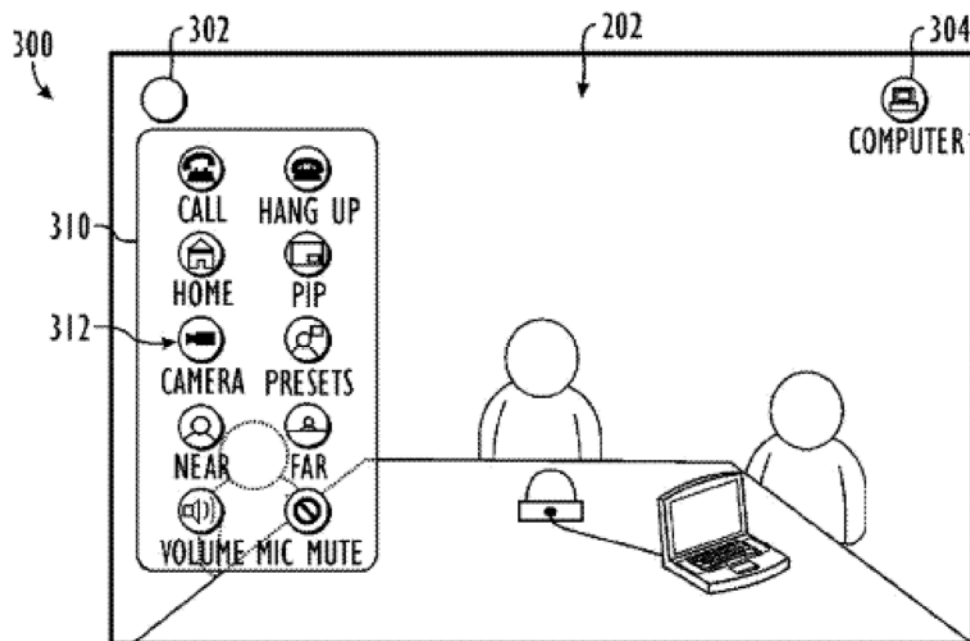


FIG. 6

The menu 310 is transparent and displayed over video currently displayed on the screen 202. *Id.* 11:5–8. Among the plurality of touch controls 312 included in the menu 310 is a “Hang-Up button.” *Id.* 11:5–16. Saleh-502 further discloses that “[s]electing the Hang-up button on the menu 310 can end a videoconference call **or can bring up a hang-up dialog on the screen 202** if there is more than one call currently active.” *Id.* 11:20–27. Thus, to the extent menu 310 is argued to not be a second selection menu, Saleh-502 discloses selecting the button on menu 310 can also bring up a hang-up dialog, which constitutes a second selection menu. EX1003, ¶131.

Similarly, in the touch panel device 500 embodiment, the call control screen 538 displayed during an active call includes a “hang up icon for terminating the call,” and “[t]ouching the hang up icon will terminate the call and can return the user to the home screen.” EX1004, 18:65-19:1.

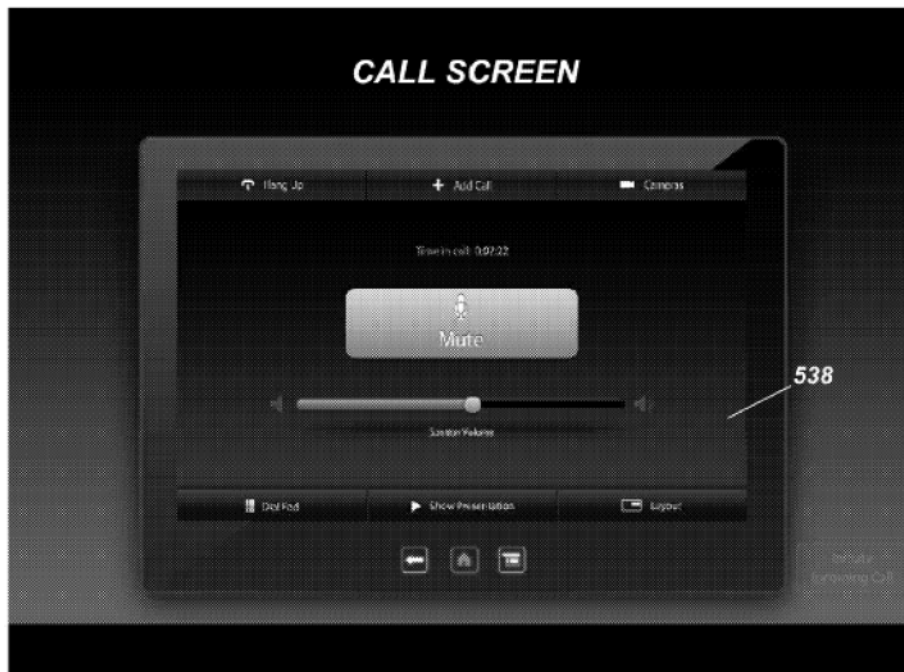


FIG. 12J

Because Saleh-502's menu 310, which is overlaid on displayed video content (including videoconference video), which is overlaid on the whiteboard display, includes a Hang-Up button for stopping the videoconference call, this constitutes a "second selection menu to receive an instruction for stopping the video conference session overlaid on the interactive whiteboard session window." EX1003, ¶¶131-132.

Additional Obviousness Rationale: Moreover, to the extent it is argued that it is not expressly disclosed, it would have been obvious to a POSITA because Saleh-502's menu 310 is expressly designed to be "available from all screens" and to be displayed over whatever video content is currently shown on the screen 202. *Id.*

10:61-11:5; EX1003, ¶133. A POSITA would understand that “all screens” includes whiteboard content and a video conference session. EX1003, ¶¶133-134.

11. [Claims 4/11/18] “wherein the videoconferencing window is maintained on top of the interactive whiteboard window during a videoconferencing session”

Saleh-502 discloses and/or renders obvious claims 4/11/18.

Saleh-502 discloses that when the first button 231 on the control panel 230 is pressed, the system enters the videoconference mode of operation in which the videoconferencing unit 100 “establishes and conducts a videoconference by establishing a videoconference connection with remote endpoints via a network, by sending video of the videoconference to the RGB input of the display device (200), and by transferring graphical user interfaces and touch data between the display device (200) and the unit (100).” EX1004, 9:33–40. Once in this mode, the videoconference video is displayed on the screen 202 of the display device 200, and the menu 310 is displayed over the “video currently displayed on the screen 202.” *Id.* 11:5–8. Saleh-502 further teaches that the button 302 for invoking the menu 310 “is available from all screens including those containing video of participants and content.” *Id.* 10:66-11:5. This confirms that the videoconference video remains continuously displayed on the screen 202 throughout the videoconferencing session. EX1003, ¶135. Those disclosures demonstrate that Saleh-502 contemplates overlapping video and whiteboard content on the same interactive surface and

managing their visibility. EX1003, ¶136. Maintaining the video presentation window on top while allowing other selectable controls was therefore a predictable design choice to allow participants to see the videoconference while continuing to interact with the whiteboard. EX1003, ¶136.

Additional Obviousness Rationale: To the extent it is argued that Saleh-502 does not expressly disclose that “the videoconferencing window is maintained on top of the interactive whiteboard window during a videoconferencing session,” it would have been obvious to a POSITA in view of Saleh-502’s disclosures. EX1003, ¶136.

Because Saleh-502 discloses that videoconference video is sent to and displayed on the display device 200 of the SMART board whiteboard device throughout the duration of a videoconference session it necessarily follows that the videoconference window would be maintained on top of the interactive whiteboard window during the videoconferencing session. EX1003, ¶136. This is nothing more than the natural consequence of Saleh-502’s system architecture: once a videoconference is initiated, the videoconference content occupies the top-most display layer on the screen 202 of the whiteboard device while the whiteboard content remains beneath it. EX1004, 9:33–40, 11:1–8, 14:20-25; EX1003, ¶136. A POSITA would have also understood that maintaining the videoconference window on top during the session was the obvious and predictable design choice, as it allows

users to continuously view the conference participants while retaining access to the underlying whiteboard content when desired. EX1003, ¶137.

12. [Claims 5/12/19] “wherein processing of the instructions further causes the interactive whiteboard session window to be moved on top of the videoconference window in response to termination of the video conference session”

Saleh-502 discloses and/or renders obvious claims 5/12/19.

As discussed above, Saleh-502 discloses a menu 310 with a Hang-Up button that allows a user to end a videoconference call. EX1004, 11:25–27. Saleh-502 further discloses, in the touch panel device 500 embodiment, that “[t]ouching the hang up icon **will terminate the call and can return the user to the home screen** (520; FIG. 11A) or the screen displayed prior to the call.” *Id.*18:65-19:1. This disclosure teaches that upon termination of a videoconference call, the system automatically returns the display to the screen that was active before the videoconference was initiated. EX1003, ¶138. Where the user was operating in the whiteboard mode prior to starting the videoconference, the system would return to displaying the whiteboard content, i.e., moving the interactive whiteboard session window back on top of the videoconference window. EX1003, ¶138.

Additional Obviousness Rationale: To the extent it is argued that Saleh-502 does not expressly disclose that “the interactive whiteboard session window to be moved on top of the videoconference window in response to termination of the video conference session,” it would have been obvious to a POSITA in view of Saleh-

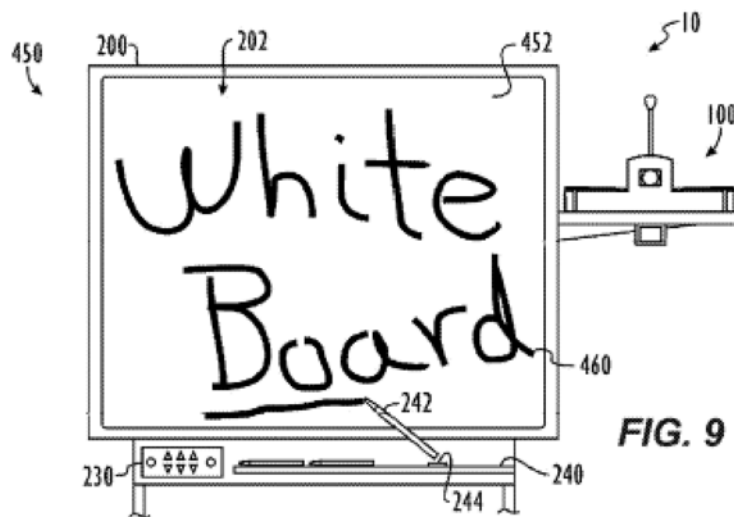
502's disclosures. EX1003, ¶139. Saleh-502 discloses that the display device 200 can operate in multiple modes (e.g., videoconference mode, whiteboard mode, and PC mode) and that the user can switch between these modes using the control panel 230. EX1004, 9:33–54. It would have been obvious to a POSITA that when a videoconference session is terminated while the whiteboard session remains active in the background, the natural and predictable result would be to restore the whiteboard session window to the top of the display. EX1003, ¶140. This is the standard behavior expected in any windowed computing environment: when a foreground application (the videoconference) is closed, the background application (the whiteboard session) is brought to the foreground. EX1003, ¶139. A POSITA would have been motivated to implement this behavior because it allows the user to seamlessly resume whiteboard collaboration after a videoconference concludes, without requiring additional manual steps to navigate back to the whiteboard. EX1003, ¶140.

13. **[Claims 6/13/20] “wherein processing of the instructions further causes an interactive whiteboard session to be shared with the one or more client devices that are external to the whiteboard device by invoking functionality provided by a collaboration library on the whiteboard device”**

Saleh-502 discloses and/or renders obvious claims 6/13/20.

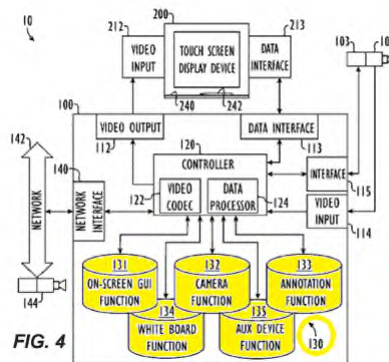
Saleh-502 discloses that the whiteboard function 134, stored in memory 130 of the videoconferencing unit 100, allows the display device 200 to be used as a

whiteboard. EX1004, 7:43–51. When operating in the whiteboard mode 450, whiteboard content 452 with annotations 460 can be sent to remote endpoints by the videoconferencing unit 100 as H.239 content via the network interface 140. *Id.* 13:25–32, 14:5–14. Specifically, the videoconferencing unit 100 generates the whiteboard content 452, receives touch data from the display device 200, combines the touch data as annotations 460 to the whiteboard content 452, and then “sends the annotated whiteboard to the display device 200 and sends it to one or more remote endpoints of the videoconference as H.239 content.” *Id.* 14:5–14. The remote endpoints (i.e., client devices external to the whiteboard device) thus receive the shared whiteboard session content. EX1003, ¶141. This is shown below in FIG9.



Saleh-502 further discloses that an optional computer 50 can be connected to the system 10 and can have “appropriate software integrating the computer 50 with the unit 100” and “a graphical user interface for controlling operation of the

videoconferencing unit 100.” *Id.* 6:28–35. The computer 50 can also handle whiteboard content 452 and annotations 460, and the annotated whiteboard can be sent to remote endpoints as H.239 content. *Id.* 14:5–14. The operational functions 131–135 stored in memory 130—including the whiteboard function 134 and the on-screen GUI function 131—constitute a “collaboration library” within the meaning of the claims, as they provide the programmatic functionality invoked to share whiteboard content with external devices. *Id.* 7:42–54; EX1003, ¶142. Specifically, the ’487 Patent explains that “application manager 128 invokes whiteboard sharing via collaboration library 136 which allows the interactive whiteboard session window 302 to be shared with Participant # 2 via client device 104.” EX1001, 8:14–17.



Additional Obviousness Rationale: To the extent it is argued that Saleh-502 does not expressly disclose the “collaboration library,” it would have been obvious to a POSITA that the stored software functions in Saleh-502’s system that enable whiteboard sharing with remote endpoints constitute a collaboration library or are

functionally equivalent thereto. EX1003, ¶143. Software development kits (SDKs) and libraries for enabling content sharing in videoconferencing environments were well known in the art at the time of the invention, and organizing Saleh-502's whiteboard-sharing functionality into a callable library would have been a routine software engineering choice. EX1003, ¶143. A POSITA would have been motivated to structure these functions as a library to promote modularity and reuse across different applications on the whiteboard device. EX1003, ¶143.

14. [Claims 7/14] “wherein processing of the instructions further causes the selection menu to be updated in response to detecting a user selection of a particular control on the selection menu for switching between an interactive whiteboard session and the video conference session”

Saleh-502 discloses and/or renders obvious claims 7/14.

Saleh-502 discloses that the menu 310 displayed on the touch screen 202 of the display device 200 includes a plurality of touch controls 312, such as a Call button, a Hang-Up button, a Cameras button, and other controls for operating the videoconferencing system. EX1004, 11:5–15. Saleh-502 further discloses that the call control screen 538, displayed during an active call on the touch panel device 500, includes icons for features commonly used during a call, including a hang-up icon, an add call icon, a camera button, a dial pad icon, and a show presentation icon. *Id.* 18:48-59. Critically, Saleh-502 discloses that once a content source is selected for presentation, the call control screen 538 is updated: the “Show Presentation” icon

is replaced with a “stop presentation icon,” providing a visual indication to the user that content is being displayed. *Id.* 20:13–20. **This demonstrates that Saleh-502’s menus dynamically update their controls in response to a user’s selection of a particular function.** EX1003, ¶144.

Moreover, Saleh-502 discloses that the control panel 230 on the display device 200 includes buttons 231, 232, and 233 **for switching between the videoconference mode, the PC mode, and PC direct mode**, respectively. EX1004, 9:33–54. The on-screen GUI function 131 displays corresponding menus and touch controls on the display device 200 for the selected mode. EX1004, 7:42–54.

Additional Obviousness Rationale: It would have been obvious to a POSITA that when a user selects a control to switch between the whiteboard session and the videoconference session, the on-screen menu would be updated to reflect the current state, for example, by changing a “Start Videoconferencing Session” option to a “Stop Videoconferencing Session” option, or by enabling or disabling controls based on the active mode, as Saleh-502’s own menus already update dynamically in response to user selections (e.g., replacing “Show Presentation” with “Stop Presentation”). EX1003, ¶145. A POSITA would have been motivated to update the menu in this manner because it provides the user with contextually appropriate

controls, reducing confusion, and improving the user experience that Saleh-502's system was designed to enhance. EX1003, ¶145.

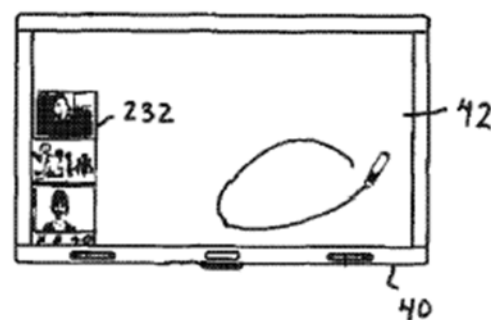
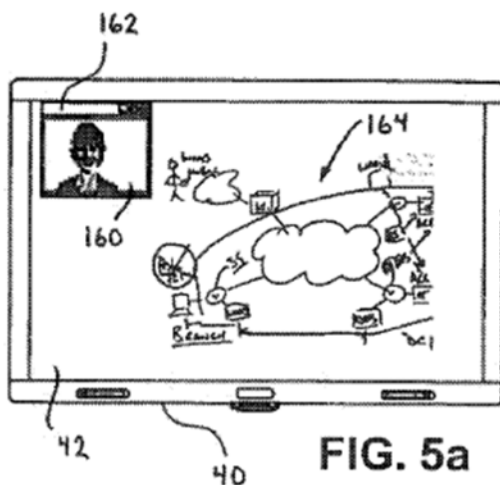
Thus, Saleh-502 discloses and/or renders obvious claims 1-20.

B. Ground 2: Gurevich in view of Saleh-502 Renders Obvious Claims 1-20

Gurevich (US 2016/0301729 A1), assigned to SMART Technologies ULC, is directed to presenting video in a context-sensitive manner during a conference session on an interactive whiteboard. Gurevich, ¶[0001]. Gurevich recognizes that when video is combined with a shared whiteboard application, the video is typically handled by a third-party video application component—specifically “Lync™ 2010 provided by Microsoft Corporation”—whose native user interface, “including, for example its windows, borders, selectable control buttons and other graphical user interface (GUI) elements, often do not interface well with the user interface of the shared whiteboard application resulting in a less than desirable conferencing experience.” *Id.* ¶¶[0004], [0042]. Gurevich solves this by combining Microsoft Lync™ 2010 with a SMART Board® interactive whiteboard and improving video presentation on the whiteboard surface—the same fundamental goal as the '487 Patent (including *the same* Microsoft Lync video application). EX1003, ¶¶146-152.

Gurevich's system includes a computing device 30 with processors, memory, and network connectivity, connected to a microphone 32, video camera 36, speakers 38, and an interactive board (IB) 40 with interactive surface 42. EX1005, ¶¶[0036]–

[0037]. The host conferencing application comprises an interactive board application component (SMART Technologies), a video application component (Microsoft Lync), and a video interface application component that enhances video presentation. *Id.* ¶¶[0041]-[0042]. Remote sites communicate over a network, sharing audio, video, and data. *Id.* ¶¶[0035], [0041]. The video interface application component receives the Lync video stream, suppresses its default native interface, separates the video by bit-splitting, processes the video (resizing, flipping, relocating), and presents it on interactive surface 42 within an alternative presentation interface customized for the interactive board. *Id.* ¶¶[0050]-[0053]. The alternative interface includes a tool bar with selectable controls, participant icons, transparency adjustments, and controls for removing or repositioning video streams in a configurable video strip. *Id.* ¶¶[0057], [0059]-[0061], [0067].



Specifically, the interactive board 40, computing device 30 with processors and memory, network connectivity, and host conferencing application correspond to the

structural limitations of independent claims 1, 8, and 15. EX1005, ¶¶[0036]–[0042]; EX1003, ¶152. Gurevich discloses displaying content from remote participant devices because their video streams are received, processed, and presented on interactive surface 42. EX1005, ¶¶[0038], [0050]–[0053]. The selectable GUI controls, toolbars, and transparency controls disclose or render obvious controls for stopping or altering videoconference video. *Id.* ¶¶[0057], [0059]–[0061], [0067]; EX1003, ¶152. Gurevich discloses maintaining video over the whiteboard workspace—and returning the whiteboard to the foreground—because video is presented in designated areas on the same surface as whiteboard content, with dynamic adjustments to position, transparency, and visibility in response to user annotations. EX1005, ¶¶[0053], [0059], [0064], [0067]. Finally, Gurevich discloses sharing the whiteboard session with external devices because the host conferencing application shares images, annotations, and data among local and remote sites using SDKs/APIs. *Id.* ¶¶[0041]–[0045], [0079]. As explained above, Saleh-502 explicitly discloses overlaid selection menus. EX1003, ¶152.

Thus, Gurevich in view of Saleh-502 renders obvious claims 1–20 of the '487 Patent. EX1003, ¶152.

1. Motivation to Combine

A POSITA would have been motivated to combine the teachings of Gurevich with those of Saleh-502 because both references are analogous art addressing the

same technological problem: integrating videoconferencing functionality with an interactive SMART Technologies whiteboard to improve the conferencing user experience. EX1003, ¶153. Gurevich discloses a SMART Board® interactive board 40 connected to a computing device 30 running a host conferencing application that includes a SMART Technologies interactive board application component and a Microsoft Lync™ 2010 video application component. EX1005, ¶¶ [0036]–[0037], [0041]–[0042]. Gurevich expressly identifies the problem that the Lync video application’s native user interface—including its windows, borders, selectable control buttons, and other GUI elements—often does not interface well with the shared whiteboard application, resulting in a less desirable conferencing experience. *Id.* ¶ [0004]. Saleh-502 addresses the same type of integrated whiteboard-videoconferencing environment by disclosing a Polycom videoconferencing unit also operatively coupled to a SMART Board display device, with on-screen GUI functions, camera functions, annotation functions, whiteboard functions, and auxiliary device functions to improve the usability of the combined system. EX1004, 4:55–5:14; 7:44–55.

The motivation to combine is straightforward. Gurevich teaches the use of Microsoft Lync video conferencing integrated with a SMART Technologies whiteboard and teaches improving the presentation of videoconference video on the whiteboard surface, while Saleh-502 teaches concrete user-interface techniques for

initiating, controlling, switching, and terminating videoconference and whiteboard modes also on a SMART Technologies whiteboard-based conferencing system. EX1005, ¶¶ [0042], [0050]–[0053], [0057], [0059]; EX1004, 9:33–54; 10:61–11:14; 13:42–60, 18:48–59; EX1003, ¶154. A POSITA implementing Gurevich’s Lync-SMART Board system would have had reason to look to Saleh-502 for well-known user interface controls and mode-switching behavior because Saleh-502 expressly teaches how users of an integrated SMART Board videoconferencing system can initiate a videoconference, switch between videoconference and whiteboard modes, display overlay menus, stop a videoconference, and share whiteboard content with remote endpoints. EX1004, 9:33–54; 10:61–11:24; 13:42–14:14; EX1003, ¶154.

Combining Gurevich and Saleh-502 would have yielded predictable results. EX1003, ¶155. Gurevich already provides the Lync video stream, SMART Board whiteboard workspace, and alternative video presentation interface with menu controls; Saleh-502 supplies complementary and conventional GUI controls for launching, controlling, ending, and switching between whiteboard and videoconference functions on a SMART Board whiteboard display. EX1005, ¶¶ [0041]–[0045], [0050]–[0053]; EX1004, 7:42–54; 9:33–54; 10:61–11:24; EX1003, ¶155. The combined system would merely apply known videoconference control menus and mode-switching techniques from Saleh-502 to Gurevich’s known Lync-integrated SMART Board conferencing system with overlaid sessions windows and

menus, thereby achieving the predictable and beneficial result of a more intuitive user interface for managing videoconference and whiteboard sessions on the same interactive display. EX1005, ¶ [0004]; EX1004, 4:55–5:14; EX1003, ¶¶156-158.

2. [Claims 1.pre] “A whiteboard device comprising:”

Gurevich discloses an interactive board (IB) 40 having an interactive surface 42 on which images are displayed. EX1005 ¶ [0036]. The interactive board 40 employs analog resistive or machine vision technology and is sold by SMART Technologies ULC under the names SMART Board® 4000, SMART Board® 6000, SMART Board® M600, and SMART Board® 800. *Id.* ¶ [0037]. The SMART Board® is an interactive whiteboard device with a display. EX1003, ¶¶159-160.

a) Claim 8.pre

Gurevich expressly discloses non-transitory computer-readable media storing executable instructions. Gurevich discloses that computing device 30 comprises a processing unit with one or more processors, system memory including volatile and/or non-volatile memory, other non-removable memory, and optional removable memory such as a hard disk drive, RAM, ROM, EEPROM, CD-ROM, DVD, and flash memory, coupled to the processing unit by a system bus. EX1005, ¶ [0036]. Gurevich further discloses that the host conferencing application running on computing device 30 includes an interactive board application component provided by SMART Technologies ULC, a video application component identified as Lync™

2010 provided by Microsoft Corporation, and a video interface application component that enhances the manner in which video streams are presented on the interactive surface 42. *Id.* ¶¶ [0041]–[0042]. Gurevich also states that the host conferencing application may comprise program modules, including routines, object components, data structures, and the like, embodied as computer-readable program code stored on a non-transitory computer-readable medium. *Id.* ¶ [0079]. These disclosures satisfy claim 8’s requirement of non-transitory computer-readable media storing instructions that, when processed by one or more processors, cause the claimed whiteboard and videoconference display operations. EX1003, ¶161.

The instructions stored in Gurevich’s non-transitory memory cause the system to perform the same operations recited in claim 8. EX1003, ¶161. The interactive board application component presents shared whiteboard content, including application windows and annotations, on the interactive surface 42 of the SMART Board, while the host conferencing applications allow audio, video, and data to be shared between local and remote sites during a conference session. EX1005 ¶¶ [0041], [0045]. The video application component handles incoming video streams from remote sites, and the video interface application component separates those video streams from the native Lync presentation interface, processes the frames, and presents the processed video stream on the interactive surface 42 within an alternative presentation interface. *Id.* ¶¶ [0050]–[0053]. Thus, Gurevich discloses

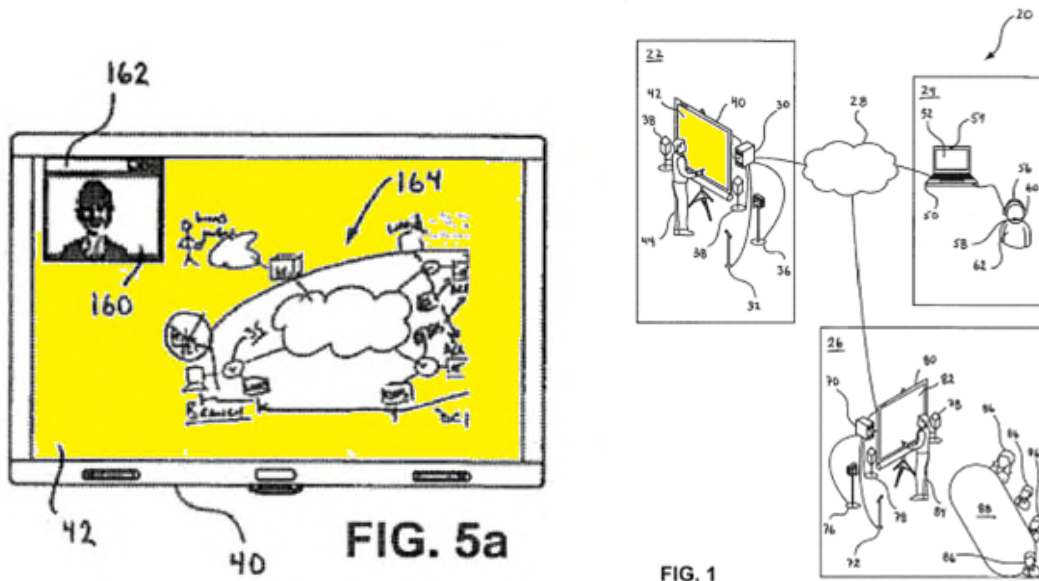
stored software instructions that, when executed by processors, display the interactive whiteboard session content, provide the video/conference presentation interface, and present the videoconference video window on the same interactive whiteboard display. EX1003, ¶161.

b) Claim 15.pre

Claim 15 recites a “computer-implemented method” comprising the same functional steps as claims 1 and 8. Gurevich discloses the same functionality as computer-implemented method steps. EX1003, ¶162. Gurevich discloses establishing a conference session between local site 22 and remote sites 24 and 26 over network 28, with the host conferencing applications allowing audio, video, and data to be shared among the sites. EX1005, ¶¶ [0035], [0041], [0045]. Gurevich then discloses receiving video streams from remote sites, handling those streams through the Lync video application component, separating the video stream from the native Lync presentation interface, processing the video frames, and presenting the processed video stream on the interactive surface 42 within an alternative presentation interface. *Id.* ¶¶ [0050]–[0053]. These are computer-implemented steps performed by computing device 30 using its processors, memory, and program modules. *Id.* ¶¶ [0036], [0079]. Because claim 15 recites the same functional limitations as claim 1 in method form, Gurevich discloses or renders obvious claim 15 for the same reasons that it discloses or renders obvious claim 1. EX1003, ¶163.

3. [Claims 1.a/8.a] “a display”

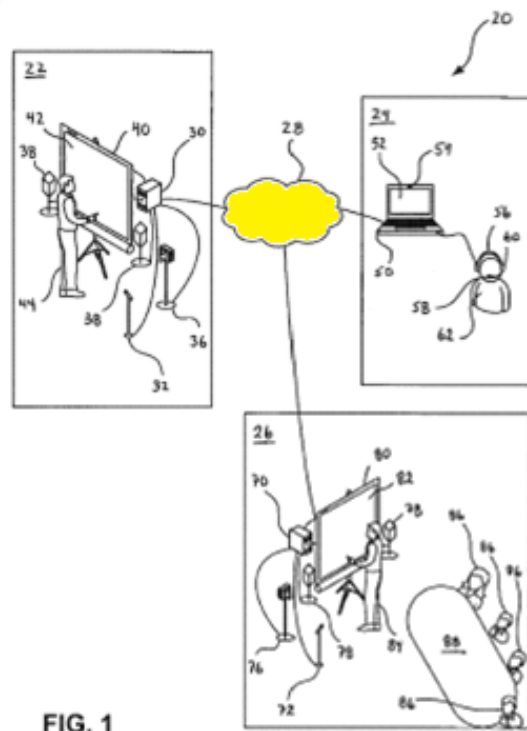
Gurevich discloses this element. The interactive surface 42 of interactive board 40 on which images are displayed is a “display.” EX1005, ¶ [0036]; EX1003, ¶¶164-166. This is shown below in FIG5a and FIG1.



4. [Claims 1.b] “a network interface”

Gurevich discloses that computing device 30 communicates with **a network 28** over a suitable wired, wireless, or combined wired/wireless connection. EX1005, ¶ [0036]. During a conference session, the local site 22 communicates with remote sites 24 and 26 over the network 28, and the host conferencing applications running on the computing devices 30, 50, and 70 allow audio, video, and data to be shared between the local and remote sites. *Id.* ¶¶ [0035], [0041]. The computing device 30 is connected to the interactive board 40. *Id.* ¶ [0036]. This network connectivity—enabling the interactive board system to communicate with remote sites over a

network—demonstrates that the whiteboard device includes a “network interface” within the meaning of the claim. EX1003, ¶167. It would also have been obvious to a POSITA to include a network interface in the whiteboard device to enable the videoconferencing functionality that Gurevich expressly contemplates. EX1003, ¶168.



5. [Claims 1.c] “one or more processors; and”

Gurevich discloses that computing device 30 comprises “**a processing unit comprising one or more processors**, system memory (volatile and/or non-volatile memory), other non-removable memory and/or optional removable memory (e.g. a hard disk drive, RAM, ROM, EEPROM, CD-ROM, DVD, flash memory, etc.) and

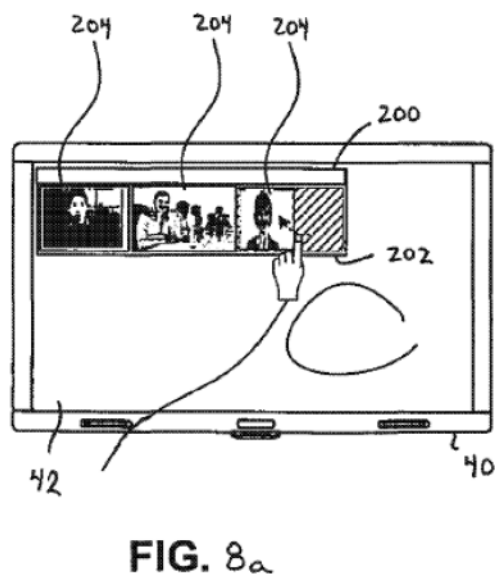
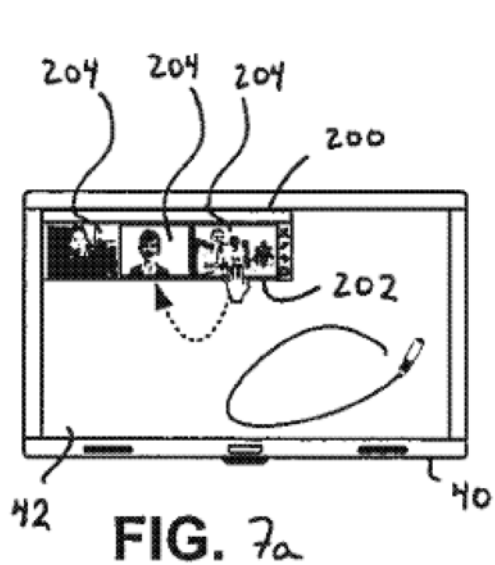
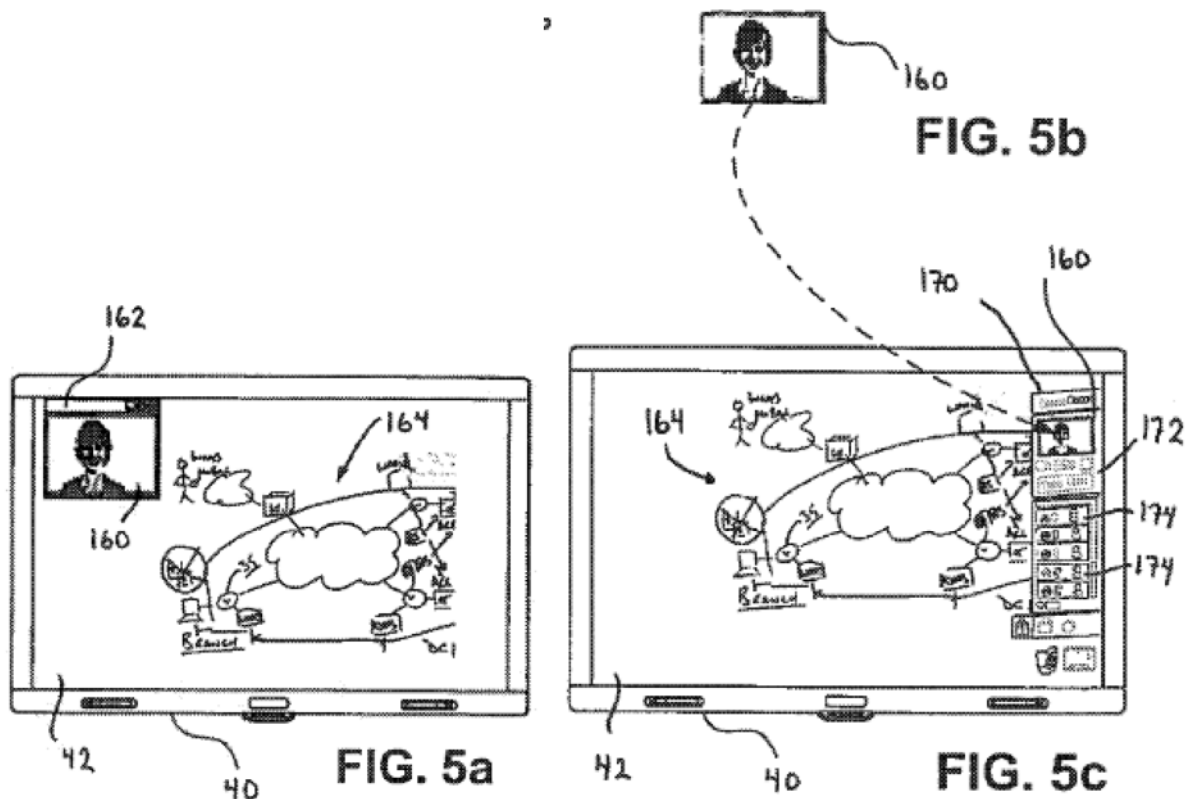
a system bus coupling the various components to the processing unit.” EX1005, ¶ [0036]; EX1003, ¶169.

6. [Claims 1.d] **“one or more memories communicatively coupled to the one or more processors, the one or more memories storing instructions which, when processed by the one or more processors; cause:”**

Gurevich discloses that computing device 30 includes “**system memory** (volatile and/or non-volatile memory), other non-removable memory and/or optional removable memory (e.g. a hard disk drive, RAM, ROM, EEPROM, CD-ROM, DVD, flash memory, etc.)” coupled to the processing unit via a system bus. EX1005, ¶ [0036]. The host conferencing application—comprising the interactive board application component, the video application component (Lync™ 2010), and the video interface application component—runs on the computing device 30. *Id.* ¶¶ [0041]–[0042]. Gurevich further teaches that the host conferencing application “may comprise program modules including routines, object components, data structures, and the like, embodied as computer readable program code stored on a non-transitory computer readable medium.” *Id.* ¶ [0079]. These stored program modules constitute instructions that, when processed by the processors, cause the system to perform the operations described. EX1003, ¶¶169-171.

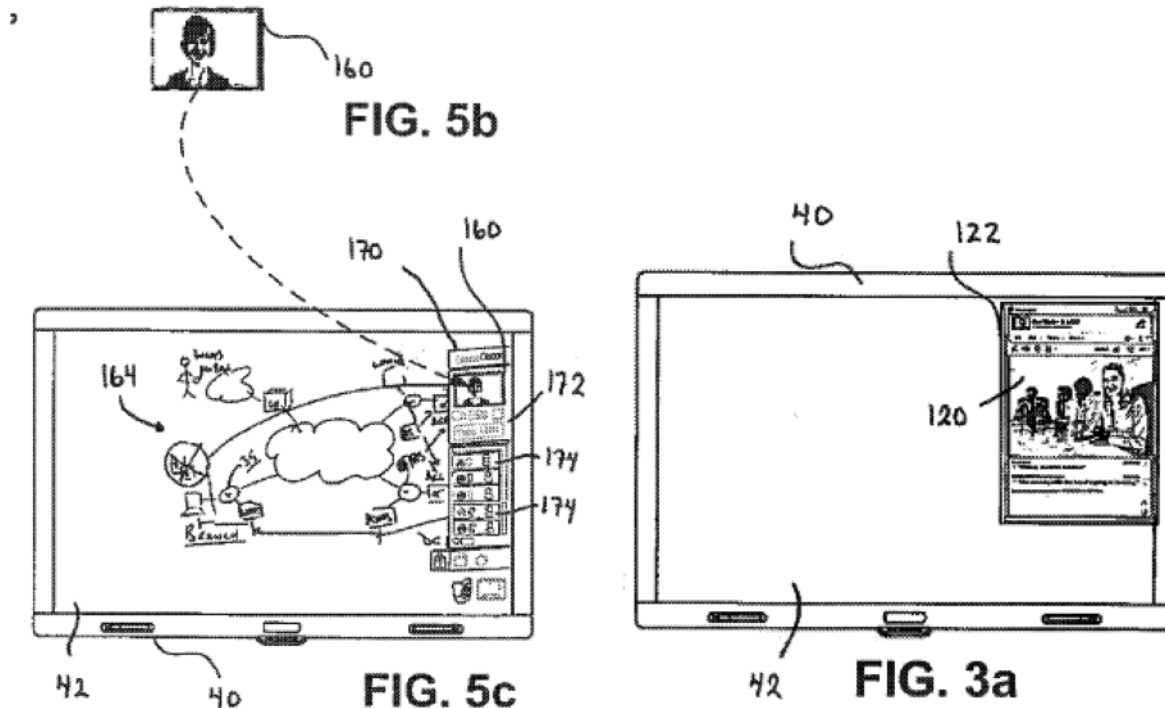
7. [Claims 1.e/8.a/15.a] “an interactive whiteboard session window, including at least an interactive whiteboard session content area, to be displayed on the display,”

Gurevich discloses that the interactive board application component provided by SMART Technologies ULC presents images on the interactive surface 42 of the interactive board 40. EX1005, ¶¶ [0042], [0045]. The interactive surface 42 presents “an image that is shared with the remote sites 24 and 26 for display on the display screen 52 of the computing device 50 and on the interactive surface 82 of the interactive board 80.” *Id.* ¶ [0045]. This shared image may include “a computer desktop comprising icons representing selectable application programs and files, one or more windows relating to selected application programs, annotations input by participant 44 interacting with the interactive surface 42 of the interactive board 40” and other data. *Id.* ¶ [0045]. The interactive board application component’s display of a shared workspace—including annotations and content—on the interactive surface 42 constitutes an interactive whiteboard session window with a content area displayed on the display. EX1003, ¶¶ 172-176. This is shown below in FIGS5abc, FIG7a, and FIG8a displaying, for example annotations 164 in the interactive whiteboard session content area.



8. [Claims 1.f/8.b/15.b] “wherein a selection menu to receive an instruction for starting a video conference session is overlaid on the interactive whiteboard session window; and”

Gurevich discloses that the alternative presentation interface in which video streams are presented on the interactive surface 42 “may comprise **GUI elements such as selectable control elements to allow the display of the video stream 120** on the interactive surface 42 to be altered.” EX1005, ¶ [0053]. The presentation interface 170 includes “a tool bar 172 with selectable control elements” and “icons 174 representing other participants of the conference session.” *Id.* ¶ [0057]. In addition, Gurevich discloses that the host conferencing application comprises an interactive board application component that interfaces with the interactive board 40 and a video application component (Lync™ 2010) that handles video streams. *Id.* ¶ [0042]. Because the Lync video application component requires participants to join a conference session—and because Gurevich’s system provides selectable control elements and participant icons on the interactive surface—it would have been obvious to a POSITA to provide a selection menu overlaid on the interactive whiteboard session window for starting a videoconference session just like the tool bar 172 overlaid on the whiteboard session window for controlling elements of the videoconference. EX1003, ¶177. This is the natural result of integrating a videoconferencing application (Microsoft Lync) with an interactive whiteboard application on the same display, as Gurevich expressly does. EX1003, ¶179.



As shown below in FIG6a, the video streams are presented in a horizontal video strip 202 within a presentation interface 200. EX1005 ¶ [0059]. A tool bar 210 comprising selectable control elements 212 extends along the right edge of the presentation interface 200. *Id.* Gurevich explains that the “selectable control elements 212 of the tool bar 210 correspond with commands such as removing a video stream from the video strip 202, changing the transparency of the presentation interface 200 etc.” *Id.* A POSITA would understand all of the various tool bars disclosed in Gurevich as being overlaid on the presentation interface (whiteboard session window) would include a control for starting a videoconference as this is a necessary menu function for Gurevich’s combined videoconferencing-whiteboard system. EX1003, ¶¶179-180.

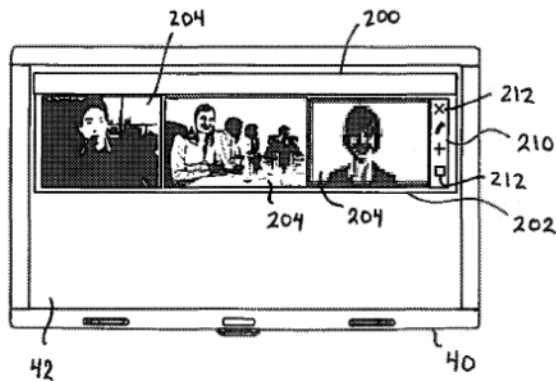


FIG. 6a

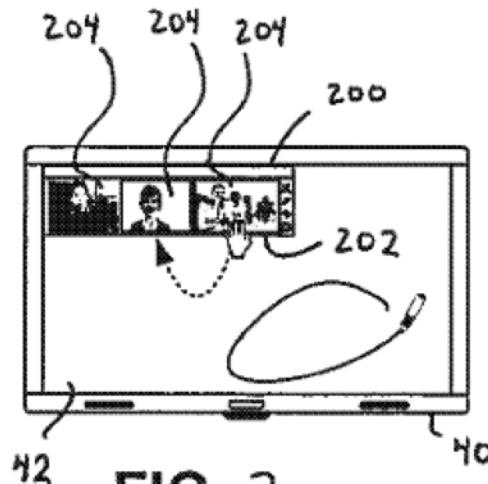


FIG. 7a

To the extent that Gurevich does not expressly disclose a specific menu for *starting* a videoconference session overlaid on the whiteboard session window, Saleh-502 discloses it and it would have been obvious to combine with Gurevich. EX1003, ¶178. Saleh-502 discloses a control panel 230 with a button 231 configured to initiate a videoconference mode of operation, as well as on-screen GUI menus displayed on the same touch screen display device 200 that also displays whiteboard content. EX1004, 9:33–37; 10:61–11:14. Saleh-502 further discloses that the on-screen GUI function 131 allows the videoconferencing unit to display menus and touch controls on the display device, and that these controls are “available from all screens including those containing video of participants and content.” *Id.* 10:61–11:14. In the touch panel device 500 embodiment, Saleh-502 discloses a top-level menu structure including screens for initiating a videoconference, searching a directory of participants, and other conference operations. *Id.* 14:30–48, 15:29–40,

16:11-21, 16:51-65, 17:33-65, 25:53–67; 26:63–67. A POSITA, implementing Gurevich’s integrated Lync-whiteboard system, would have found it obvious to incorporate a selection menu for starting a videoconference session overlaid on the whiteboard session window, as taught by Saleh-502, because both references are directed to the same problem—integrating videoconferencing with interactive whiteboards on a shared display—and Saleh-502 demonstrates that on-screen menus for initiating videoconference calls were a standard, well-known feature of such integrated systems. EX1004, 9:33–54; EX1005, ¶ [0042]; EX1003, ¶181. **This combination would have been particularly straightforward because Gurevich already provides selectable control elements and participant icons** in its alternative presentation interface on the interactive surface, while Saleh-502 teaches the specific videoconference-initiation control and menu structure to use **in that same type of integrated whiteboard-videoconferencing environment**. EX1005, ¶¶ [0053], [0057]; EX1004, 9:33–37, 10:61–11:14; 14:30-48, 25:53–67; 26:63–67; EX1003, ¶179.

9. **[Claims 1.g/8.c/15.c] “after receiving the instruction for starting the video conference session via the selection menu overlaid on the interactive whiteboard session window, a videoconference window to be overlaid on the interactive whiteboard session window.”**

Gurevich discloses that when a conference session is established between the local site 22 and the remote sites 24 and 26, the host conferencing applications allow audio, video, and data to be shared between the sites. EX1005, ¶ [0045]. The video

interface application component processes incoming video streams **and presents the processed video stream on the interactive surface 42 of the SMART Board within an alternative presentation interface.** *Id.* ¶¶ [0050]–[0053]. In one embodiment, the video stream is presented within “a smaller window that is centered or positioned at an alternative location on the interactive surface 42 or within a designated video area of an alternative presentation interface provided by the interactive board application component.” *Id.* ¶ [0053]. Multiple video streams can be presented simultaneously in panels within a presentation interface on the interactive surface. *Id.* ¶ [0059]. The presentation interface 200 includes a tool bar 210 with selectable control elements 212 including controls for “changing the transparency of the presentation interface 200.” *Id.* ¶ [0059].

Because Gurevich discloses presenting videoconference video within a window on the interactive surface 42 while the interactive board application component’s content (whiteboard session) is also displayed on the same surface, this constitutes overlaying a videoconference window on the interactive whiteboard session window. EX1005, FIGS3a,b,c, FIGS5,a,b,c, FIGS6a,b, FIGS7a,b, FIGS8,a,b, FIG9, FIGS10a,b, FIGS11,a,b; EX1003, ¶¶182-184. This is expressly shown in the exemplary figures below.

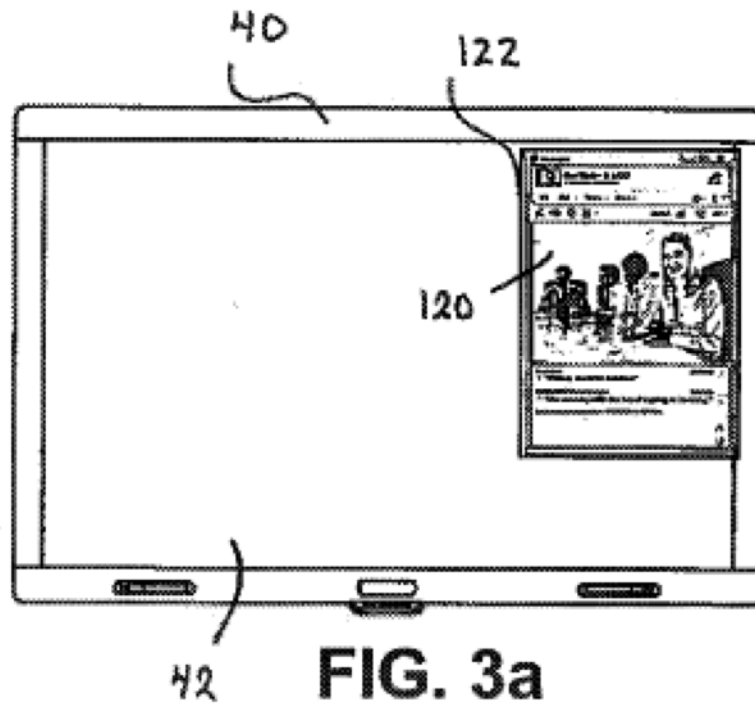


FIG. 3a



FIG. 5b

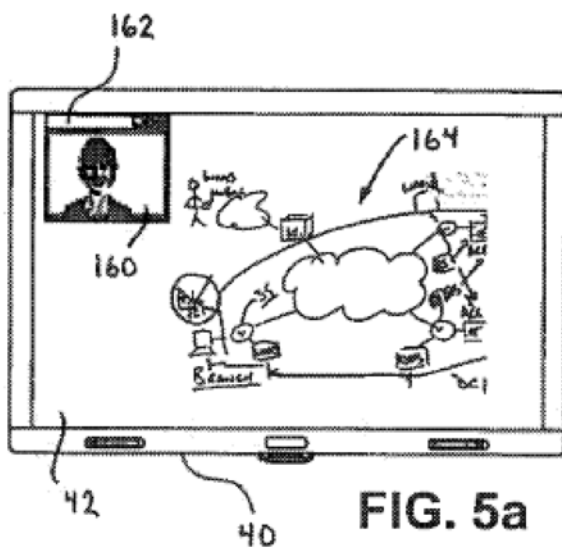


FIG. 5a

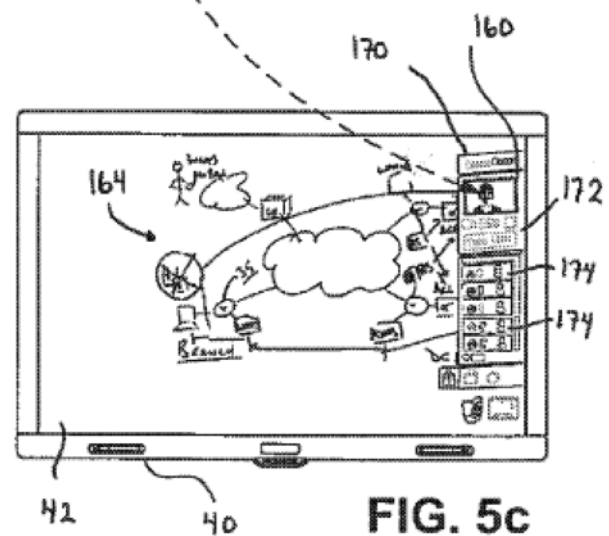


FIG. 5c

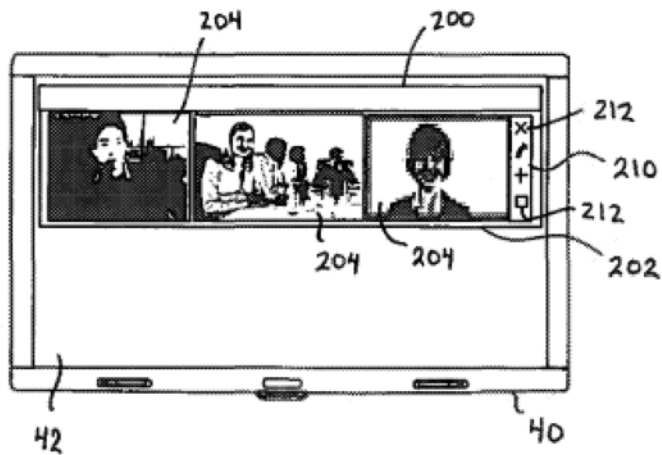


FIG. 6a

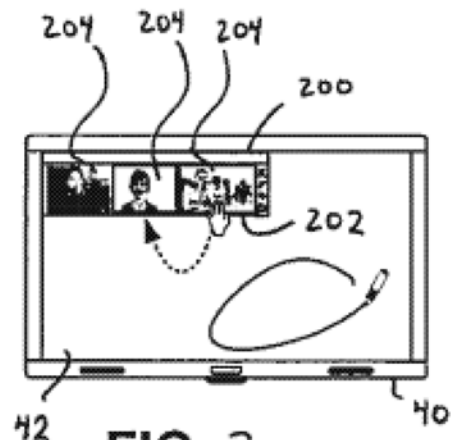


FIG. 7a

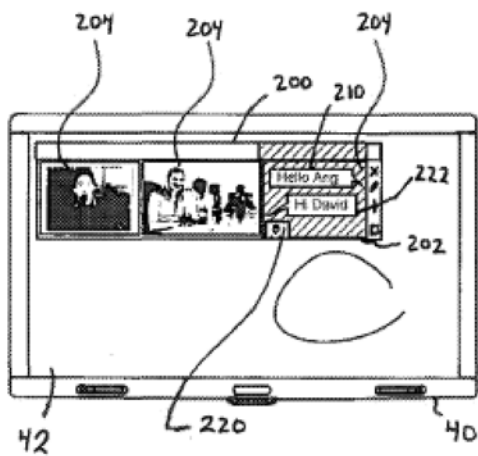


FIG. 8b

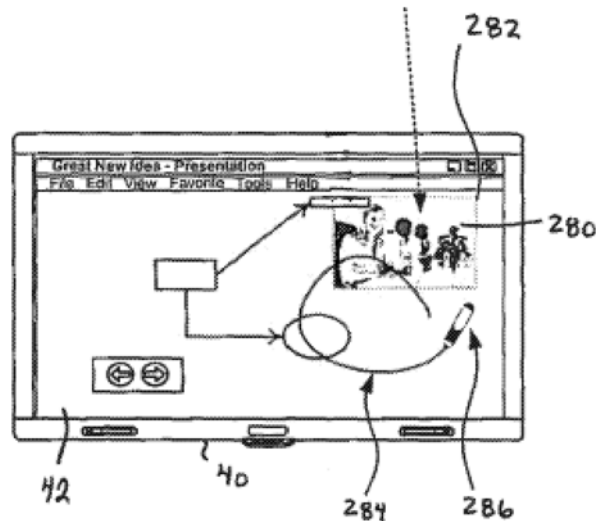


FIG. 10b

Finally, Gurevich explains that during a videoconferencing session on the interactive surface 42 of the interactive board 40, the presentation interface may be adjusted to enhance the participant experience. EX1005 ¶[0064].

Accordingly, Gurevich expressly discloses overlaying the videoconference window on the whiteboard session window in view of Gurevich's disclosure that

both whiteboard content and videoconference video are presented on the same interactive surface, the video stream is shown being presented over a portion of the whiteboard session content area such that whiteboard content is still visible, the interface includes transparency controls, and the presentation interface may be adjusted to enhance the user experience. EX1003, ¶¶185-186.

A POSITA would have understood that Gurevich's disclosed system could be claimed interchangeably as a device, as instructions stored on non-transitory computer-readable media, or as a computer-implemented method, because Gurevich expressly describes the same host conferencing functionality as software components running on a computing device, stored as program code on non-transitory computer-readable media, and executed by processors to perform the described conferencing and whiteboard display operations. EX1005 ¶¶ [0036], [0041]–[0042], [0079]; EX1003, ¶187. Accordingly, claims 8 and 15 are disclosed or rendered obvious by Gurevich for the same reasons as claim 1. EX1003, ¶187.

10. [Claims 2/9/16] “wherein the videoconference window displays at least content from a device of a participant of the video conference session”

Gurevich discloses that, when a conference session is established between local site 22 and remote sites 24 and 26, the host conferencing applications running on computing devices 30, 50, and 70 allow “audio, **video and data to be shared**

between the local and remote sites.” EX1005, ¶ [0045]. Gurevich further discloses that remote site 24 includes computing device 50 with video camera 54 and participant 62, and remote site 26 includes computing device 70 with video camera 76 and participants 84 and 86. *Id.* ¶¶ [0038]-[0039], [0047]. The shared image displayed on **the interactive surface 42 of the SMART Board may include “video captured by the video cameras 54 and 76 and/or other data** received from the computing devices 50 and 70.” *Id.* ¶ [0045]. Gurevich also explains that incoming video streams from remote sites 24 and 26 are handled by the Lync™ 2010 video application component and then processed by the video interface application component for display on the interactive surface 42. *Id.* ¶¶ [0050]–[0053]. Thus, the videoconference window in Gurevich displays content from devices of conference participants, including remote cameras and computing devices, including other data associated with those participants. *Id.* ¶¶ [0045], [0051]–[0053]; EX1003, ¶¶188-190.

11. **[Claims 3/10/17] “after the videoconference window being overlaid on the interactive whiteboard session window, display a second selection menu to receive an instruction for stopping the video conference session overlaid on the interactive whiteboard session window”**

Gurevich recognizes that third-party video application components such as Microsoft Lync display video within native user interfaces that include “windows, borders, selectable control buttons and other graphical user interface (GUI)

elements,” and that those native controls often do not interface well with the shared whiteboard application. *Id.* ¶ [0004]. Gurevich solves that problem by separating the Lync video stream from its native presentation interface and presenting the processed video stream within an alternative presentation interface customized for the interactive board. *Id.* ¶¶ [0050]–[0053]. That alternative presentation interface may include “GUI elements such as selectable control elements,” and Gurevich further discloses a tool bar 172 with selectable control elements and participant icons in the alternative presentation interface. *Id.* ¶¶ [0053], [0057]. Gurevich also discloses that, when multiple video streams are presented in a video strip, tool bar controls may correspond to commands such as “removing a video stream from the video strip.” *Id.* ¶ [0059]. A POSITA would understand that these selectable control elements would necessarily include a menu option for stopping the videoconference session. EX1003, ¶191.

To the extent Gurevich does not expressly identify the selectable control as a “stop videoconference” control, a POSITA would have found that implementation obvious. EX1003, ¶191. Gurevich’s stated purpose is to replace the poorly integrated native Lync video interface with a presentation interface better suited to the SMART Board, while retaining GUI controls needed to operate the video presentation. EX1005 ¶¶ [0004], [0053], [0057]. In that context, adding a second overlaid selection menu or toolbar control for stopping or removing the videoconference

would have been a predictable and routine implementation choice, because the video presentation interface already includes selectable controls for modifying and removing video content from the interface. *Id.* ¶¶ [0057], [0059]; EX1003, ¶193.

To the extent that Gurevich does not expressly disclose a specific second menu for *stopping* the video, it would have been obvious in view of Saleh-502. EX1003, ¶192. Saleh-502 further confirms the obviousness of this implementation by expressly disclosing an overlaid menu 310 with a Hang-Up button and teaching that selecting the Hang-Up button ends a videoconference call or brings up a hang-up dialog if more than one call is active. EX1004, 11:5–33; EX1003, ¶192. Saleh-502 also discloses a call control screen with a hang-up icon for terminating the call, where touching the icon terminates the call and returns the user to the home screen or the screen displayed prior to the call. EX1004, 18:48–59. A POSITA would have been motivated to add Saleh-502’s hang-up menu/control to Gurevich’s Lync-SMART Board video presentation interface to provide the conventional and necessary ability to stop the videoconference from the same interactive display. EX1005, ¶¶ [0053], [0057]; EX1004, 11:5–33; EX1003, ¶¶192-194.

12. [Claims 4/11/18] “wherein the videoconferencing window is maintained on top of the interactive whiteboard window during a videoconferencing session”

Gurevich discloses that the interactive surface 42 displays the shared whiteboard image, including application windows, annotations, video captured by

remote cameras, and other data received from remote computing devices. EX1005, ¶ [0045]. Gurevich also discloses that the video interface application component presents incoming video streams on that same interactive surface within an alternative presentation interface customized for the interactive board. *Id.* ¶¶ [0050]–[0053], [0064]. In particular, the video stream may be presented within “a smaller window that is centered or positioned at an alternative location on the interactive surface 42” or within a designated video area of the alternative presentation interface. *Id.* ¶ [0053]. Gurevich further discloses simultaneous presentation of multiple video streams within panels or panes of a video strip on the interactive surface. *Id.* ¶¶ [0058]–[0059]. These disclosures show that the videoconference window is maintained as a visible window or presentation interface on top of the shared interactive whiteboard workspace during the conference session. EX1003, ¶195. This is further supported by FIGS3a,b,c, FIGS5,a,b,c, FIGS6a,b, FIGS7a,b, FIGS8,a,b, FIG9, FIGS10a,b, FIGS11,a,b.

To the extent not expressly disclosed, maintaining the videoconference window on top would have been an obvious design choice to a POSITA in view of Gurevich’s disclosures. EX1003, ¶196. Gurevich’s interface includes transparency controls and changes the video presentation in response to user interaction with the interactive surface, including increasing transparency when a participant inputs annotations so that the annotations remain visible and further discloses adjusting the

presentation to enhance user experience. EX1005 ¶¶ [0059], [0064], [0067]. Those disclosures demonstrate that Gurevich contemplates overlapping video and whiteboard content on the same interactive surface throughout the videoconferencing session and managing their relative visibility and presentation to the participant. EX1003, ¶196. Maintaining the video presentation window on top while allowing transparency or repositioning allows participants to see the videoconference while continuing to interact with the whiteboard. EX1005 ¶¶ [0053], [0059], [0067]; EX1003, ¶¶197-198.

13. [Claims 5/12/19] “wherein processing of the instructions further causes the interactive whiteboard session window to be moved on top of the videoconference window in response to termination of the video conference session”

Gurevich discloses that the interactive surface 42 presents the shared whiteboard image during the conference session, including application windows, annotations, and other data shared among participants. EX1005, ¶ [0045]. Gurevich also discloses that video streams are presented within an alternative presentation interface and that selectable controls may remove a video stream from the video strip. *Id.* ¶¶ [0053], [0059]. Where a video stream is removed or the videoconference is ended, the underlying shared whiteboard image remains the principal content on the interactive surface 42, which is moved to the top upon conference termination. *Id.* ¶ [0045]; EX1003, ¶199.

To the extent Gurevich does not expressly describe moving the whiteboard session window back on top after termination, that behavior would have been obvious to a POSITA. EX1003, ¶200. Gurevich's system is designed so that the video interface application component presents video in a manner customized for the interactive board, while the interactive board application component continues to provide the shared whiteboard workspace. EX1005 ¶¶ [0042], [0050]–[0053]; EX1003, ¶199. Once the videoconference window is removed, stopped, or no longer selected for presentation, restoring the whiteboard workspace to the foreground would be the natural and predictable behavior of the user interface, because it allows the user to continue interacting with the shared whiteboard without the video presentation obscuring it. EX1005 ¶¶ [0045], [0053], [0059]; EX1003, ¶¶201-202.

14. [Claims 6/13/20] “wherein processing of the instructions further causes an interactive whiteboard session to be shared with the one or more client devices that are external to the whiteboard device by invoking functionality provided by a collaboration library on the whiteboard device”

Gurevich discloses that the host conferencing applications running on computing devices 30, 50, and 70 allow audio, video, and data to be shared between local and remote sites during a conference session. EX1005, ¶¶ [0041], [0045]. The interactive surface 42 presents a shared image that is displayed at remote sites, including on display screen 52 of computing device 50 and interactive surface 82 of interactive board 80. *Id.* ¶ [0045]. That shared image may include application

windows, annotations input by local and remote participants, video, and other data received from remote computing devices. *Id.* ¶¶ [0045]–[0047]. Gurevich further discloses that the host conferencing application includes a data conferencing application component that transmits and receives data such as images and annotations to be displayed on the interactive boards and display screens. *Id.* ¶¶ [0041], [0043]. This discloses sharing an interactive whiteboard session with external client devices. EX1003, ¶203.

Gurevich also renders obvious the “collaboration library” aspect of claim 6. EX1003, ¶204. Gurevich explains that video application component vendors provide SDKs and APIs to allow video application components to be integrated into host conferencing applications, and specifically identifies the video application component as Lync™ 2010 and the interactive board application component as provided by SMART Technologies ULC. EX1005 ¶ [0042]. Gurevich further teaches that the host conferencing application may comprise program modules, routines, object components, and data structures embodied as computer-readable program code stored on a non-transitory computer-readable medium. *Id.* ¶ [0079]. A POSITA would have understood those SDK/API and program-module disclosures to teach or at least render obvious invoking collaboration functionality through a library or equivalent software component to share whiteboard content with remote client devices. *Id.* ¶¶ [0041]–[0042], [0079]; EX1003, ¶¶204-206.

15. [Claims 7/14] “wherein processing of the instructions further causes the selection menu to be updated in response to detecting a user selection of a particular control on the selection menu for switching between an interactive whiteboard session and the video conference session”

Gurevich discloses an alternative presentation interface with GUI elements and selectable control elements that allow the display of the video stream on the interactive surface to be altered. EX1005, ¶ [0053]. Gurevich further discloses a tool bar 172 with selectable control elements and participant icons, as well as a tool bar 210 with selectable controls corresponding to commands such as removing a video stream from a video strip and changing the transparency of the presentation interface. *Id.* ¶¶ [0057], [0059]. Gurevich also discloses that the interface responds dynamically to user interaction: a participant may select and drag video panels to alter their order, initiate a private chat session by a gesture that minimizes a video stream and opens chat boxes, and input annotations that cause the video presentation interface to become more transparent to improve annotation visibility. *Id.* ¶¶ [0060]–[0061], [0067].

Those disclosures teach or render obvious updating the selection menu in response to user selection of a control for switching between the whiteboard session and the videoconference session. EX1003, ¶207. Gurevich’s purpose is to provide a video presentation interface better integrated with the interactive whiteboard application, and it expressly teaches selectable controls and dynamic interface

changes in response to user selections and interactions. EX1005 ¶¶ [0004], [0053], [0057], [0059]. A POSITA would have found it obvious to update the overlaid menu to reflect the currently active state—for example, by changing controls when video is shown, hidden, removed, or made transparent relative to the whiteboard—because Gurevich already updates the video presentation interface in response to user actions and context to improve the conferencing experience. *Id.* ¶¶ [0059]–[0061], [0067]; EX1003, ¶208.

To the extent that Gurevich does not expressly disclose an updating menu structure, this is obvious in view of Saleh-502. EX1003, ¶208. Saleh-502 further confirms the obviousness of this dynamic menu behavior by disclosing menu controls for Call, Hang-Up, Cameras, and related videoconference functions, as well as a call control screen whose icons change based on state, for example, replacing a “Show Presentation” icon with a “stop presentation” icon after a content source is selected. EX1004, 11:5–33; 20:13–37; 25:13–37; EX1003, ¶208. Saleh-502 also teaches switching between videoconference, PC, and whiteboard modes using controls on the SMART Board display device. EX1004, 9:33–54. A POSITA would have found it obvious to apply Saleh-502’s dynamic menu updating and mode-switching behavior to Gurevich’s Lync-whiteboard interface so that the menu reflects whether the user is viewing or controlling the whiteboard session, the

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videoconference session, or both. Gurevich, ¶¶ [0053], [0057], [0059]; EX1004, 9:33–54; 20:55–60; EX1003, ¶¶208-210.

Accordingly, Claims 1-20 are obvious over Gurevich in view of Saleh-502.

VIII. CONCLUSION

Petitioner respectfully requests institution of IPR and cancellation of all claims of the '487 Patent.

IX. MANDATORY NOTICES PURSUANT TO 37 C.F.R. §42.8

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

The real party-in-interest is Zoom Communications, Inc. No other parties exercised or could have exercised control over this Petition. No other parties funded or directed the filing of this Petition.

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

The '487 Patent is asserted in *Ricoh Company, Ltd. v. Zoom Communications, Inc. f/k/a Zoom Video Communications, Inc.*, No. 25-2095 (JCG) (D. Del.).

C. Lead and Back-up Counsel under 37 C.F.R. §42.8(b)(3).

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D. Service Information under 37 C.F.R. §42.8(b)(4).

Please direct all correspondence to lead counsel at the address identified above. Petitioner consents to electronic service on counsel of record.

X. GROUNDS FOR STANDING

Petitioner certifies that the '487 Patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review of the '487 Patent. 37 C.F.R. §42.104(a).

XI. PAYMENT OF FEES

A fee of \$51,875 charged to Deposit Account 130019 was paid with the filing this petition. 37 C.F.R. §§42.15(a), 42.103. Should any further fees be required by the present Petition, the Board is hereby authorized to charge the above-referenced Deposit Account.

XII. STATEMENT OF PRECISE RELIEF REQUESTED

Petitioner requests IPR and cancellation of claims 1–20 because they are unpatentable under 35 U.S.C. §§ 102 and 103 based on the foregoing grounds.

Date: July 1, 2026

Respectfully submitted,

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Patent No. 10,904,487
Petition for *Inter Partes* Review

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6 and 42.105, I hereby certify that on July 1, 2026, a copy of the attached PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 10,904,487, together with all exhibits, and all other papers filed therewith, including a Power of Attorney on behalf of Petitioners, was served via Priority Mail Express on the attorneys of record for the patent owner at the following address:

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Patent No. 10,904,487
Petition for *Inter Partes* Review

CERTIFICATION PURSUANT TO 37 C.F.R. § 42.11

Pursuant to 37 C.F.R. § 42.11, the undersigned certifies that this PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 10,904,487, and accompanying evidence are not being presented for an improper purpose and that all legal contentions, allegations, and denials are warranted and have evidentiary support.

July 1, 2026

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CERTIFICATION PURSUANT TO 37 C.F.R. § 42.24(d)

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that this PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 10,904,487 complies with the type-volume limitation of 37 C.F.R. § 42.24(a). The word count application of the word processing program used to prepare this paper states that the paper contains 13,535 words, excluding the parts of the paper exempted by 37 C.F.R. §§ 42.24(a)(1).

Date: July 1, 2026

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