

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner

v.

S.M.R INNOVATIONS LTD and Y.M.R TECH LTD
Patent Owners

Inter Partes Review Case No. IPR2024-01048
U.S. Patent No. 10,547,648

**PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 10,547,648**

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Although Zhang does not describe the mobile device interface used to control the helper environment (e.g., by a user to select a helper server), such user interfaces were well known in the art, including as described by Rofheart. As set forth below, a POSITA would have been motivated to implement Rofheart’s device selection user interface in Zhang’s mobile device, allowing the user to implement functionalities described by Zhang and Pasanen (e.g., invoking an audio interface for a phone call).	56
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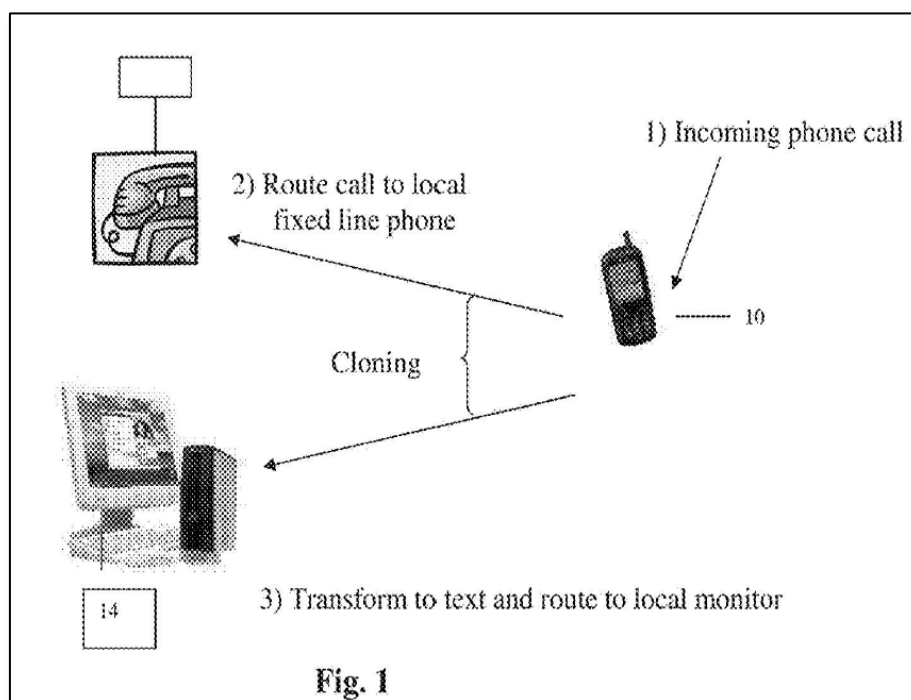
I. INTRODUCTION

Petitioner Apple Inc. requests *Inter Partes* Review of Claims 1, 5-8, 10-11, 13, 15-16, 18-19 (collectively, the “Challenged Claims”) of USPN 10,547,648 (the “’648 Patent”).

II. THE ’648 PATENT

A. The ’648 Patent’s Alleged Invention

The ’648 Patent is directed to indirectly routing media (e.g., audio and/or video) communications originating from an external source from a “limited capability device” (e.g., mobile phone) to a “more capable device” (e.g., standalone display, speakers, etc.). ’648 Patent (Ex. 1001), 1:22-26, 4:26-57. Fig. 1 below depicts routing an incoming phone call originally received at a mobile phone to a fixed line phone:



'648 Patent, Fig. 1. Described scenarios include routing audio (e.g., music or voice calls) to a speaker and routing video to a TV or computer monitor. *Id.*, 10:18-49.

B. The '648 Patent's Prosecution

The '648 Patent claims its earliest priority to a US provisional application (60/398,077) filed July 25, 2002. '648 Patent, (60), 1:8-17. For purposes of this Petition only, Petitioner applies July 25, 2002, as the priority date for the Challenged Claims.

The purported novelty of the '648 Patent is transmitting audio/video via an intermediate routing device connected to a local area network (LAN). '648 FH, 314-316 (Notice of Allowability). Claim 1 of the '648 Patent recites a well-known method of routing media content (e.g., audio, video, phone call) from a mobile device to an available device connected to the LAN via an intermediate routing device, where the media content is originated from an external source disconnected from the LAN. '648 Patent, Claim 1. The mobile device identifies one or more devices that are compatible to handle the media content and that are connected to the LAN. *Id.* Media content is routed to the one or more available devices via the intermediate routing device. *Id.* During prosecution, the Examiner concluded that the closest prior art references—Hamberg, Mooney, and Mousseau—failed to teach the transfer of media content from a receiving device through an intermediate routing device connected to a local area network to another device. '648 FH, 315-316

(Reasons for Allowance). As set forth below, this concept was known in the prior art.

C. A Person of Ordinary Skill in the Art (“POSITA”)

A POSITA at the time of the ’648 Patent would have had a master’s degree in computer engineering, electrical engineering, or a related field, with at least 2 years of experience with wireless communications. Additional education or experience might substitute for the above requirements. *Dec.*, ¶¶28-29.¹

III. 37 C.F.R. § 42.104 REQUIREMENTS

A. 37 C.F.R. § 42.104(a) Standing

Apple certifies the ’648 Patent is available for IPR and Apple is not barred or estopped from requesting IPR challenging the claims of the ’648 Patent. Apple is not the owner of the ’648 Patent, has not filed a civil action challenging the validity of any claim of the ’648 Patent, and this Petition is filed less than one year after Apple was served with a complaint alleging infringement of the ’648 Patent.

B. Summary of Grounds and Relief Requested

In view of the prior art and evidence presented, IPR should be instituted and Challenged Claims canceled. 37 C.F.R. § 42.104(b)(1)-(2).

¹ All citations to “Dec.” are to paragraph numbers in Ex. 1003, Declaration of Dr. Sayfe Kiaei.

Proposed Grounds of Unpatentability	
<u>Ground 1</u>	Claims 1, 5-6, 15, 18 are obvious under § 103(a) over <i>Zhang, Fillebrown, and Pasanen</i>
<u>Ground 2</u>	Claims 7, 11, 16, 19 are obvious under § 103(a) over <i>Zhang, Fillebrown, Pasanen, and Skinner</i>
<u>Ground 3</u>	Claims 8, 10 are obvious under § 103(a) over <i>Zhang, Fillebrown, Pasanen, and Rofheart</i>
<u>Ground 4</u>	Claim 13 is obvious under § 103(a) over <i>Zhang, Fillebrown, Pasanen, and Angelo</i>

Sections V-VIII map the evidence to each element of the Challenged Claims.

37 C.F.R. § 42.104(b)(4)-(5).

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

In this proceeding, claims are interpreted under the same standard applied by Article III courts (i.e., the *Phillips* standard). 37 C.F.R. § 42.100(b); 83 Fed. Reg. 197 (Oct. 11, 2018); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*). Petitioner applies the plain and ordinary meaning of all claim terms as understood by a POSITA. Petitioner does not waive any argument in other proceedings that claim terms in the '648 Patent are indefinite or that additional terms may need construction.

IV. THE PRIOR ART

A. Zhang

Zhang was filed November 9, 2001, qualifying as prior art to the '648 Patent under at least 35 U.S.C. § 102(e). *Zhang* (Ex. 1004). *Zhang* was neither cited nor considered during prosecution of the '648 Patent.

Zhang teaches a mobile device that can connect with and transfer media content to a network of connected helper servers (“helper environment”) to expand and improve the limited media playback capabilities of the mobile device. *Zhang*, 2:16-19; *Dec.*, ¶¶72-74. *Zhang* explains that this helper environment “supports a wide variety of capabilit[ies]... wherein the [mobile] devices remain the focus for both control and data.” *Zhang*, 2:26-30. *Zhang* refers to “handheld” and “mobile” devices interchangeably. *Id.*, 1:12-18, 3:25-31; *Dec.*, ¶72. Similarly, *Zhang* refers to a more capable media device (e.g., displays, speakers, etc.) as a “helper device,” “helper server,” and “local device” interchangeably. *Zhang*, 3:25-4:45, 5:58-6:44 (noting that a “helper server” is sometimes used to refer to a process running within a “helper device”), 7:1-21, 8:13-28; *Dec.*, ¶72. Petitioner uses “mobile device” and “helper server” throughout for clarity.

Because *Zhang*, like the ’648 Patent, discloses routing media between electronic devices, *Zhang* is in the same field of endeavor as the ’648 Patent. *Compare Zhang*, 1:8-10, with ’648 Patent, 1:22-26; *Dec.*, ¶¶72-74.

Further, both *Zhang* and the ’648 Patent attempt to improve upon limitations with transmitting media to mobile devices by re-routing media to devices with better media playback capabilities. *Compare Zhang*, 2:16-19, 3:25-31, 4:35-45, 8:13-22, 10:58-65, Fig. 1, with ’648 Patent, 1:22-29, 1:36-51, 5:28-46, 9:51-58. Therefore,

Zhang is reasonably pertinent to a problem described by the '648 Patent and is analogous art. *Dec.*, ¶¶72-74.

B. Fillebrown

Fillebrown was filed February 1, 2001, qualifying as prior art to the '648 Patent under at least 35 U.S.C. § 102(e). *Fillebrown* (Ex. 1005). *Fillebrown* was neither cited nor considered during prosecution of the '648 Patent.

Fillebrown teaches using a wireless router to indirectly route media between devices on a wireless network (e.g., WLAN). *Fillebrown*, [0049], [0016], [0051], [0053], [0057], Fig. 1. *Fillebrown* teaches using a wireless router is advantageous because wireless routers extend the range of a personal wireless network by amplifying routed signals. *Fillebrown*, [0034], [0061].

Because *Fillebrown*, like the '648 Patent, discloses routing media between electronic devices, *Fillebrown* is in the same field of endeavor as the '648 Patent. Compare *Fillebrown*, Abstract, [0002], [0016]-[0019], [0034], [0076]-[0078], [0081]-[0082], [0085]-[0089], Fig. 1, with '648 Patent, 1:22-26; *Dec.*, ¶¶75-77. Accordingly, *Fillebrown* is analogous art to the '648 Patent.

C. Pasanen

Pasanen was filed October 27, 1998, qualifying as prior art to the '648 Patent under at least 35 U.S.C. § 102(e). *Pasanen* (Ex. 1006). *Pasanen* was neither cited nor considered during prosecution of the '648 Patent.

Pasanen teaches a cellular phone (referred to as a server) that receives a phone call from an external source (e.g., cellular network) and the cellular phone sets up data connections with one or more peripheral devices to transmit phone call audio, for example. *Pasanen*, 4:20-37, 3:49-51, 1:3-25, 9:31-47, 13:1-61, Figs. 1, 3.

Because *Pasanen*, like the '648 Patent, discloses routing media between electronic devices, *Pasanen* is in the same field of endeavor as the '648 Patent. Compare *Pasanen*, Abstract, 1:3-15, 4:20-43, 13:51-61, Fig. 1, with '648 Patent, 1:22-26; Dec., ¶¶78-80. Accordingly, *Pasanen* is analogous art to the '648 Patent.

D. Skinner

Skinner was filed October 5, 2001, qualifying as prior art to the '648 Patent under at least 35 U.S.C. § 102(e). *Skinner* (Ex. 1007). *Skinner* was neither cited nor considered during prosecution of the '648 Patent.

Skinner teaches informing a user of an incoming phone call, for example, by presenting unique sounds, beeps, flashing lights, etc., at a mobile device. *Skinner*, 6:25-65, 3:29-42, 7:15-8:67, Fig. 1.

Because *Skinner*, like the '648 Patent, discloses routing media between electronic devices, *Skinner* is in the same field of endeavor as the '648 Patent. Compare *Skinner*, Abstract, 1:5-10, 4:10-20, 4:34-42, 5:9-27, 5:63-6:65, 7:30-67, with '648 Patent, 1:22-26, Claim 19(f) (text content claimed as media content); Dec., ¶¶81-83.

Further, both *Skinner* and the '648 Patent address the problem of informing a user of an incoming call. *Compare Skinner*, 6:25-65, 3:29-42, 7:15-8:67, Fig. 1, with '648 Patent, 7:33-52, Claims 7, 16, 19. Therefore, *Skinner* is reasonably pertinent to a problem described by the '648 Patent and is analogous art. *Dec.*, ¶¶81-83.

E. Rofheart

Rofheart was filed October 10, 2000, qualifying as prior art to the '648 Patent under at least 35 U.S.C. § 102(e). *Rofheart* (Ex. 1008). *Rofheart* was neither cited nor considered during prosecution of the '648 Patent.

Rofheart teaches that the user selects one or more remote wireless devices to connect to and route media content between using a touch screen interface displaying a plurality of remote wireless devices. *Rofheart*, 18:54-58, 28:22-57, 30:10-18, Figs. 9-10; *Dec.*, ¶¶84-86.

Because *Rofheart*, like the '648 Patent, discloses routing media between electronic devices, *Rofheart* is in the same field of endeavor as the '648 Patent. *Compare Rofheart*, 2:4-16, 17:13-55, 28:22-57, 30:25-30, Fig. 9 with '648 Patent, 1:22-26; *Dec.*, ¶¶84-86. Accordingly, *Rofheart* is analogous art to the '648 Patent.

F. Angelo

Angelo was filed September 24, 2001, qualifying as prior art to the '648 Patent under at least 35 U.S.C. § 102(e). *Angelo* (Ex. 1009). *Angelo* was neither cited nor considered during prosecution of the '648 Patent.

Angelo teaches using real-time encryption to communicate the secured transmission of audio, video, or a combination of audio and video streams between portable devices. *Angelo*, Abstract, [0009]-[0010], [0022]-0026], Fig. 6; *Dec.*, ¶¶87-89.

Because *Angelo*, like the '648 Patent, discloses routing media between electronic devices, *Angelo* is in the same field of endeavor as the '648 Patent. *Compare Angelo*, Abstract, [0004], [0009]-[0010], [0016]-[0021], [0029], [0031], *with '648 Patent*, 1:22-26; *Dec.*, ¶¶87-89. Accordingly, *Angelo* is analogous art to the '648 Patent.

V. GROUND 1: CLAIMS 1, 5-6, 15, 18 ARE OBVIOUS OVER ZHANG, FILLEBROWN, AND PASANEN

A. Claim 1(Pre) - A method of informing a device about an availability of media content at a mobile device connected to a local area network (LAN), comprising:

To the extent the preamble is limiting, as discussed in detail below, *Zhang* in view of *Pasanen* teaches routing an incoming phone call (*media content*)² from *Zhang's* “mobile device” in the form of a cellular phone (*mobile device*) to *Zhang's* “helper server” in the form of a wireless speaker and microphone (*device*) connected via a LAN. Prior to routing the phone call, *Zhang's* cellular phone *informs* the

² Corresponding claim language indicated with italics in parentheses.

wireless speaker/microphone of the phone call media, ensuring the device is available and compatible to process the phone call audio.

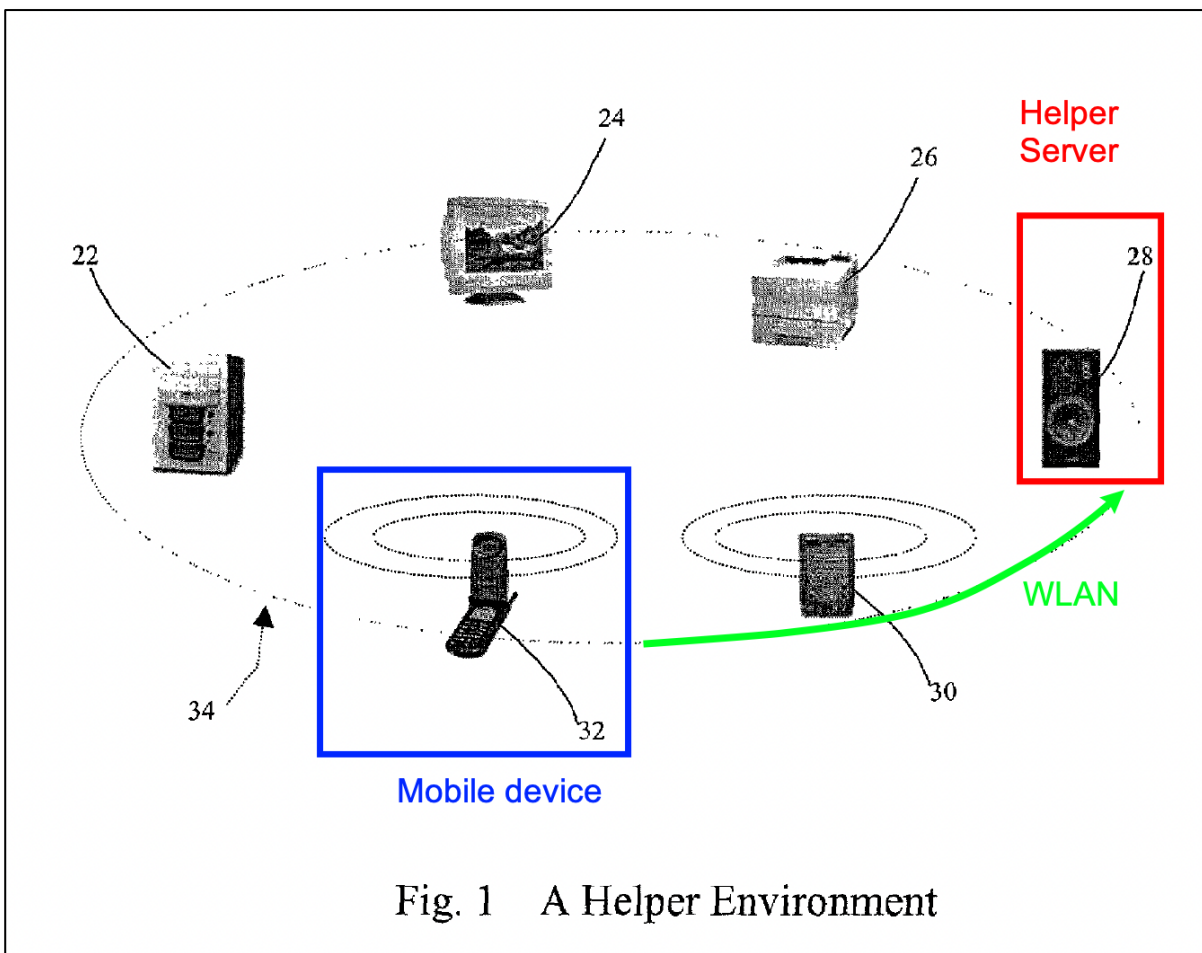
As also discussed in detail below, the rerouted audio is wirelessly communicated from the mobile device to the helper server through an intermediate routing device (i.e., a WLAN router) pursuant to *Fillebrown's* teachings. As in the '648 Patent, the *Zhang-Fillebrown-Pasanen* combination improves the user experience, utilizing a wireless speaker/microphone with improved capabilities compared to the limited capabilities of speaker/microphone in the mobile device.

1. Zhang's Mobile Device Discovers Helper Servers and Informs Said Helper Servers About Availability of Media Content

Zhang teaches a mobile device informs a helper server of an availability of media content at the mobile device, which is connected to a local area network (LAN). *Zhang*, 2:16-19 (noting that *Zhang* “provide[s] a framework in which handheld mobile devices can identify and use their environment, the devices around them, to expand their limited capabilities”), 3:25-43, 4:35-45, Fig. 1. Within “helper environment 34[,]” a mobile device (e.g., cellular phone 32) “can use the devices around them to extend their limited capabilities,” using “helper services” offered by “helper servers[,]” including audio device 28. *Zhang*, 3:25-31, 4:35-38, 8:50-56; *Dec.*, ¶72 (explaining *Zhang's* nomenclature for mobile devices and helper servers).

Zhang teaches that helper servers display/render media content including audio and/or video content, depending on which helper server(s) are utilized. *Zhang*,

3:25-43 (including teaching “audio device 28” is a helper server), 4:1-8 (teaching transferring content to a helper server), 4:32-45; *Dec.*, ¶¶91-95 (explaining that *Zhang*’s helper servers include audio device 28 (e.g., a wireless speaker) for rendering audio content). Fig. 1 is annotated below to highlight an exemplary scenario in which *Zhang*’s cell phone 32 (blue) uses wireless speaker 28 (red) to play audio via wireless network 34 (green, in relevant part):



Zhang, annotated Fig. 1.

Zhang teaches performing device discovery to locate helper servers and a service query that indicates availability of media content at the mobile device that the mobile device wishes to render/play at the helper server. Namely, *Zhang's* mobile device “identifies the nearby helper servers” and “determine[s] if they are capable of providing the helper service” that the mobile device requests. *Zhang*, 3:25-64, 4:1-8, 4:32-45, Figs. 4-5. *Zhang's* service request includes “the MIME type of the user data, the requested service on the data (e.g. displaying, printing or storing), a flag indicating whether the actual data or a URL will follow, the length of the data in bytes, the expected duration of the service, and optionally, authentication information.” *Zhang*, 7:1-13; *Dec.*, ¶¶91-95, 114 (including explaining MIME type).

Zhang teaches “actual data” may be transmitted from a mobile device to a “local device” (helper server) (e.g., steps S406, S506), distinguishing this arrangement from an alternative in which the mobile device sends link pointing to data (e.g., URL [uniform resource locator]), so the helper server can retrieve data directly from the web. *Zhang*, 4:1-8, 4:32-34, 7:1-14 (teaching a service request sent from a mobile device to a helper server that includes the MIME type of the data, requested service on the data, and length of the data in bytes), 7:14 (“Client data can be either actual data or a URL to the data.”), 7:58-60. As discussed in detail below, *Zhang's* service query informs a helper server about availability of media content at

the mobile device. *Dec.*, ¶¶91-95; *see* Claim 1(d)-1(f) (in-depth discussion below including media content examples); *Zhang*, 3:49-51.

Thus, a POSITA would have understood that such locating and querying teaches or at least renders obvious informing a device about an availability of media content (e.g., audio, video, text content, phone calls) at a mobile device. *Dec.*, ¶¶91-95, 100-01, 113-14; *see* Claim 1(b) (discussing informing helper server of specific media content available at the mobile device), 1(d)-1(f) (in-depth discussion below including media content examples); *Zhang*, 3:49-51.

2. *Zhang's Network Environment – Wireless Local Area Network (WLAN)*

Zhang teaches helper environment 34 may utilize Bluetooth™ or another “framework” such as wireless local area network (WLAN) using IEEE 802.11 or HomeRF. *Zhang*, 4:42-58. A POSITA would have been motivated to utilize WLAN to connect multiple devices in a streaming media arrangement. *See* Claim 1(c); *Dec.*, ¶¶96-97. Indeed, a POSITA would have understood that a WLAN using IEEE 802.11 or HomeRF would have been a suitable choice for *Zhang's* framework given *Zhang's* express disclosure and because IEEE 802.11 and HomeRF were well-known, well understood, and widely utilized wireless communication network frameworks. *Dec.*, ¶¶96-97.

Implementing *Zhang's* framework as a WLAN (utilizing IEEE 802.11 or HomeRF) to wirelessly connect a plurality of devices in a local communication

network would have allowed *Zhang*'s system to take advantage of the well-known benefits of IEEE 802.11 or HomeRF standards. *Dec.*, ¶¶96-97 (explaining IEEE 802.11 and HomeRF benefits over Bluetooth).

B. Claim 1(a) - using the mobile device for:

Zhang teaches mobile devices, including PDA 30, cellular phone 32, digital camera, and MP3 player. *Zhang*, 1:8-15, 3:25-43, 4:35-45, 8:50-56; *see also* Claim 1(Pre).

C. Claim 1(b) - identifying one or more available devices compatible to handle the media content and connected to the LAN;

As discussed above, *Zhang* teaches helper servers (e.g., audio device 28) (*one or more available devices*) connected to the framework (e.g., WLAN using IEEE 802.11 or HomeRF). *See* Claim 1(Pre); *Zhang*, 3:25-43, 4:35-50. As further discussed above, *Zhang* teaches a mobile device discovers helper servers and informs said helper servers about availability of media content at the mobile device. *See* Claim 1(Pre).

To utilize the “helper services” provided by *Zhang*'s “helper servers,” *Zhang* teaches that a mobile device scans the framework to locate a nearby helper server that “is capable of displaying the content.” *Zhang*, 3:32-43. *Zhang*'s mobile device performs the following key steps:

(1) ***Device discovery***: The handheld device identifies the nearby helper servers.

- (2) ***Service query***: The handheld device queries the identified helper servers to determine if they are capable of providing the helper service.
- (3) ***Request transfer***: The handheld device selects a helper server and delegates the task to it.
- (4) ***Remote control***: The helper server returns a remote control interface description to the handheld device.

Zhang, 3:44-56, 6:40-44. The first two steps—“device discovery” and “service query”—identify devices *compatible* (i.e., capable) of handling the media content. *Zhang*, 3:25-64, 4:1-5, 4:35-45 (teaching the mobile device “determine[s] whether there is a helper device in its environment that can fulfill the requested task”). A POSITA would have understood that such locating and querying teaches or at least renders obvious identifying a helper server compatible to handle media content. *Dec.*, ¶¶91-95, 100-01, 113-14.

In *Zhang*’s third step, “request transfer,” a helper server responds the service query, indicating its *availability* to handle the requested service. Specifically, in response to the service query, the helper “server makes the admission decision S648 and informs the client whether its service request can be granted right away, has to be queued[,] or is denied (e.g. not enough total resource on the server or authentication failure) S646.” *Zhang*, 7:22-25, 7:58-60 (“Once a service request is accepted by a helper server S650, the client is notified S610 and can start transferring service data to the server S612.”).

In sum, *Zhang's* mobile device performs this process to identify helper servers (*devices*) that are both *available* and *compatible to handle the media content*.

A POSITA would have been motivated to use the WLAN framework for this helper server communication, rather than Bluetooth, for the same reasons discussed above in Claim 1(Pre). *Dec.*, ¶100 (explaining that, if a WLAN framework is used to communicate media between devices, WLAN would also be used to discovery helper services and establish data connections). Further, a POSITA would have understood that, when *Zhang's* system is implemented via WLAN, each of the described control messages (i.e., device discovery, service query, and request transfer) is done via the network connection over the WLAN. *Dec.*, ¶¶99-102.

D. Claim 1(c) - wirelessly communicating information to an intermediate routing device connected to the LAN for indirectly routing messages or media content to at least one of the one or more available devices via said intermediate routing device; and

1. Zhang Teaches Wirelessly Routing Messages or Media Content to Available Helper Servers

As discussed above, *Zhang* teaches routing media content and commands to helper server via a wireless network such as a WLAN. *See* Claim 1(Pre)-1(b).

Zhang teaches a (1) helper server accepting a service request, (2) a session initiating between the helper server and mobile device, and (3) the client (e.g., mobile device) “can start transferring service data to the server[.]” *Zhang*, 7:22-25, 7:58-64, 3:55-60, 4:1-34, 9:54-60 (“During the session, both data and control

information are exchanged. Because of the simple helper model, each session naturally corresponds to the TCP connection between the client and the server.”). A POSITA would have understood that a TCP connection requires “addressing” data packets to enable data or media to be communicated to devices on a network. Notably, in a TCP/IP network like that discussed in ’648 Patent, each device has a unique IP address, which would be utilized by the mobile device to “wirelessly communicat[e] information” to the connected helper servers of the network via an intermediate routing device (e.g., wireless router). *Dec.*, ¶104. *Zhang* teaches data transmitted from a mobile device to a helper server via the session includes media. *Zhang*, 10:58-65, 8:13-18; *Dec.*, ¶¶103-04, 114-18. At least the control information, including addressing information used to route packets, satisfies the claimed “communicating information . . . for indirectly routing messages or media content.”

Further, *Zhang* teaches transmitting data, media, and commands from the mobile device to helper servers, and the helper servers present the media content and follow the commands. In one embodiment, PDA 30 “establishes a connection with the helper server 24 and transfers the content to the helper server 24 for display.” *Zhang*, 3:25-60, 4:1-8, 4:32-34, 7:1-13, 8:13-22 (teaching a user remotely controlling the display of streaming data by issuing “stop[,]” “resume[,]” and “fast forward” commands to the helper server presenting the media content). *Zhang* also teaches that media played on a helper server can be in the form of “actual data or a

URL to the data.” *Zhang*, 7:14. Although *Zhang* teaches that it may be more efficient for the helper server to retrieve streaming content from the web by processing a URL, non-Internet enabled³ helper servers are not capable of processing URLs and must instead receive streaming data from a device on the local wireless network. *Zhang*, 7:14-21; *Dec.*, ¶105 (opining that many wireless devices of the time, such as wireless headphones and speakers, were non-Internet enabled and relied on a local wireless audio source to stream audio data from the Web). Therefore, streaming data from the mobile device to a helper server provides a greater choice of helper servers, improving the capabilities of *Zhang*’s system. *Dec.*, ¶105. Although *Zhang* does not expressly describe an arrangement in which media is first streamed to the mobile device and is then re-routed to a helper server, this arrangement was known in the art. As set forth in detail below with reference to Claim 1(e), a POSITA would have been motivated to modify *Zhang* pursuant to *Pasanen* to receive a telephone call on the mobile device (from the telephone network) and to reroute the audio to a helper server (e.g., a wireless speaker/microphone).

³ “Non-Internet enabled device” is understood to mean a device lacking the hardware and/or software necessary to directly retrieve content from Internet-based services (e.g., Web servers), but can still utilize a wireless local area network to share resources and communicate with other devices. *Dec.*, n.3 and ¶¶61, 105.

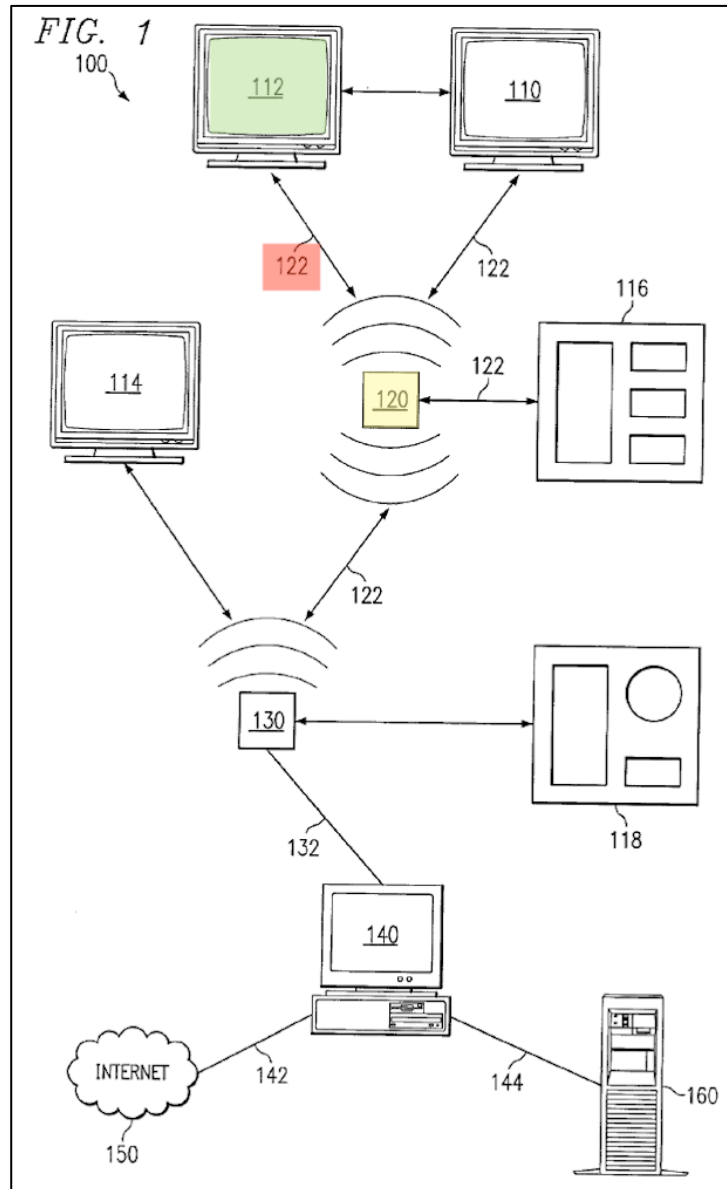
Regarding claimed intermediate routing device, although *Zhang* does not expressly describe using an intermediate routing device (e.g., a wireless WLAN router) for indirectly routing messages or media content, such an arrangement was well known in the art. Indeed, a POSITA would have understood that routing data through an intermediate router was the typical topology used for WLAN, including IEEE 802.11 and HomeRF. *Dec.*, ¶106. For example, *Fillebrown* teaches a wireless network (“IEEE 802.11, Home RF, or other wireless protocols”) where data is transmitted to devices on a network via an intermediate wireless router. As set forth in detail below, a POSITA would have been motivated to implement *Zhang* pursuant to *Fillebrown*’s use of a wireless router to indirectly route messages or media content to one or more available devices. *See* Section V.D.3; *Dec.*, ¶¶90, 106, 109-11.

2. *Fillebrown*’s Teachings – Wireless Router for Indirectly Routing Media

Fillebrown teaches wireless network 100 includes “a plurality of wireless clients, such as wireless tablets and wireless smart appliances” that “communicate via a wireless routing means, such as a wireless router 120, with a wireless server 140[.]” *Fillebrown*, [0049]. *Fillebrown* teaches wireless network 100 uses a wireless communication standard such as “IEEE 802.11, Home RF, or other wireless protocols.” *Id.* *Fillebrown* teaches a mobile device such as a wireless tablet that incorporates wireless technology, including 802.11, to “send and receive audio and video from another system component.” *Fillebrown*, [0016], [0057] (teaching “a

wireless client” is “any device capable of wirelessly communicating within a personal wireless network and [is] also capable of user interaction with other devices within the personal wireless network.”), [0051] (teaching packetizing data such as audio and video to transmit over the wireless network).

The wireless router beneficially “extend[s] the range of the personal wireless network through the amplification and re-transmission of received data packets.” *Fillebrown*, [0034], [0061]. As depicted in Fig. 1 below, wireless clients (e.g., wireless tablet 112 (annotated green)) are adapted to wirelessly communicate (122, annotated red) with wireless server 140 and/or another wireless tablet 114 by routing “data, packets, or information” via wireless router 120 (annotated yellow). *See Fillebrown*, [0061].



Fillebrown, Fig. 1 (annotated), [0049], [0053].

3. *Motivation to Combine Zhang and Fillebrown*

A POSITA would have been motivated to modify *Zhang* to route data via an intermediate wireless router pursuant to *Fillebrown*. *Dec.*, ¶¶109-11. Implementing a wireless router, as proposed, would provide a significant range advantage over a system lacking an intermediate router. This benefit is realized by amplifying

received data packets. *See Fillebrown*, Abstract, [0080]-[0082], and [0061]. The proposed combination is a straightforward application of a known technique (i.e., the ubiquitous WLAN router) to realize this benefit. *Dec.*, ¶¶109-11. In this respect, *Fillebrown* is merely providing implementation details that *Zhang* expressly suggests via its recommendation of specific WLAN networks that typically include intermediate routing devices such as those described by *Fillebrown*.

Given *Zhang*'s teachings of seamlessly moving “video streams” between a mobile device and multiple helper server devices to maintain “display continuity” throughout a building, a POSITA would have been further motivated to modify *Zhang* in view of *Fillebrown* such that the amplified signal of the wireless router taught in *Fillebrown* would improve the signal strength of communications from mobile device taught by *Zhang* to ensure strong, stable signal while a user moves about a building or other area (e.g., house). *Zhang*, 10:58-65; *Dec.*, ¶¶109-11. (noting both *Zhang* and *Fillebrown* describe WLAN systems for communicating data and media).

A POSITA also would have had a reasonable expectation of success when making such a modification. First, *Zhang* already teaches a wireless network, such as WLAN (using IEEE 802.11 or Home RF), and *Fillebrown* teaches precisely the same network setup (WLAN using a wireless protocol/standard such as IEEE 802.11 or Home RF). *Zhang*, 4:46-58; *Fillebrown*, [0016], [0049], [0063]-[0064], [0087],

[0095]; *Dec.*, ¶¶109-11. Thus, modifying *Zhang* to utilize a wireless router would have been a straightforward modification not requiring undue experimentation. *Dec.*, ¶¶109-11.

E. Claim 1(d) - wirelessly signaling the one or more available devices indicating an availability of a media content at the mobile device;

As discussed above, *Zhang* teaches routing a media content such as audio from a mobile device to an available helper server. *See* Claim 1(b)-1(c).

In general, *Zhang* teaches several “essential steps” the mobile device takes to interact with helper servers. First, the mobile device performs device discovery and “identifies the nearby helper servers.” *Zhang*, 3:44-48. Second, *Zhang* performs a “service query,” where the mobile device “queries the identified helper servers to determine if they are capable of providing the helper service.” *Zhang*, 3:49-51. *Zhang* teaches that if a located helper server “does offer the needed helper service, the handheld device requests the helper service S404.” *Zhang*, 4:1-8.

Regarding wirelessly signaling a helper server indicating an availability of a media content at the mobile device, *Zhang* teaches transmitting a service request to a helper server, and when a server accepts, a session is set up between a “helper client” (mobile device) and helper server using TCP. A POSITA would have understood that wirelessly signaling a service request would have indicated the availability of media content at the mobile device. *Dec.*, ¶114. In particular, *Zhang* teaches “the helper client can [] connect to the helper server through TCP and send

its service request. The request may contain the following information for the server admission control: the MIME type of the user data, the requested service on the data (e.g. displaying, printing or storing), a flag indicating whether the actual data or a URL will follow, the length of the data in bytes, the expected duration of the service, and optionally, authentication information.” *Zhang*, 7:3-13; *Dec.*, ¶114.

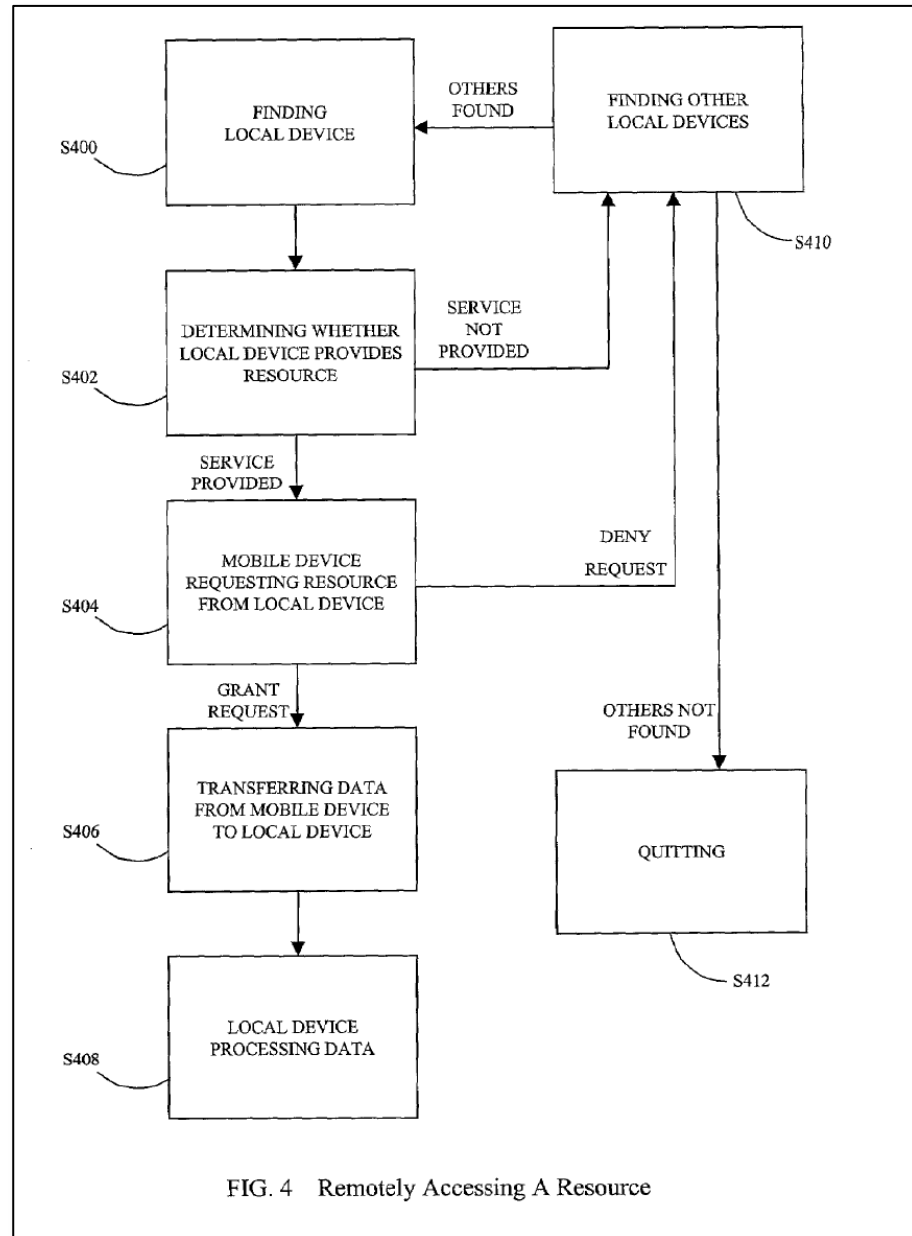
Further, *Zhang* teaches that “[d]uring the session, both data and control information are exchanged. Because of the simple helper model, each session naturally corresponds to the TCP connection between the client and the server.” *Id.* Additionally, *Zhang* teaches TCP provides a “sequential and reliable transport channel between the client and the server” and that this is “particularly important for command transfer” for the helper server to receive commands reliably and in the proper order. *Zhang*, 9:61-65. A POSITA would have understood that such a connection via TCP would have utilized *Zhang*’s WLAN for setting up the session between the mobile device and helper server. *Dec.*, ¶115.

Zhang teaches embodiments where such sessions are between a single mobile device and helper server at a time or a single mobile device and multiple helper servers at a time. For example, in the embodiments where the mobile device moves across different locations (“nomadic” and “seamless” mobility), *Zhang* teaches sessions that are independent between different helper servers at different locations (i.e., nomadic embodiment). *Zhang* specifically teaches in the nomadic embodiment,

there is no continuity between the first service session (e.g., between mobile device and a first helper server) and the second service session (e.g., between mobile device and a second helper server). That is, a “user moves and decides to change server,” such that the current session with a helper server is terminated before a new session is started with another helper server at the new location. *Zhang*, 10:48-57. However, in the “seamless” embodiment, “state information is retained when the user moves causing a change in servers[,]” such that “video streams may move from one helper to another with display continuity.” *Zhang*, 10:58-65. Thus, multiple sessions may be active between a single mobile device and a plurality of helper servers. *Dec.*, ¶¶116, 174-75. In either case, the connection between the mobile device and helper server is via a session (i.e., wireless communication link). *Dec.*, ¶¶114-18, 174-76.

Further, *Zhang* teaches that during a session, a mobile device transmits data and control commands to a helper server. *Zhang*, 3:32-43 (“[T]he PDA 30 becomes a remote control device to control the display of the content on the helper server 24.”), 3:55-60 (“The handheld device builds a Graphical User Interface (GUI) from the interface description and remotely controls the task on the helper server according to user interaction with the handheld device.”), 6:14-20, 6:27-34, 8:50-61 (“[I]f the client device is a PDA, a simple graphical interface with control buttons such as ‘play’, ‘pause’ and ‘fast forward’.”), 9:54-60, 2:31-45, Figs. 6A-6B, 7.

Specifically, accepting a service request prepares a helper server for receiving content and commands from a mobile device by initiating a session between said handheld device and said helper server. *Dec.*, ¶¶93-94, 102, 104, 114, 118, 173, 176. For example, *Zhang* teaches a “local device” (e.g., helper server) granting a service request results in “transferring data from mobile device to local device” at step S406. *Zhang*, 4:5-8, 4:32-34 (teaching the same, but for the embodiment of Fig. 5).



Zhang, Fig. 4, see also Fig. 5.

A POSITA would have understood that *Zhang* would have used a wireless router per *Fillebrown's* teachings when performing such wireless signaling indicating availability of media content. See Claim 1(c).

F. Claim 1(e) - wherein the media content is originated from an external source disconnected from the LAN;

1. '648 Patent's Media Content

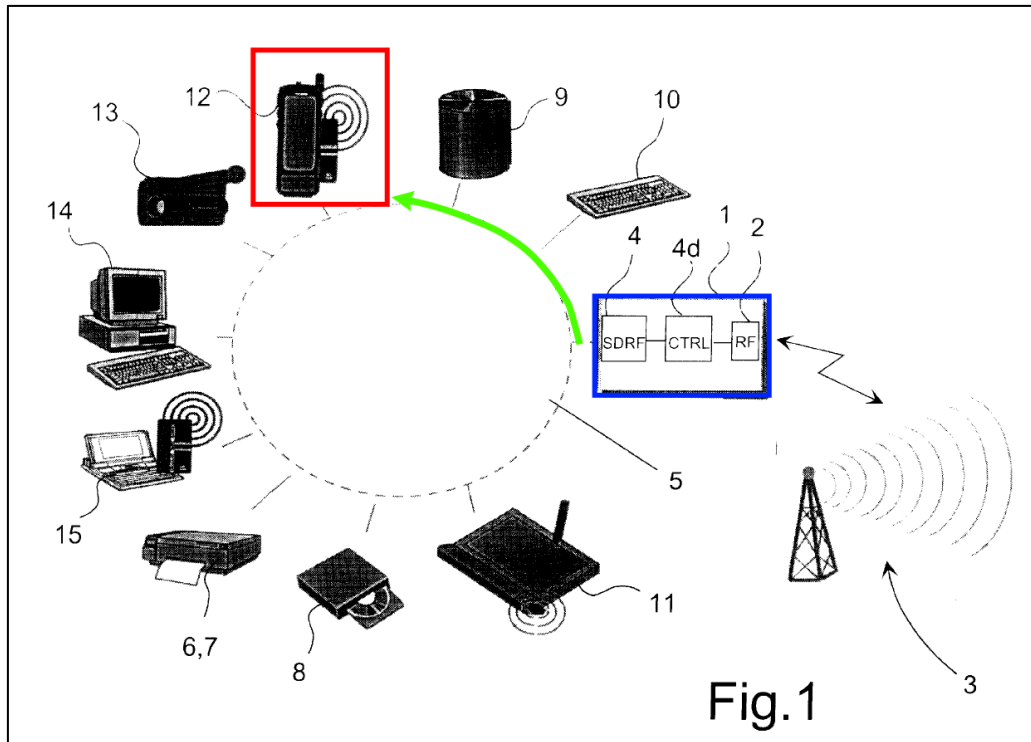
According to the '648 Patent, a phone call is one example of media content that originates from an external source disconnected from the WLAN. *See* Claims 5-6. As set forth below, a POSITA would have been motivated to modify *Zhang* pursuant to *Pasanen* such that *Zhang's* mobile device (e.g., a cellular phone) receives a phone call and allows the user to participate in the call via a wireless speaker/microphone.

2. Zhang Teaches a Cellular Phone

While *Zhang* teaches that its mobile device may be a cellular phone (*Zhang*, 3:25-29), *Zhang* does not expressly describe receiving a phone call with that cellular phone. A POSITA would, however, have understood that receiving phone calls is one function *Zhang's* cellular phone is capable of. *Dec.*, ¶121 (noting that a cellular transceiver for completing calls via a cellular phone network is one key feature that distinguishes “cellular phones” from other mobile devices). As set forth below in detail, a POSITA would have been motivated to modify *Zhang's* mobile device (e.g., cellular phone 32) to receive media content originating from an external source (e.g., cellular communication network). *See* Section V.F.4; *Dec.*, ¶121.

3. *Pasanen Teaches a Mobile Phone That Receives Phone Calls from Mobile Network (External Source) and Routes the Call Audio to a Wireless Audio Interface (Speaker/Microphone)*

Pasanen teaches server device 1 such as a mobile station that comprises means 2 for “setting up a data transmission connection with a mobile communication network 3, and means 4 for setting up a local area network 5 between the server device 1 and the peripheral devices.” *Pasanen*, 4:20-26. Local area network 5 is wireless. *Pasanen*, 3:49-51, 1:3-25, 9:31-47. *Pasanen* teaches that its peripheral devices may include a “wireless audio interface 12 equipped with e.g. a microphone and an earpiece to be used instead of the microphone 1a and earpiece 1b of the mobile station 1 for example during a call.” *Pasanen*, 4:31-34, Fig. 2a (depicting microphone 1a and earpiece 1b of mobile station 1). Fig. 1 below depicts wireless local area network 5, server device 1 (blue), and a peripheral device including wireless audio interface 12 (red) used for the phone call audio:



Pasanen, Fig. 1 (annotated).

4. *Motivation to Combine Zhang-Fillebrown-Pasanen*

A POSITA would have been motivated to modify *Zhang-Fillebrown* per *Pasanen*'s teachings to receive a phone call (media content) on Zhang's cellular phone from a source disconnected from the WLAN (cellular/mobile phone network) and to permit the user to participate in the call through an audio helper server (e.g., wireless speaker/microphone) connected via *Zhang*'s WLAN. *Dec.*, ¶¶123-24. The proposed modification is an intuitive extension of *Zhang*'s express teachings that aligns with *Zhang*'s hardware and furthers *Zhang*'s express goal. Indeed, the primary focus of *Zhang*'s disclosure is a mobile device that can connect with and transfer media content to a network of connected helper servers ("helper environment") to

expand and improve the limited media playback capabilities of the mobile device. *Zhang*, 2:16-19; *Dec.*, ¶¶123-24. *Zhang* expressly teaches that its mobile device can be a cellular phone and that its helper servers include audio devices. *Zhang*, 3:25-29, Fig. 1. *Pasanen* similarly teaches a mobile device receiving externally sourced media content (e.g., phone call) that connects to audio interface 12 (e.g., speaker/microphone) via a WLAN, allowing the user to participate in the call via interface 12's "microphone and [] earpiece . . . instead of the microphone 1a and earpiece 1b of the mobile [device.]" *Pasanen*, 4:20-37, 13:1-61, 5:62-6:22, Figs. 1, 3; *Dec.*, ¶¶123-24. Like *Zhang*, *Pasanen* teaches that its peripheral network seeks to overcome limitations of its mobile devices. *Pasanen*, 2:27-40 (describing the limitations of portable devices); *Dec.*, ¶¶123-24. A POSITA would have recognized that the audio benefits of *Pasanen*'s audio interface 12 for phone calls would have benefitted *Zhang*'s system in the same way it benefits *Pasanen*'s, allowing a user to participate in a call via a more capable speaker and microphone, rather than the mobile device's more limited input and output. *Dec.*, ¶¶123-24.

Such a modification would have had a reasonable expectation of success at least because *Zhang*'s cellular telephone already includes hardware and programming instructions to make and receive phone calls and to communicate with helper servers via *Zhang*'s WLAN framework. *Dec.*, ¶¶123-24. Further, *Pasanen*, like *Zhang*, teaches a plurality of peripheral devices connected to a network, such as

a WLAN (*Fillebrown* also teaches a WLAN). *Dec.*, ¶¶123-24. Thus, modifying *Zhang-Fillebrown* per *Pasanen*'s teachings would have utilized *Zhang-Fillebrown*'s existing hardware. *Dec.*, ¶¶123-24. Additionally, infrastructure for making and receiving cellular phone calls was in place well before the '648 Patent's priority date, so modifying *Zhang-Fillebrown* per *Pasanen*'s teachings would not have required undue experimentation. *Dec.*, ¶¶123-24.

G. Claim 1(f) - wherein the media content selected from a group consisting of: audio content and video content.

As discussed above, *Zhang-Fillebrown-Pasanen* teaches a mobile device receives audio content (e.g., phone call) that originates from an external source disconnected from the WLAN and communicates the audio between the mobile device and audio helper server (e.g., wireless speaker/microphone). *See* Claims 1(e), 5-6 ("wherein the media content is a phone call"); *Dec.*, ¶125.

H. Claim 5 - The method of claim 1, wherein the media content is a phone call; further comprising routing the phone call to the one or more available devices in response to a receipt of a response to the signaling received from the one or more device.

Zhang-Fillebrown-Pasanen teaches media content such as a phone call and routing the phone call to one or more available devices, such as *Pasanen*'s wireless audio interface 12. *See* Claim 1. A POSITA would have understood that a phone call would have been routed to an available device after receipt of a response to the signaling received from the one or more available devices (e.g., wireless audio

interface 12) in accordance with the mapping above. *See* Claim 1; *Dec.*, ¶126.

Indeed, *Zhang* teaches signaling between a mobile device and helper server. *See* Claim 1.

I. Claim 6 - The method of claim 1, wherein the media content is a phone call; further comprising routing the phone call to the one or more available devices while the phone call is ongoing using the mobile device.

Zhang-Fillebrown-Pasanen allows a user to route the audio of a phone call to a wireless audio helper server, such as *Pasanen's* wireless audio interface 12. *See* Claim 1. A POSITA would have been motivated to provide the user an option to invoke the helper server when the phone call is ongoing, providing the user control of whether and when to use the wireless speaker/microphone, rather than the mobile device's native input/output. *Dec.*, ¶127. Implementing the proposed combination such that a phone call is ongoing when the user routes audio to a helper server is also necessary to support *Zhang's* "seamless" mobility embodiment, where "continuity" is maintained across multiple devices while media is streamed. *See* Claim 1; *Dec.*, ¶127 (opining that such seamless mobility would also apply to a phone call).

J. Claim 15(Pre) - A mobile apparatus for informing a device about an availability of media content, comprising:

The mappings for Claim 15 below focus on apparatus elements that perform the same/similar functions discussed for Claim 1.

To the extent the preamble is limiting, *Zhang* teaches a mobile device (mobile apparatus) that informs a helper server (device) of an availability of media content at the mobile device, which is connected to a wireless local area network (WLAN). *See* Claim 1(Pre). The claimed media content is mapped above. *See* Claim 1(e). *See also* Claim 15(a) below.

K. Claim 15(a) - a receiver adapted to receive wirelessly, from an external source, media content selected from a group consisting of: audio content and video content; and

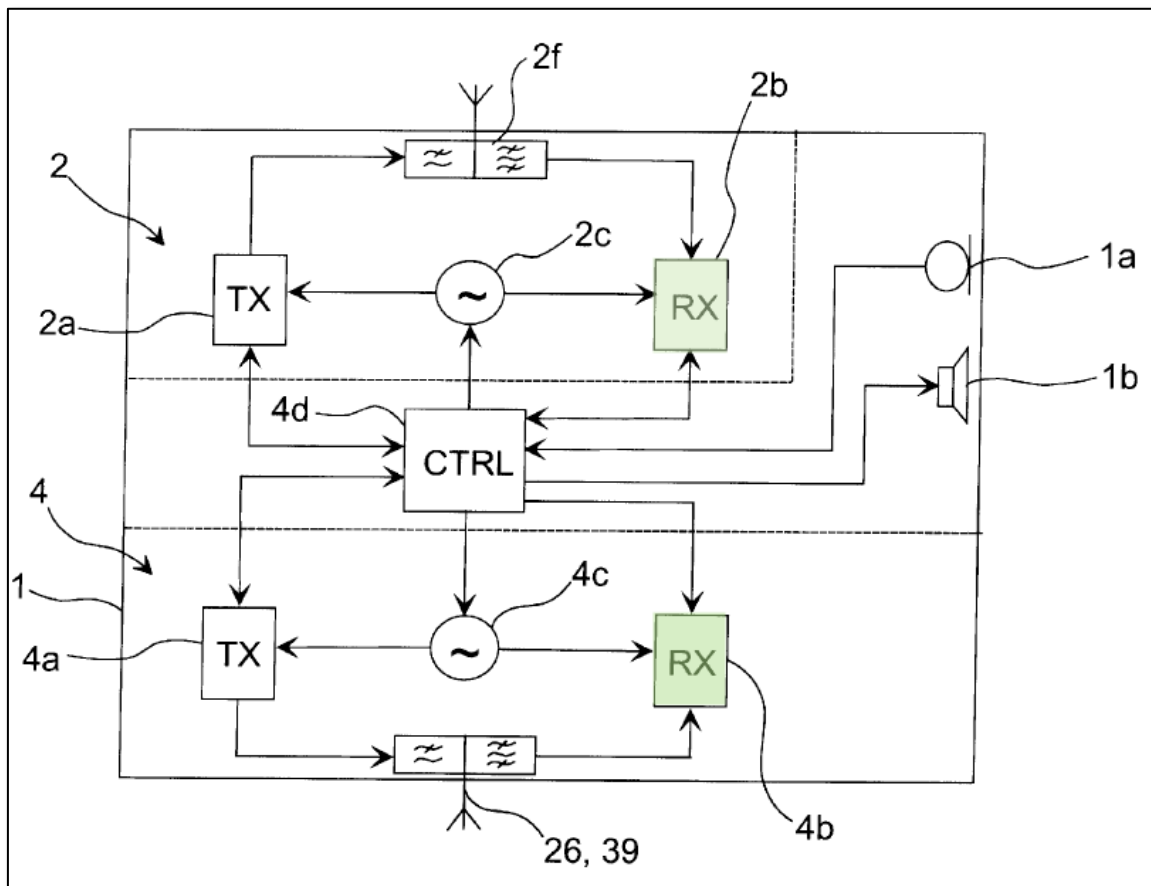
1. Zhang's Teachings – Mobile Device

Zhang teaches a mobile device, such as a cellular phone. *Zhang*, 3:25-31, 4:35-38. A POSITA would have understood that a cellular phone would have included a receiver adapted to wirelessly receive audio content. *Dec.*, ¶130; *see* Claim 1(Pre). As discussed above, *Pasanen* teaches wirelessly receiving media content including audio and/or video content from an external source. *See* Claim 1(e).

To the extent it is argued that *Zhang* does not expressly teach hardware and software implemented by a receiver in a mobile device to wirelessly receive media content from an external source, it would have been obvious to implement *Zhang's* cellular phone pursuant to *Pasanen*, which expressly teaches such hardware and software.

2. *Pasanen's Teachings – Mobile Phone Includes Receiver For Receiving Phone Call from Cellular Network*

Pasanen teaches a mobile device includes a receiver receiving media content from an external source such as a phone call from a mobile communication network. *Pasanen*, 4:20-62, 5:62-6:22, 13:2-13, 13:51-55, Fig. 3. *Pasanen's* mobile station is depicted in Fig. 2a (shown below) with receivers 2b (radio receiver of the long-distance link module, e.g., a GSM cellular network) and 4b (radio receiver of the short-distance link module, e.g., WLAN) (both annotated green) adapted to receive externally sourced media (e.g., phone calls):



Pasanen, Fig. 2a (annotated).

3. *Motivation to Combine Zhang and Pasanen*

As discussed above, *Zhang* teaches that its mobile device can be a cellular phone, but does not describe necessary hardware within the cellular phone such as a cellular receiver. *See* Claim 1(e). A POSITA would have been motivated and found it obvious to implement a cellular receiver, such as that described by *Pasanen*, in *Zhang*'s cellular phone such that *Zhang-Pasanen*'s mobile device would be adapted to wirelessly receive externally sourced media content consisting of audio content. *Dec.*, ¶¶133-34. A POSITA would have understood that modifying *Zhang*'s mobile device with *Pasanen*'s receiver would have improved *Zhang*'s similar mobile device (e.g., cell phone) in the same way as *Pasanen*'s mobile apparatus, *enabling* *Zhang*'s expressly described wireless communication. *Dec.*, ¶¶133-34 (explaining that implementing a cellular receiver not only *improves* *Zhang*'s mobile device, but *enables* *Zhang*'s mobile device to receive calls from the cellular/mobile network). Such use of a known technique would have solved a known problem in the art, and combining *Zhang* and *Pasanen* would have been well within the skillset of a POSITA. *Dec.*, ¶¶133-34. Further, such a modification would have been combining prior art elements (e.g., mobile device, receiver) according to known methods to yield the predictable result of a mobile device wirelessly receiving external media content (e.g., incoming phone calls). *Dec.*, ¶¶133-34.

Such a modification would have had a reasonable expectation of success because *Zhang* and *Pasanen* teach similar mobile devices (e.g., cellular phones, mobile stations), and because it was well known and commonplace for cellular phones to include hardware and/or programming instructions to receive phone calls from cellular/mobile networks. *Dec.*, ¶¶133-34.

L. Claim 15(b) - a controller adapted to identify one or more available devices connected to a local area network (LAN) and compatible to handle the media content;

1. *Zhang's Teachings – Mobile Device*

Zhang teaches a mobile device, such as a cellular phone, that identifies one or more available devices connected to a local area network and compatible to handle media content. *Zhang*, 3:25-31, 4:35-38; *see* Claim 1(Pre) and 1(a). A POSITA would have understood that a cellular phone would have included a controller adapted to identify one or more available devices connected to a local area network and compatible to handle the media content. *Dec.*, ¶¶135-36. Indeed, a POSITA would have understood that such functionality would have been provided by a controller or similar microprocessor. *Dec.*, ¶¶135-36.

To the extent it is argued that *Zhang* does not expressly teach the hardware and software to identify devices connected to a LAN, *Pasanen* teaches such hardware and software in the form of controller 4d, as discussed below. *Dec.*, ¶¶¶135-38; *Pasanen*, 5:52-61, 10:52-56, 12:47-57.

2. *Pasanen's Teachings – Controller for Identifying Available Peripheral Devices*

Pasanen teaches a controller programmable to identify one or more available devices connected to a local area network (LAN) and detect status data of LAN-connected devices. *Pasanen*, 5:52-61, 10:52-56, 12:47-57. Notably, *Pasanen's* controller “detect[s] the status of [] peripheral device[s] 6-15 and transmit[s] the status data e.g. to the server device 1” through link agents “compris[ing] e.g. programs formed in the application software of the controller of the device.” *Pasanen*, 5:52-57. Moreover, “[w]hen receiving a data signal, the controller 4d turns on a switch S4, wherein the data signal to be received is led to the controller 4d of the short-distance link module for examining and processing the received data (link agent).” *Pasanen*, 10:52-57. Finally, “[a]s controllers 4d, 16d” “[p]articularly in applications where the link module 11 is integrated in the server device 1... the operations of the controller of the link module can be implemented at least partly also in the application software of the controller 4d, 16d of the device.” *Pasanen* 12:47, 12:52-57; *Dec.*, ¶¶137-38.

Accordingly, the operations of controller 4d may be programmed by software to carry out instructions, as exemplified by *Pasanen's* teachings describing running programs to (1) detect the status of peripheral devices and (2) examine and process received data. *Dec.*, ¶¶137-38.

3. *Motivation to Combine Zhang and Pasanen*

A POSITA would have been motivated and found it obvious to implement a controller pursuant to *Pasanen* in *Zhang's* cellular phone to perform *Zhang's* identifying functionality. *Dec.*, ¶¶139-41; *see* Claim 1(b). A POSITA would have understood that modifying *Zhang's* mobile device with *Pasanen's* controller would have improved *Zhang's* similar mobile device (e.g., cell phone) in the same way as *Pasanen's* mobile apparatus. *Dec.*, ¶¶139-41 (explaining that implementing a controller not only *improves* *Zhang's* mobile device, but *enables* *Zhang's* mobile device to perform the tasks expressly described by *Zhang*). Such a modification would have been combining prior art elements (e.g., mobile device, controller) according to known methods to yield the predictable result of performing *Zhang's* identifying functionality. *Dec.*, ¶¶139-41.

Such a modification would have had a reasonable expectation of success because *Zhang* and *Pasanen* teach similar devices and because using a controller for such functionality was well known in the prior art per *Pasanen's* teachings. *Dec.*, ¶¶139-41.

- M. Claim 15(c) - wherein the controller is adapted to instruct communicating wirelessly information to an intermediate routing device connected to the LAN for indirectly routing messages or media content to at least one of the one or more available devices via said intermediate routing device;**

1. *Zhang-Pasanen's Teachings – Controller for Communicating Wireless Information*

Zhang-Pasanen teaches that a mobile apparatus would have included a controller adapted to identify one or more available devices connected to a local area network and compatible to handle the media content. *Dec.*, ¶142; *see* Claim 15(b). *Zhang-Pasanen* does not expressly teach using an intermediate routing device (e.g., router, wireless router) connected to the LAN for indirectly routing messages or media content, but a POSITA would have been motivated to modify *Zhang-Pasanen* per *Fillebrown's* teachings, as discussed above. *Dec.*, ¶142; *see* Claim 1(c), 15(b). Further, a POSITA would have been motivated to modify *Zhang-Pasanen's* controller to instruct communicating wirelessly to an intermediate routing device (e.g., router) connected to the LAN to indirectly route messages or media content to one or more available devices per *Fillebrown's* teachings, as discussed below. *Dec.*, ¶142.

2. *Fillebrown's Teachings – Wireless Router for Indirectly Routing Media*

In *Fillebrown*, “[g]enerally, in the personal wireless network 100, a plurality of wireless clients, such as wireless tablets and wireless smart appliances communicate via a wireless routing means, such as a wireless router 120, with a

wireless server 140, sometimes through a wireless transceiving means 130.” *Fillebrown*, [0049]. *Fillebrown*’s wireless tablets use processor 208 “to interconnect and drive other components of the wireless tablet 200.” *Fillebrown*, [0054], [0067]; *Dec.*, ¶¶143-44 (explaining *Fillebrown* teaches that Fig. 2 is an example block diagram of a wireless tablet such as 110/112/114). Processor 208 is implemented to accept data inputs, compress data packets, route the data packets to transceiver 240 (of a wireless tablet, such as wireless tablet 110/112/200), receive video and data packets from transceiver 240, and decompress received data packets. *See Fillebrown*, [0067]. *See* Claim 1(c).

Accordingly, a POSITA would have understood that processor 208 of the wireless client is a controller adapted to instruct transceiver 240 to wirelessly communicate with wireless router 120 (intermediate routing device). *Fillebrown*, Fig. 2; *Dec.*, ¶¶143-44.

3. Motivation to Combine Zhang-Pasanen and Fillebrown

To the extent it is argued *Zhang-Pasanen* does not teach a controller adapted to instruct communicating wirelessly information to an intermediate routing device, a POSITA would have been motivated to modify the controller of *Zhang-Pasanen* to capture *Fillebrown*’s advantages. *Dec.*, ¶¶145-46 Combining prior art elements (mobile device, helper server, controller, wireless router) according to *Fillebrown*’s known methods would have yielded the predictable result of a wireless network with

a mobile device possessing a controller to instruct the communication of data (e.g., audio and/or video) to helper servers via a wireless router. *Dec.*, ¶¶145-46. Such a modification to *Zhang-Pasanen* would have been use of known prior art elements including a controller instructing the transmitting of media content between devices via a wireless network while utilizing a well-known wireless router to indirectly route the traffic between the devices. *Dec.*, ¶¶145-46. A POSITA would have further understood that modifying *Zhang-Pasanen* would have captured *Fillebrown's* advantages. *Dec.*, ¶¶145-46.

A POSITA also would have had a reasonable expectation of success when making such a modification. *Zhang-Pasanen* already teaches a wireless network, such as WLAN (using IEEE 802.11 or Home RF), and *Fillebrown* teaches precisely the same network setup (WLAN using a wireless protocol such as IEEE 802.11 or Home RF). *Zhang*, 4:46-58; *Fillebrown*, [0016], [0049], [0064], [0087], [0095]; *Dec.*, ¶¶145-46. Thus, modifying *Zhang-Pasanen* in view of *Fillebrown* to utilize a controller (processor 208) adapted to communicate with a wireless router would have been a straightforward modification not requiring undue experimentation, especially because using a wireless router in a WLAN was a well-known technique. *Dec.*, ¶¶145-46.

N. Claim 15(d) - wherein the controller is adapted to wirelessly signaling the one or more available devices indicating an availability of the media content at the mobile device;

As discussed above, *Zhang-Pasanen* teaches wirelessly signaling the one or more available devices indicating an availability of the media content at the mobile device. *See* Claim 1(d). A POSITA would have understood that the mobile device of *Zhang-Pasanen* would have included a controller (and transceiver) to perform the wireless signaling of the one or more available devices indicating an availability of the media content at the mobile device. *Dec.* ¶¶147-48; *see* Claim 1(d).

To the extent it is argued that *Zhang-Pasanen* does not teach a controller adapted to wirelessly signal the one or more available devices indicating an availability of the media content at the mobile device, a POSITA would have been motivated to modify *Zhang-Pasanen* in view of *Fillebrown's* teachings of a controller and would have had a reasonable expectation of success when doing so for the same reasons discussed above. *See* Claims 1(d), 15(b), 15(c); *Dec.*, ¶¶147-48.

O. Claim 15(e) - wherein the media content is originated from an external source disconnected from the LAN.

Zhang-Pasanen teaches media content originates from an external source disconnected from the LAN. *See* Claims 1(e), 15(a); *Dec.*, ¶¶149.

- P. Claim 18 - The mobile apparatus of claim 15, wherein the media content is audio content selected from a group consisting of: a phone call data, bidirectional voice data, bidirectional audio data and a radio broadcast.**

Zhang-Fillebrown-Pasanen teaches phone call data, bidirectional voice data, and bidirectional audio data. *See* Claims 1, 15. In particular, *Zhang-Fillebrown-Pasanen* teaches the wireless audio interface 12 includes a microphone and speaker for a user to use when making a phone call with the cellular phone (mobile device) instead of using the microphone and speaker of the mobile device. *Pasanen*, 4:20-37; *see* Claims 1, 15.

VI. GROUND 2: CLAIMS 7, 11, 16, AND 19 ARE OBVIOUS OVER ZHANG, FILLEBROWN, PASANEN, AND SKINNER

- A. Claim 7 - The method of claim 1, wherein the one or more available devices is triggered by the signaling to perform one or more of the following: flash light, ring, and play a loudspeaker sound.**

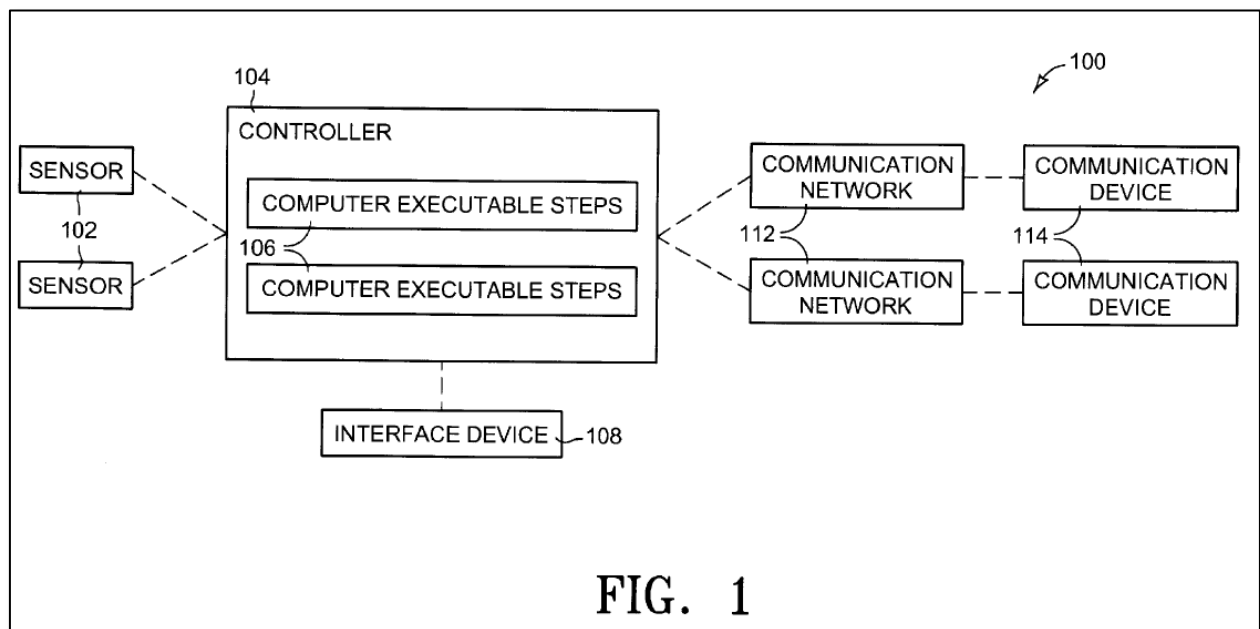
See Claim 1 regarding the claimed available device(s).

1. Skinner's Teachings – Informing User of Incoming Phone Call

Skinner teaches sensors 102 that detect an event (e.g., incoming phone call), and controller 104 that “can be a micro-processor or the like.” *Skinner*, 3:29-56, 4:10-53. *Skinner* teaches sensors 102 and controller 104 may be together as a single device. *Id.* Controller 104 signals a communication device 114 (e.g., watch device, cellular phone, pager) via communication network 112 (e.g., pager network, telephone network, cellular telephone network, local area network (LAN), or other

wireless network) regarding an event (e.g., incoming phone call) occurring. *Skinner*, 3:63-4:1, 4:10-20, 5:63-6:10, Fig. 1.

As a result of the signaling from controller 104, communication device 114 informs a user of an event (e.g., incoming phone call) detected by sensors 102 by presenting a “message,” which *Skinner* teaches may be any combination of one or more of audible (e.g., unique sound, beeps), visual (light that flashes in a given sequence), mechanical or electrical sensory-based, and may include text indicating the event that occurred. *Skinner*, 6:25-65, 3:29-42, 7:15-8:67. Fig. 1 below depicts sensors 102, controller 104 (including computer executable steps 106), communication network 112, and communication device 114:



Skinner, Fig. 1.

2. Motivation to Combine Zhang-Fillebrown-Pasanen and Skinner

A POSITA would have been motivated to modify *Zhang-Fillebrown-Pasanen* per *Skinner*'s teachings to perform audible and/or visible indications (e.g., flashing light, ring, playing sound via a loudspeaker, and/or text-based message) to inform a user of availability of media content at a mobile device (e.g., incoming phone call). *Dec.*, ¶¶154-55. Such a modification would have been use of a known technique of using auditory and/or visual alerts to inform a user of an event occurring and would have improved *Zhang-Fillebrown-Pasanen* in the same way as *Skinner*. *Dec.*, ¶¶154-55. Indeed, in the *Zhang-Fillebrown-Pasanen* system, it would have been advantageous to provide alerts to a user, as taught by *Skinner*, at a helper server and/or a mobile device to indicate media content (e.g., phone call) is available at a mobile device. *Dec.*, ¶¶154-55. *Skinner* teaches advantages of such alerts to inform a user of an event occurring and provides various user-customizable settings so a user decides how to receive such alerts (e.g., auditory and/or visual alerts). *Dec.*, ¶¶154-55.

Such a modification would have had a reasonable expectation of success because *Zhang-Fillebrown-Pasanen* teaches various devices, including a mobile device and helper servers (e.g., display, speakers, PC, laptop, wireless audio interface), and *Skinner* teaches similar devices performing auditory and/or visual alerts for communication devices 114, such as cellular phones, pagers, PDAs, mobile

computers, desktop computers, watch devices, and other “internet-enabled” devices including internet-enabled watch device and internet-enabled television. *Skinner*, 6:7-24; *Dec.*, ¶¶154-55. Such a modification would have required merely straightforward changes to programming instructions and/or hardware, such as implementing *Skinner*’s programming instructions. *Dec.*, ¶¶154-55. Indeed, devices such as TVs and speakers already would have included auditory functionality to play alert sounds, and devices with a display (e.g., TV, laptop, watch) would already have had a display to render text or other visual messages/alerts. *Dec.*, ¶¶154-55. Therefore, a POSITA would have been motivated to modify *Zhang-Fillebrown-Pasanen* in view of *Skinner* and would have had a reasonable expectation of success in doing so. *Dec.*, ¶¶154-55.

B. Claim 11 - The method of claim 1, wherein the one or more available devices are triggered by the signaling to inform a user about an availability of media content at the mobile device.

Zhang-Fillebrown-Pasanen-Skinner teaches one or more available devices (e.g., helper servers) are triggered by signaling to inform a user of availability of media content at the mobile device. For example, *Zhang*’s modified helper servers alert a user that an event such as an incoming phone call is received, and the alerts include audible, visual (e.g., light that flashes in a given sequence), mechanical, or electrical sensory-based. *Skinner*, 7:30-67. *See* Claims 1, 7; *Dec.*, ¶156. A POSITA

would have understood that such alerts inform a user of media content (e.g., incoming phone call) available at the modified *Zhang*'s mobile device. *Dec.*, ¶156.

- C. Claim 16 - The mobile apparatus of claim 15, wherein the one or more available devices is triggered by the mobile device to perform one or more of the following: flash light, ring, and play a loudspeaker sound.**

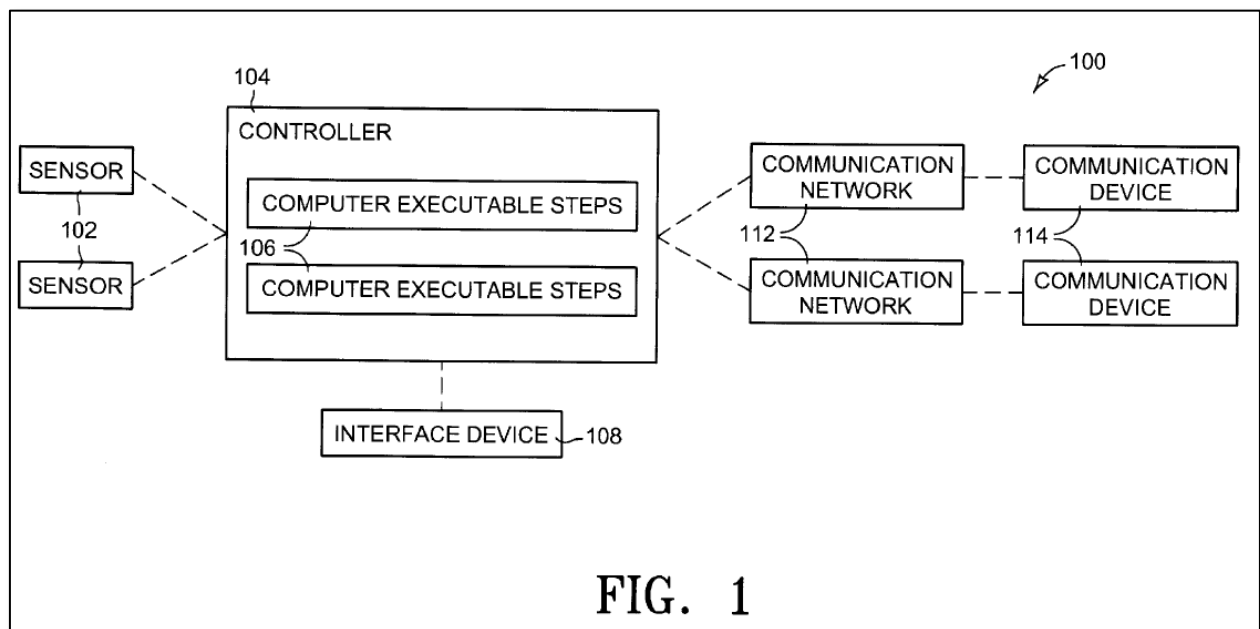
See Claims 1, 7, 11, 15.

- D. Claim 19(Pre) - A computer program product for a device for informing a user about an availability of media content at a mobile device, the computer program product comprising:**

The '648 Patent describes realizing the apparatus "as software[,]" but does not elaborate further. '648 *Patent*, 8:27-31. As set forth below, a POSITA would have understood the functions performed by the proposed combination are also governed by software or at least that it would have been obvious to implement these functions in software ("computer program product"). *Dec.*, ¶¶158-59.

Zhang does not expressly teach program instructions for performing its functions, but a POSITA would have understood that *Zhang*'s mobile device (e.g., cell phone) would have included programming instructions and a processor for performing its functions. *Dec.*, ¶¶158-59. Alternatively, as discussed below, to the extent the preamble is limiting, a POSITA would have been motivated to modify the *Zhang* combination to utilize programming instructions to perform the functions mapped for Claim 1 above and Claim 19 herein in view of *Skinner*. *Dec.*, ¶¶158-62.

See Claim 1(Pre) (informing a device about an availability of media content at a mobile device). Additionally, *Skinner* teaches informing a user about an availability of media content at a mobile device using alerts (e.g., visual, auditory), as discussed above for Claims 7 and 11, and teaches computer executable steps (106, 206) for performing such alerts to inform a user. *Skinner*, 7:15-8:67, 3:29-42, Fig. 1. See Claims 7, 11; *Dec.*, ¶¶160-62. *Skinner* also teaches controller 104 (alone or combined with sensor 102) can incorporate a micro-processor and memory. *Skinner*, 3:29-52, 5:55-56 (expressly teaching controller 104 includes memory); *Dec.*, ¶¶160-62.



Skinner, Fig. 1.

Thus, to the extent computer-readable programming instructions and hardware (e.g., processor, memory) are not taught in *Zhang-Pasanen*, a POSITA

would have been motivated to modify *Zhang-Pasanen* to include programming instructions for performing alerting functions including alerting a user and appropriate hardware for accomplishing this functionality (e.g., processor, memory), such as taught by *Skinner*. *Dec.*, ¶¶159-62. Using computer-readable programming instructions executed by a processor was use of a known technique to solve a known problem in the prior art, and such was well within the skill set of a POSITA. *Dec.*, ¶¶159-62. Such a use of a known technique would have improved *Zhang-Pasanen*'s mobile device in the same way as *Skinner*'s by utilizing computer-readable programming instructions stored in memory and executed by hardware (e.g., processor) to perform the modified *Zhang*'s mobile device functions mapped for Claims 1, 19 (including alerting a user of availability of media content at a mobile device). *Dec.*, ¶¶159-62. Indeed, such a modification would have been combining prior art elements (mobile device, processor, memory) according to known methods to yield predictable results. *Dec.*, ¶¶159-62.

The proposed modification would have had a reasonable expectation of success because using a processor to execute programming instructions stored in memory was well known and well understood in the prior art, with *Skinner* providing express teachings. *Dec.*, ¶¶159, 162 (also opining on *Fillebrown*). Additionally, *Zhang*, *Pasanen*, and *Skinner* teach similar portable devices, such that modifying

Zhang-Pasanen per *Skinner*'s teachings would have been straightforward and not required undue experimentation. *Dec.*, ¶¶159, 162.

E. Claim 19(a) – a non-transitory computer readable storage medium having stored thereon:

Zhang-Pasanen-Skinner teaches a non-transitory computer readable storage medium having program instructions stored thereon (e.g., *Skinner*'s controller memory of controller 104). *See* Claim 19(Pre); *Skinner*, 5:55-56, Fig. 1; *Dec.*, ¶163. A POSITA would have been motivated to modify *Zhang-Pasanen* per *Skinner*'s teachings for the reasons discussed above. *See* Claim 19(Pre); *Dec.*, ¶163. Alternatively, to the extent it is argued *Skinner*'s teachings are insufficient, a POSITA would have been motivated to modify *Zhang-Pasanen-Skinner* per *Fillebrown*'s teachings of non-transitory computer readable memory for the reasons discussed below and which are incorporated herein. *See* Claim 19(b).

F. Claim 19(b) - first program instructions executable by a processor to wirelessly communicating information to an intermediate routing device connected to a local area network (LAN) for indirectly receive messages or media content routed from one or more available devices connected to the LAN via the intermediate routing device; and

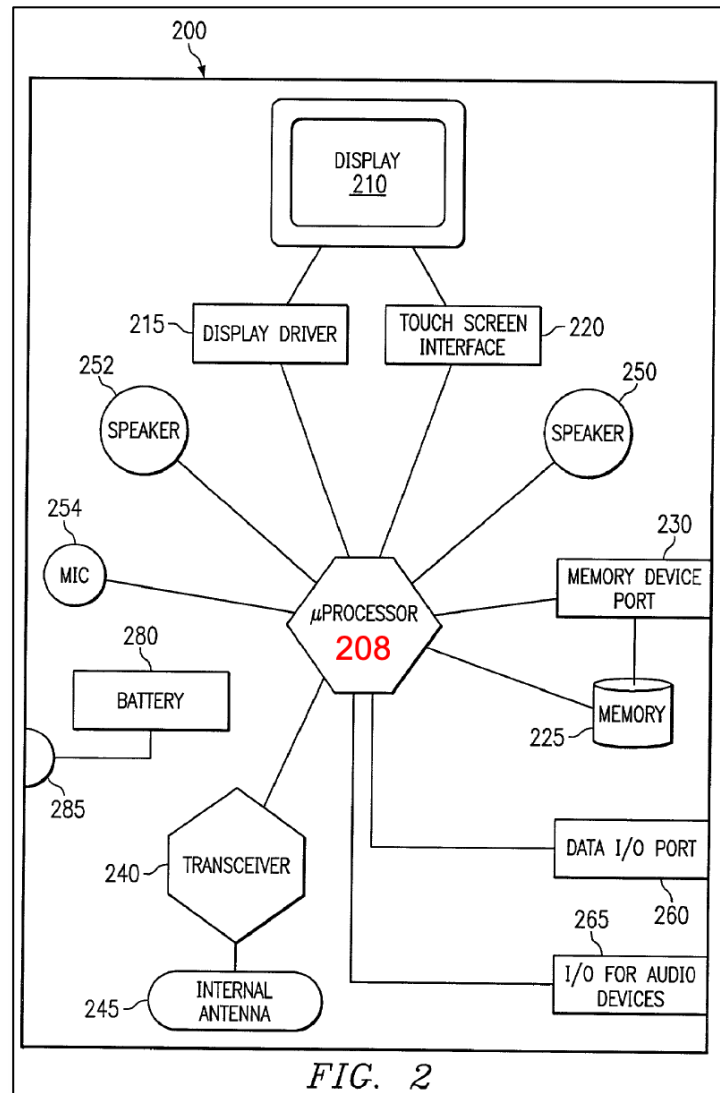
See Claims 1(c), 15(a), 19(Pre). Although *Zhang-Pasanen-Skinner* is silent on an intermediate routing device and its program instructions, *Fillebrown* expressly teaches such an intermediate routing device and program instructions executable by

a processor for performing the claimed wireless communication functionality. *See* Claim 1(c).

In detail, a POSITA would have been motivated to modify *Zhang-Pasanen-Skinner* per *Fillebrown's* teachings of computer hardware and machine-readable instructions. *Dec.*, ¶¶164-67. Indeed, *Fillebrown* teaches a computer system typically includes hardware and software. *Fillebrown*, [0040]. Additionally, *Fillebrown* expressly teaches executing machine-readable program instructions including software, software and hardware hybrid systems, and hardware on a mobile device such as a wireless tablet or other wireless client device. *Fillebrown*, *generally* [0040]-[0048], [0057]. Specifically, *Fillebrown* notes, “the methods of the invention may be practiced by placing the invention on a computer-readable medium...includ[ing] passive data storage, such as a random access memory (RAM) as well as semipermanent data storage such as a compact disk read only memory (CD-ROM).” *Fillebrown*, [0047].

Fillebrown also teaches a block diagram of wireless tablet 200 (which is one implementation of wireless tablet 110/112/114) that includes microprocessor 208 and memory 225 for storing “[s]oftware programs, external operating systems, data, audio recordings, movies, or other prerecorded information[.]” *Fillebrown*, [0071], [0070] (“The processor 208 is augmented through a memory device 225. The memory 225 preferably provides both RAM and ROM so that the processor 208 may

have access to a predefined set of start-up instructions, as well as access to storage for programs that load onto the wireless tablet 200.”), [0070] (“[M]emory 225 may also store other software programs that are used by the wireless table[t][.]”). Fig. 2 below depicts wireless tablet 200, including processor 208 and memory 225:



Fillebrown, Fig. 2 (annotated).⁴ *Dec.*, ¶¶164-67. A POSITA would have understood that *Fillebrown*'s memory includes ROM, which is non-transitory memory. *Dec.*, ¶¶164-67.

A POSITA would have understood that “program instructions” would have been program instructions either alone or as part of a larger set of instructions for performing particular functions when executed by a processor. *Dec.*, ¶¶164-67. Thus, a POSITA would have understood that the claimed “first program instructions” through “third program instructions” (Claim 19(b)-19(d)) would have been met by program instructions in a single program or multiple programs stored in one or more non-transitory computer-readable storage mediums. *Dec.*, ¶¶164-67. Because *Fillebrown* teaches computer-readable instructions stored in non-transitory memory and executable by a processor for performing the claimed functions of *Zhang-Pasanen-Skinner-Fillebrown*, a POSITA would have understood that the mapping for method claim 1(c) would have included “program instructions

⁴ A POSITA would have understood *Fillebrown*'s Fig. 2 has a typographical error, where “processor 205” should be “processor 208.” See *Fillebrown*, generally [0067]-[0070] (205 refers to the housing of wireless tablet 200); *Dec.*, n.4 and ¶¶143, 166. Fig. 2 has been annotated accordingly.

executable by a processor to” perform the claimed functionality of Claims 1(c) and 19. *Dec.*, ¶¶164-67.

G. Claim 19(c) - second program instructions executable by the processor to wirelessly receive signal from the mobile device indicating an availability of a media content at the mobile device;

See Claims 1(d), 15, 19(Pre)-19(b) (program instructions executable by a processor to wirelessly receive signal from the mobile device indicating an availability of media content at the mobile device).

H. Claim 19(d) - third program instructions executable by the processor to inform the user of said device about an availability of a media content at the mobile device with one or more of the following: flash light, ring, and play a loudspeaker sound;

See Claims 1(d), 7, 11, 15, 16, 19(Pre) (program instructions executable by a processor to inform the user of the mobile device about availability of media content at the mobile device with a flash light, ring, and/or playing a loudspeaker sound).

I. Claim 19(e) - wherein the media content is originated from an external source disconnected from the LAN;

See Claims 1(e), 15, 19(Pre)-19(b). The modified *Zhang* teaches media content originated from an external source disconnected from the LAN (e.g., phone call).

J. Claim 19(f) - wherein the media content selected from a group consisting of: audio content, text content and video content.

See Claims 1(f), 15, 19(Pre)-19(b). As set forth above, the proposed combination of *Zhang* and *Pasanen* is directed to the disclosure of media content consisting of audio content. *See* Claims 1(f), 15(a).

VII. GROUND 3: CLAIMS 8, 10 ARE OBVIOUS OVER *ZHANG, FILLEBROWN, PASANEN, AND ROFHEART*

A. Claim 8 – The method of claim 1, further comprising setting up a wireless communication link between the at least one of the one or more available devices based on a user interaction made with the mobile device or the one or more available devices and causing a routing of the media content to the at least one device via the wireless communication link.

Although *Zhang* does not describe the mobile device interface used to control the helper environment (e.g., by a user to select a helper server), such user interfaces were well known in the art, including as described by *Rofheart*. As set forth below, a POSITA would have been motivated to implement *Rofheart*'s device selection user interface in *Zhang*'s mobile device, allowing the user to implement functionalities described by *Zhang* and *Pasanen* (e.g., invoking an audio interface for a phone call).

1. *Setting Up a Wireless Communication Link*

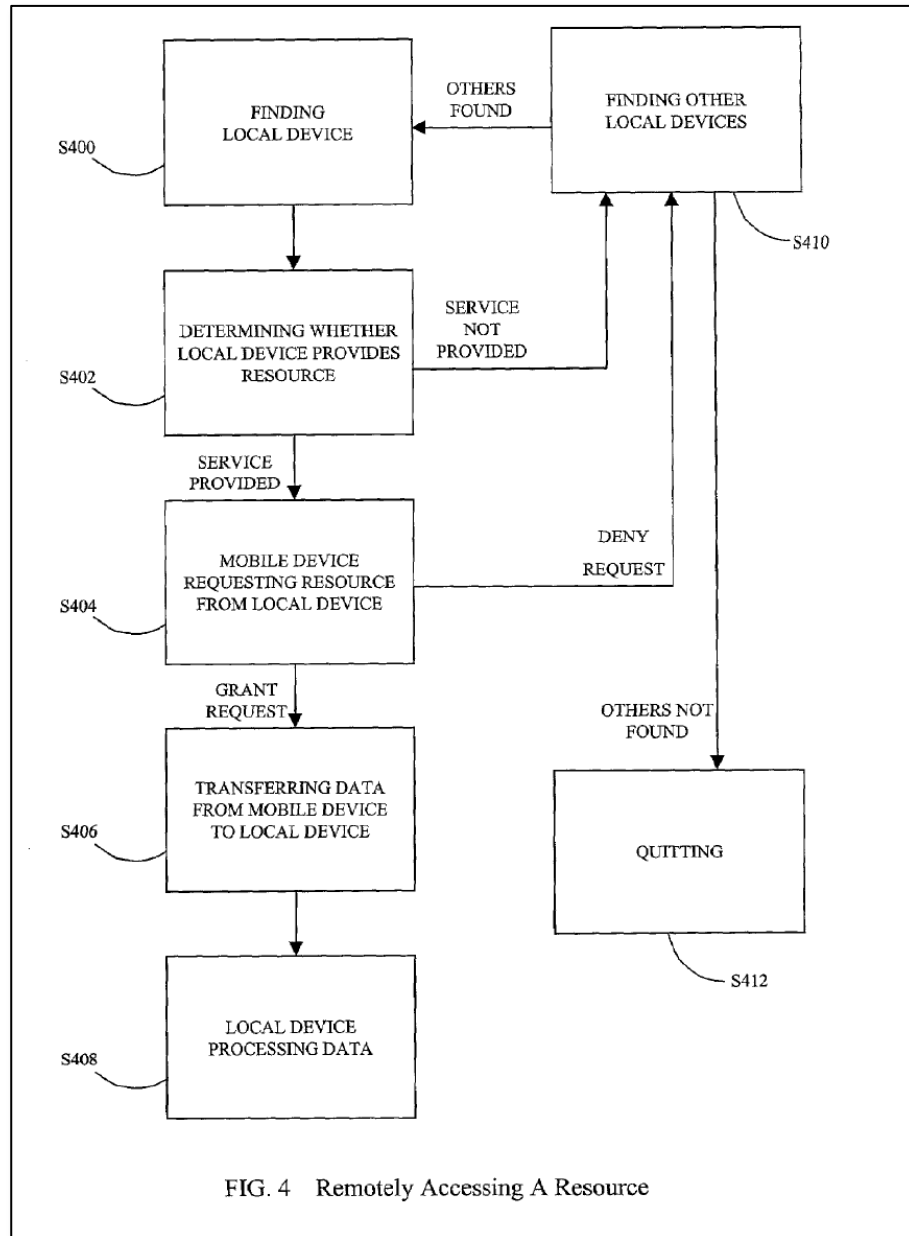
Zhang teaches that a mobile device transmits a service request to at least one helper server, and said helper server responds by accepting the service request if said helper server is capable of performing the requested helper service. *See* Claim 1.

Zhang teaches setting up a session (“wireless communication link”) between a “helper client” (mobile device) and helper server using TCP (or UDP). *Zhang*, 9:51-10:7; *Dec.*, ¶174. *Zhang* teaches that a session is created between a mobile device and helper server “from the time the client request is accepted by the server and ends when the user finishes using the helper service.” *Zhang*, 9:54-60. In particular, *Zhang* teaches that a user may terminate the session with a helper server based on a “client request.” *Zhang*, 9:55-60. Further, *Zhang* teaches that “[d]uring the session, both data and control information are exchanged” via “the TCP connection between the client and the server.” *Id.* A POSITA would have understood that such a connection via TCP/IP or UDP/IP (i.e., streaming protocol) would have utilized *Zhang*’s WLAN (i.e., local wireless communication network) for setting up the session (i.e., wireless communication link) between the mobile device and selected helper server (i.e., selected compatible device). *Dec.*, ¶174.

Zhang teaches embodiments where such sessions are between a single mobile device and helper server at a time or a single mobile device and multiple helper servers at a time. For example, in the embodiments where the mobile device moves across different locations (“nomadic” and “seamless” mobility), *Zhang* teaches sessions that are independent between different helper servers at different locations (i.e., nomadic embodiment). *Zhang* specifically teaches in the nomadic embodiment, there is no continuity between the first service session (e.g., between mobile device

and a first helper server) and the second service session (e.g., between mobile device and a second helper server). That is, a “user moves and decides to change server,” such that the current session with a helper server is terminated before a new session is started with another helper server at the new location. *Zhang*, 10:48-57. However, in the “seamless” embodiment, “state information is retained when the user moves causing a change in servers[,]” such that “video streams may move from one helper to another with display continuity.” *Zhang*, 10:58-65. Thus, multiple sessions may be active between a single mobile device and a plurality of helper servers. *Dec.*, ¶¶116, 174-75. In either case, the connection between the mobile device and helper server is via a session (i.e., wireless communication link). *Dec.*, ¶¶114-18, 174-76.

A POSITA would have understood that such a session between a mobile device and a helper server is a wireless communication link via said local wireless communication network (e.g., WLAN, *see* Claim 1(Pre)-1(a)). *Dec.*, ¶176. Specifically, accepting a service request prepares a helper server for receiving content and commands from a mobile device by initiating a session between said handheld device and said helper server. *Dec.*, ¶176. For example, *Zhang* teaches a “local device” (e.g., helper server) granting a service request results in “transferring data from mobile device to local device” at step S406. *Zhang*, 4:5-8, 4:32-34 (teaching the same but for the embodiment of Fig. 5).



Zhang, Fig. 4, see also Fig. 5.

2. User Interaction – Rofheart’s Teachings

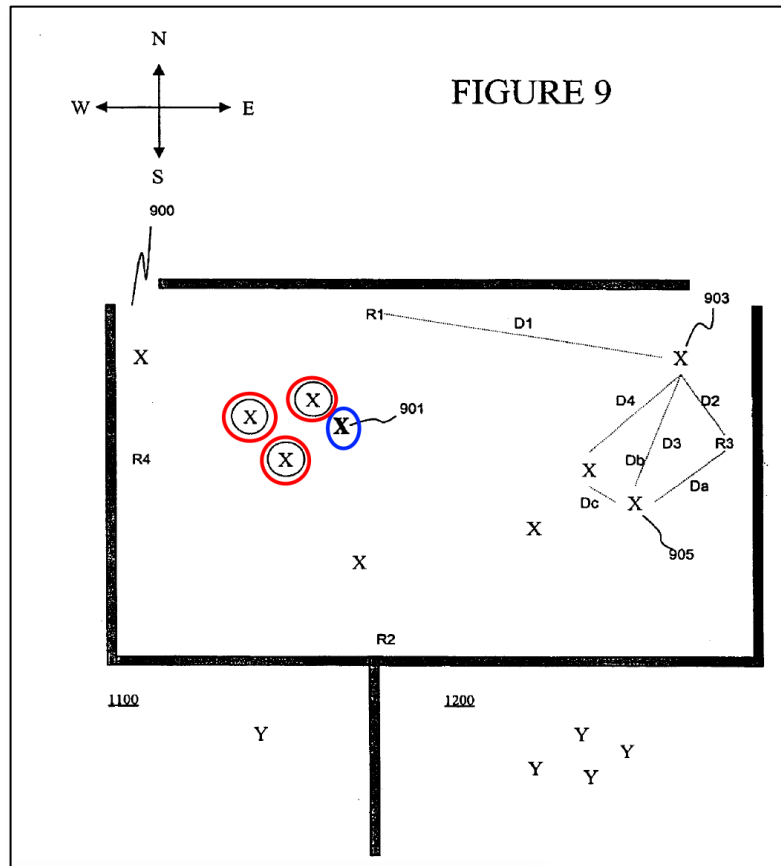
Zhang-Fillebrown-Pasanen in view of Rofheart teaches a user selecting one or more helper servers to connect to for data transfer (e.g., routing audio) by selecting said helper servers on a display screen of a mobile device. Dec., ¶177. Further, in

the case where the media content is a phone call, *Zhang-Fillebrown-Pasanen* would have been modified per *Rofheart*'s teachings to select a device to route the phone call to (e.g., wireless audio interface). *Dec.*, ¶¶177-80, 182-84.

Rofheart teaches that a user may select one or more of a plurality of devices. *Rofheart*, 18:54-58 (“[A] local device may display a positional map of all users in relation to the local device so that the user of the local device may select those remote devices that the user wants to communicate with[.]”), 5:37-45, 28:22-38 (teaching local device 901 “displays a graphical map of the position of each remote device in conference room 900 from which the user of the local device may choose remote devices to enable communications with.”). The local device’s “display 213 has touch screen capabilities that allow the user to select a remote device by contacting the display with a pointing device, for example.” *Rofheart*, 30:10-18. “If the user of the local device 901 selects a device on the display of the local device, then the local device 901 enables communications with that device as shown in step 1013.” *Rofheart*, 30:18-24, 27:46-28:38.

After a user selects one or more devices, local device’s display 213 is updated, “indicat[ing] which remote devices are enabled as positional information is updated.” *Rofheart*, 30:33-49 (noting enabled devices may be circled on the display). Fig. 9 below shows local device (annotated blue), remote devices with which

connections are established (annotated red), and other remote devices without established connections (indicated with “X,” but not highlighted):



Rofheart, Fig. 9 (annotated).

Rofheart teaches the communications between the local device and remote devices include “transmitting and receiving communications such as text, video and voice on the unique links associated with the enabled remote devices as seen in step 1019.” *Rofheart*, 30:25-49. If a user wishes to change which devices with which to connect, the change can occur at any time by selecting or deselecting said remote device(s) on display 213. *Rofheart*, 30:49-52.

3. *Routing of the Media Content*

As set forth above with reference to Claims 1 and 5-6, when the media content is a phone call, *Zhang-Fillebrown* would have been modified according to *Pasanen*'s teachings (to the extent it is argued *Zhang* does not teach or render obvious receiving/making a phone call). Thus, *Zhang-Fillebrown-Pasanen* teaches receiving a phone call at a mobile device and routing the phone call audio to a helper server (e.g., wireless audio interface). See Claim 1; *Dec.*, ¶181.

4. *Motivation to Combine Zhang-Fillebrown-Pasanen-Rofheart*

A POSITA would have found it obvious to modify *Zhang-Fillebrown-Pasanen* such that a user would have selected, using the mobile phone user interface, one or more of said plurality of devices to connect to route media (e.g., phone call). *Dec.*, ¶¶182-84; *Rofheart*, 5:37-45. *Zhang* teaches that a mobile device locates a helper server to connect to for using the helper server's service capabilities (e.g., audio reproduction). See Claim 1. *Zhang-Fillebrown-Pasanen* teaches a mobile device that receives a phone call from a source external to the WLAN. See Claims 1, 5, 6; *Dec.*, ¶¶182-84. Modifying *Zhang-Fillebrown-Pasanen* in view of *Rofheart*'s teachings of user selection would have been the use of a known technique of selecting one or more of a plurality of helper servers or other remote devices to which to route media content (e.g., phone call) to improve *Zhang-Fillebrown-Pasanen* in the same way as *Rofheart*. *Dec.*, ¶¶182-84. Thus, a POSITA would have understood

that such a modification would have advantageously permitted a user control of which device will handle the call. *Dec.*, ¶¶182-84.

Further, said modification would have had a reasonable expectation of success because *Zhang-Fillebrown-Pasanen* already teaches receiving and rerouting streamed media content (e.g., video/audio/phone call) and *Zhang-Fillebrown-Pasanen* as modified by *Rofheart* teaches selecting one or more helper servers for said media routing. *See* Claim 1; *Dec.*, ¶¶182-84.

- B. Claim 10 - The method of claim 1, wherein the identifying comprises triggering a display of a menu by the one or more available devices or the mobile device to allow a user to perform a user interaction.**

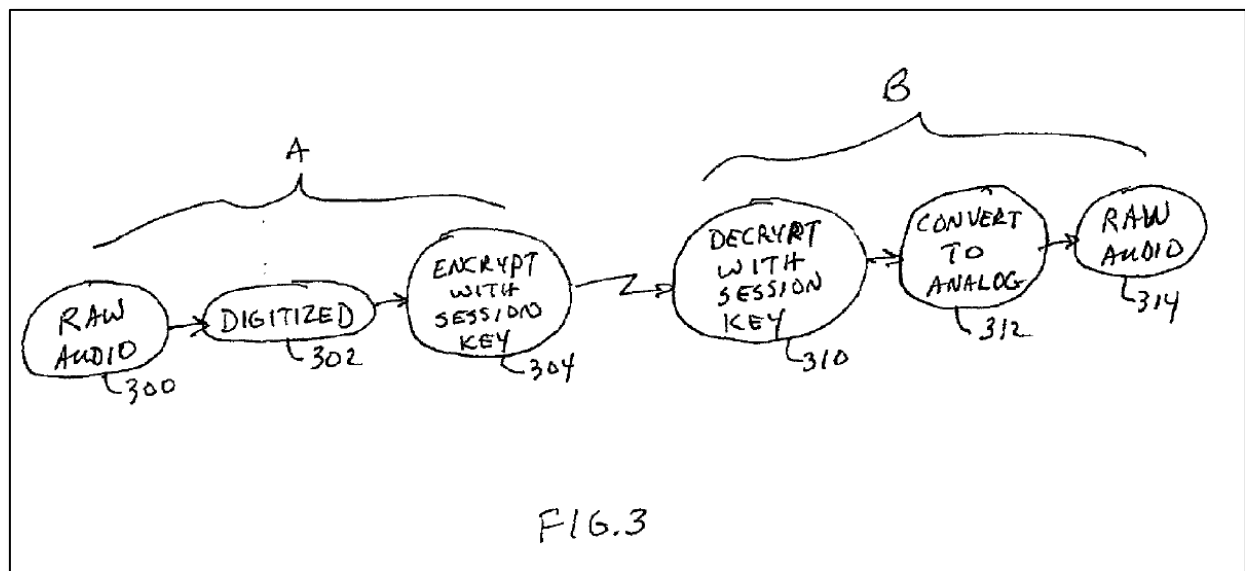
Zhang-Fillebrown-Pasanen-Rofheart performs user interactions on a display of a mobile device to select one or more devices from a group of available devices to connect to for media routing. *See* Claim 8. *Dec.*, ¶¶ 183, 185.

VIII. GROUND 4: CLAIM 13 IS OBVIOUS OVER ZHANG, FILLEBROWN, PASANEN, AND ANGELO

- A. Claim 13 - The method of claim 1, further comprising encrypting and routing the media content to the one or more available devices.**

See Claim 1. *Angelo* teaches secured transmission of audio (e.g., voice), video, or a combination of audio and video communicated between portable devices by utilizing encryption. *Angelo*, Abstract, [0004], [0009]-[0010], [0016]-[0021], [0029], [0031]. In particular, *Angelo* teaches encrypting real-time, two-way communications between portable devices such as PDAs. *Angelo*, [0009]-[0010],

[0015] (including teaching direct and indirect connections between devices and that real-time indicates not introducing delays that interfere with the usefulness of the audio stream, for example), [0016]-[0021]. *Angelo* teaches using “[a]ny suitable type of real-time encryption technique” such as using a “session key.” *Angelo*, [0022]-[0026]. *Angelo* teaches enhancing security by dynamically changing the session key during communications. *Angelo*, [0027]. Fig. 3 below depicts a real-time encryption process between two devices. *Angelo*, [0014], [0025].



Angelo, Fig. 3.

A POSITA would have been motivated to modify *Zhang-Fillebrown-Pasanen* per *Angelo*'s teachings to capture *Angelo*'s advantages including the expressly taught advantage of providing a secure environment for communications between portable devices so that “information cannot be intercepted and accessed by an unauthorized entity, or at least not easily accessed by an unauthorized entity.”

Angelo, [0007]-[0010]; *Dec.*, ¶¶186-88. Such a use of a known technique of encrypting communications between portable devices would have advantageously improved *Zhang-Fillebrown-Pasanen*'s similar system in the same way as *Angelo*'s. *Dec.*, ¶¶186-88.

A POSITA would have had a reasonable expectation of success when making such a modification to implement encryption because *Angelo* teaches such a technique for portable devices, and *Zhang-Fillebrown-Pasanen* utilizes portable devices. Further modifying *Zhang-Fillebrown-Pasanen* per *Angelo* would have predictably enhanced such security to cover audio, voice, video, phone calls, or a combination of audio/video with encryption. *Dec.*, ¶¶186-88. The proposed modification would have required only minor modifications, including changes to software or other programming instructions to utilize *Angelo*'s security software 108 executed by a processor to provide encryption functionality. *Dec.*, ¶¶186-88 (including opining on *Angelo*, [0019], [0025]). Thus, such a modification would have been well within the skillset of a POSITA and would not have required undue experimentation to implement.

IX. THE BOARD'S DISCRETION UNDER 35 U.S.C. § 314(a)

The parallel litigation remains in a nascent stage, with an initial scheduling order having been submitted just weeks ago. Ex. 1030. Invalidity contentions have yet to be served, no claim constructions positions have been exchanged, and a

pending motion to transfer may moot the recently submitted schedule entirely.

Accordingly, at least the following *Fintiv* factors favor institution: The IPR filing following closely behind the schedule submission mean it's more likely a stay would be granted (Factor 1), likely schedule modifications moving forward make it less likely that the final written decision in the IPR will precede the trial date (Factor 2), and the investment in the co-pending proceedings is low (Factor 3). The Petition also shows a strong unpatentability case (Factor 6). Finally, if review is instituted, Petitioner stipulates not to assert in the litigation (1) the Proposed Grounds of invalidity presented here nor (2) any grounds utilizing *Zhang* and *Pasanen* for the Challenged Claims, ensuring no overlap in invalidity issues between this IPR and the co-pending litigation (Factor 4). In *Microsoft Corp., v. WSOU Investments, LLC*, a similar stipulation sufficiently mitigated concerns of duplicative efforts and conflicting decisions. IPR2021-00930, Paper 8 at 11 (PTAB Dec. 2, 2021); *see also Google LLC v. Jawbone Innovations, LLC*, IPR2022-01124, Paper 11 at 15-16 (PTAB Jan. 3, 2023). Taken together, these *Fintiv* factors favor the Board declining discretionary denial.

X. CONCLUSION

For the forgoing reasons, Petitioner respectfully requests *inter partes* review of the Challenged Claims of the '648 Patent.

Respectfully submitted,

BY: /s/ Paul R. Hart

Paul R. Hart, Reg. No. 59,646

Adam P. Seitz, Reg. No. 52,206

COUNSEL FOR PETITIONER

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

A. Real Party-In-Interest

Apple Inc. is the real party-in-interest. 37 C.F.R. § 42.8(b)(1).

B. Related Matters

The following matters relate to the '648 Patent:

- *S.M.R Innovations Ltd. v. Apple Inc.*, 6:23-cv-00479, D.I. 1 (W.D.Tex. Jul. 1, 2023); and
- *Apple Inc. v. S.M.R Innovations Ltd.*, Inter Partes Review No. IPR2024-01047
- *Apple Inc. v. S.M.R Innovations Ltd.*, Inter Partes Review No. IPR2024-01049
- *Apple Inc. v. S.M.R Innovations Ltd.*, Inter Partes Review No. IPR2024-01050

C. Lead and Back-Up Counsel

Petitioner provides the following designation and service information for lead and back-up counsel. 37 C.F.R. § 42.8(b)(3) and (b)(4).

Lead Counsel	Back-Up Counsel
Paul R. Hart (Reg. No. 59,646) paul.hart@eriseip.com PTAB@eriseip.com <u>Postal and Hand-Delivery Address:</u> ERISE IP, P.A. 717 17 th Street, Suite 1400 Denver, Colorado 80202 Telephone: (913) 777-5600 Fax: (913) 777-5601	Adam P. Seitz (Reg. No. 52,206) adam.seitz@eriseip.com Kevin Rongish (Reg. No. 78,716) kevin.rongish@eriseip.com <u>Postal and Hand-Delivery Address:</u> ERISE IP, P.A. 7015 College Blvd., Suite 700 Overland Park, Kansas 66211 Telephone: (913) 777-5600 Fax: (913) 777-5601

CLAIM LISTING APPENDIX

U.S. Patent No. 10,547,648 for Claims 1, 5-8, 10-11, 13, 15-16, 18-19

Claim Designation	Claim Language
Claim 1(Pre)	A method of informing a device about an availability of media content at a mobile device connected to a local area network (LAN), comprising:
Claim 1(a)	using the mobile device for:
Claim 1(b)	identifying one or more available devices compatible to handle the media content and connected to the LAN;
Claim 1(c)	wirelessly communicating information to an intermediate routing device connected to the LAN for indirectly routing messages or media content to at least one of the one or more available devices via said intermediate routing device; and
Claim 1(d)	wirelessly signaling the one or more available devices indicating an availability of a media content at the mobile device;
Claim 1(e)	wherein the media content is originated from an external source disconnected from the LAN;
Claim 1(f)	wherein the media content selected from a group consisting of: audio content and video content.
Claim 5	The method of claim 1, wherein the media content is a phone call; further comprising routing the phone call to the one or more available devices in response to a receipt of a response to the signaling received from the one or more device.
Claim 6	The method of claim 1, wherein the media content is a phone call; further comprising routing the phone call to the one or more available devices while the phone call is ongoing using the mobile device.
Claim 7	The method of claim 1, wherein the one or more available devices is triggered by the signaling to perform one or more of the following: flash light, ring, and play a loudspeaker sound.
Claim 8	The method of claim 1, further comprising setting up a wireless communication link between the at least one of the one or more available devices based on a user interaction made with the mobile device or the one or more available devices and causing a routing of the media content to the at least one device via the wireless communication link.

Claim Designation	Claim Language
Claim 10	The method of claim 1, wherein the identifying comprises triggering a display of a menu by the one or more available devices or the mobile device to allow a user to perform a user interaction.
Claim 11	The method of claim 1, wherein the one or more available devices are triggered by the signaling to inform a user about an availability of media content at the mobile device.
Claim 13	The method of claim 1, further comprising encrypting and routing the media content to the one or more available devices.
Claim 15(Pre)	A mobile apparatus for informing a device about an availability of media content, comprising:
Claim 15(a)	a receiver adapted to receive wirelessly, from an external source, media content selected from a group consisting of: audio content and video content; and
Claim 15(b)	a controller adapted to identify one or more available devices connected to a local area network (LAN) and compatible to handle the media content;
Claim 15(c)	wherein the controller is adapted to instruct communicating wirelessly information to an intermediate routing device connected to the LAN for indirectly routing messages or media content to at least one of the one or more available devices via said intermediate routing device;
Claim 15(d)	wherein the controller is adapted to wirelessly signaling the one or more available devices indicating an availability of the media content at the mobile device;
Claim 15(e)	wherein the media content is originated from an external source disconnected from the LAN.
Claim 16	The mobile apparatus of claim 15, wherein the one or more available devices is triggered by the mobile device to perform one or more of the following: flash light, ring, and play a loudspeaker sound.
Claim 18	The mobile apparatus of claim 15, wherein the media content is audio content selected from a group consisting of: a phone call data, bidirectional voice data, bidirectional audio data and a radio broadcast.

Claim Designation	Claim Language
Claim 19(Pre)	A computer program product for a device for informing a user about an availability of media content at a mobile device, the computer program product comprising:
Claim 19(a)	a non-transitory computer readable storage medium having stored thereon:
Claim 19(b)	first program instructions executable by a processor to wirelessly communicating information to an intermediate routing device connected to a local area network (LAN) for indirectly receive messages or media content routed from one or more available devices connected to the LAN via the intermediate routing device; and
Claim 19(c)	second program instructions executable by the processor to wirelessly receive signal from the mobile device indicating an availability of a media content at the mobile device;
Claim 19(d)	third program instructions executable by the processor to inform the user of said device about an availability of a media content at the mobile device with one or more of the following: flash light, ring, and play a loudspeaker sound;
Claim 19(e)	wherein the media content is originated from an external source disconnected from the LAN;
Claim 19(f)	Wherein the media content selected from a group consisting of: audio content, text content and video content.

APPENDIX OF EXHIBITS

Exhibit 1001	U.S. Patent No. 10,547,648 (“’648 Patent”)
Exhibit 1002	Prosecution History for the ’648 Patent (“’648 File History”)
Exhibit 1003	Declaration of Dr. Sayfe Kiaei (“Dec.”)
Exhibit 1004	U.S. Patent No. 7,536,182 to Zhang (“Zhang”)
Exhibit 1005	U.S. Patent App. Pub. No. 2001/0053134 to Fillebrown et al. (“Fillebrown”)
Exhibit 1006	U.S. Patent No. 6,587,450 to Pasanen (“Pasanen”)
Exhibit 1007	U.S. Patent No. 6,703,930 to Skinner (“Skinner”)
Exhibit 1008	U.S. Patent No. 7,058,414 to Rofheart et al. (“Rofheart”)
Exhibit 1009	U.S. Patent App. Pub. No. 2003/0061493 to Angelo et al. (“Angelo”)
Exhibit 1010	U.S. Patent App. Pub. No. 2002/01782789 to Janik et al. (“Janik”)
Exhibit 1011	International Publication No. WO 01/74024 to Hartmaier et al. (“Hartmaier”)
Exhibit 1012	European Patent Application No. EP1132847 to Han et al. (“Han”)
Exhibit 1013	U.S. Patent App. Pub. 2002/0102998 to Lin (“Lin”)
Exhibit 1014	U.S. Patent No. 7,580,005 to Palin (“Palin”)
Exhibit 1015	U.S. Patent App. Pub. No. 2003/0110234 to Egli et al. (“Egli”)
Exhibit 1016	U.S. Patent No. 6,910,068 to Zintel et al. (“Zintel”)
Exhibit 1017	Bluetooth Core Specification version 1.1 (“Bluetooth V1.1 Core Spec.”)
Exhibit 1018	U.S. Patent No. 6,901,273 to Lutnaes (“Lutnaes”)
Exhibit 1019	U.S. Patent App. Pub. No. 2002/0141548 to Boda (“Boda”)
Exhibit 1020	International Publication No. WO 02/19152 to Bergman et al. (“Bergman”)
Exhibit 1021	Matthew S. Gast. <i>802.11 Wireless Networks The Definitive Guide</i> . O’Reilly & Associates. April 2002. (“Gast”)
Exhibit 1022	U.S. Patent No. 6,925,108 to Miller et al. (“Miller”)
Exhibit 1023	Jim Geier. <i>Wireless LANs</i> . 2 nd Edition. Sams Publishing. July 2001. (“Geier”)
Exhibit 1024	U.S. Patent No. 6,212,282 to Mershon (“Mershon”)
Exhibit 1025	U.S. Patent No. 6,526,287 to Lee (“Lee”)
Exhibit 1026	U.S. Patent App. Pub. No. 2002/0101367 to Geiger et al. (“Geiger”)
Exhibit 1027	U.S. Patent App. Pub. No. 2002/0186770 to Jawerth et al. (“Jawerth”)

Exhibit 1028	U.S. Patent App. Pub. No. 2003/0013438 to Darby (“ <i>Darby</i> ”)
Exhibit 1029	U.S. Patent App. Pub. No. 2003/0139966 to Sirota et al. (“ <i>Sirota</i> ”)
Exhibit 1030	<i>S.M.R Innovations Ltd. v. Apple Inc.</i> , 6:23-cv-00479, D.I. 50 (“[Proposed] Agreed Scheduling Order”) (W.D.Tex. Jun. 7, 2024)
Exhibit 1031	U.S. Patent No. 7,346,135 to Narasimhan (“ <i>Narasimhan</i> ”)
Exhibit 1032	Affidavit of Nathaniel E. Frank-White concerning <i>BluetoothSpec</i>
Exhibit 1033	U.S. Patent No. 5,956,681 to Yamakita (“ <i>Yamakita</i> ”) (Ex. 1033)
Exhibit 1034	U.S. Patent App. Pub. No. 2002/0174208 to Morlitz (“ <i>Morlitz</i> ”) (Ex. 1034)

CERTIFICATION OF WORD COUNT

The undersigned certifies pursuant to 37 C.F.R. §42.24 that the foregoing Petition for *Inter Partes* Review, excluding any table of contents, mandatory notices under 37 C.F.R. § 42.8, certificates of service or word count, or appendix of exhibits, contains 12,713 words according to the word-processing program used to prepare this document (Microsoft Word).

Dated: July 5, 2024

BY: /s/ Paul R. Hart
Paul R. Hart, Reg. No. 59,646

COUNSEL FOR PETITIONER

**CERTIFICATE OF SERVICE ON PATENT OWNER
UNDER 37 C.F.R. § 42.105**

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105, the undersigned certifies that on July 5, 2024 a complete and entire copy of this Petition for *Inter Partes* Review including exhibits was provided via Federal Express to the Patent Owner by serving the correspondence address of record for the '648 Patent as listed on PAIR:

PRTSI Inc.
232 NW 42nd Ter
Plantation, Florida 33317

Further, a courtesy copy of this Petition for *Inter Partes* Review was sent via Email to Patent Owner's litigation counsel:

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BY: /s/ Paul R. Hart
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