

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAP AMERICA, INC.,
Petitioner,

v.

CYANDIA, INC.,
Patent Owner.

IPR2024-01433
Patent 8,751,948

DECLARATION OF CHRISTOPHER M. SCHMANDT

SAP EXHIBIT 1133 <i>SAP America, Inc. v. Cyandia, Inc.</i> IPR2024-01433

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I, Christopher M. Schmandt, do hereby declare as follows:

I. INTRODUCTION AND ENGAGEMENT

1. I have been retained as an independent expert on behalf of SAP America, Inc. in connection with the above-captioned Petition for *Inter Partes* Review (“IPR”) to provide my analyses and opinions on certain technical issues related to U.S. Patent No. 8,751,948 (hereinafter “the ’948 patent”).

2. I provided an initial declaration in this IPR, which is dated September 20, 2024 (the “First Declaration”), which I understand was submitted as Exhibit 1103. I now submit this Reply Declaration addressing other issues that I have been asked to opine on, including certain opinions provided by Dr. Michael Goodrich in the below-noted paragraphs in his declaration submitted as Exhibit 2017.

II. BACKGROUND AND QUALIFICATIONS

3. I describe my education and professional background in paragraphs 3-17 of my First Declaration.

III. UNDERSTANDING OF PATENT LAW

4. I describe my understanding of patent law in paragraphs 18-29 of my First Declaration.

**IV. MATERIALS CONSIDERED AND
INFORMATION RELIED UPON REGARDING THE '948 PATENT**

5. In preparing this declaration, I have reviewed the following materials and any other materials discussed below in stating my opinions:

LIST OF NEWLY FILED EXHIBITS

No.	Description
1132	Nitin Sawhney & Chris Schmandt, <i>Nomadic Radio: Scaleable and Contextual Notification for Wearable Audio Messaging</i> , CHI'99, 96-103 (May 1999)

LIST OF PREVIOUSLY FILED EXHIBITS

No.	Description
1101	U.S. Patent No. 8,751,948 (“ ’948 Patent ”)
1102	File History of U.S. Patent No. 8,751,948
1103	Declaration of Christopher Schmandt, dated September 20, 2024 (“ Schmandt Decl. ”)
1104	International Patent Application Publication No. WO 2009/140386 to Wetzer et al. (“ the PCT publication ”)
1105	U.S. Patent Application Publication No. 2004/0044736 to Austin-Lane et al. (“ Austin-Lane ”)
1106	U.S. Patent Application No. 12/465,331 (“ the May 2009 parent application ”)
1107	U.S. Patent No. 8,499,250 (“ the ’250 parent patent ”)
1108	U.S. Provisional Patent Application No. 61/052,765 (“ the May 2008 provisional application ”)
1109	Full Claims Listing (1-7, 10-11, 13, 18-19, 23, 29, and 35-36)

No.	Description
1110	U.S. Patent Application No. 13/086,165 to Wetzer et al. (“ the April 2011 CIP application ”)
1111	U.S. Patent No. 7,348,968 to Thomas Dawson (“ Dawson ”)
1112	U.S. Patent No. 7,136,045 to Rosenberg et al. (“ Rosenberg ”)
1113	Lee et al., <i>Haptic Pen: A Tactile Feedback Stylus for Touch Screens</i> , Proc. of the 17th ann. ACM symp. on User interface software & tech. (UIST ’04), 291-294 (Oct. 2004) (“ Lee ”)
1114	Hoggan et al., <i>Investigating the Effectiveness of Tactile Feedback for Mobile Touchscreens</i> , Proc. of the SIGCHI Conf. on Human Factors in Computing Sys. (CHI ’08), 1573-1582 (Apr. 2008) (“ Hoggan ”)
1115	Stephen Brewster and Aurora Constantin, <i>Tactile Feedback for Ambient Awareness in Mobile Interactions</i> , Proc. of the 24 th BCS Interaction Specialist Grp. Conf. (BSC ’10), 412-417 (Sept. 2010) (“ Brewster ”)
1116	<i>IBM Rational Application Developer V6 Portlet Application Development and Portal Tools</i> (August 2005) (“ WebSphere-Portal ”)
1117	Ron Ben-Natan et al., <i>Mastering IBM WebSphere Portal</i> (2004) (“ Ben-Natan ”)
1118	<i>IBM WebSphere Everyplace Access V5 Handbook for Developers and Administrators Volume I: Installation and Administration</i> (May 2005) (“ WebSphere-Everyplace-1 ”)
1119	<i>IBM WebSphere Everyplace Access V5 Handbook for Developers and Administrators Volume II: Application Development</i> (March 2005) (“ WebSphere-Everyplace-2 ”)
1120	<i>IBM WebSphere Everyplace Access V5 Handbook for Developers and Administrators Volume IV: Advanced Topics</i> (March 2005) (“ WebSphere-Everyplace-4 ”)
1121	N/A

No.	Description
1122	U.S. Patent 7,376,907 to Santoro et al. (“ Santoro ”)
1123	<i>Microsoft Computer Dictionary</i> (5th Edition) (excerpts)
1124	U.S. Patent No. 5,548,692 (“ Cok ”)
1125	<i>Microsoft Internet Explorer ResourceKit</i> , Microsoft (1998)
1126	David Pogue, <i>iPhone The Missing Manual</i> (excerpts) (2007)
1127	David Pogue, <i>Mac OS X Leopard The Missing Manual</i> (excerpts) (2007)
1128	Harry Newton, <i>Newton’s Telecom Dictionary</i> (20th Ed.) (excerpts) (2004)
1129	WSRP standard 1.0 specification
1130	WSRP standard 2.0 specification

LIST OF PATENT OWNER EXHIBITS

No.	Description
2003	A. Sahami, et al., “Rich Tactile Output on Mobile Devices,” Aml 2008, 210-21 (2008)
2004	I. Oakley, et al., “Did you feel something? Distracter tasks and the recognition of vibrotactile cues,” <i>Interacting with Computers</i> 20, 354–363 (2008)
2005	T. S. Ueng, et al., “SMS ALERT SYSTEM AT NSRRC,” IEEE Particle Accelerator Conference (PAC) (2007)
2017	Declaration of Michael T. Goodrich, Ph.D. in Support of Patent Owner’s Response
2018	Excerpts from Pogue, David, “iPhone: The Missing Manual,” O’Reilly Media, Inc., Pogue Press (1st Ed. August 2007)

No.	Description
2019	Koski, Heli, et al., “Innovation and Dominant Design in Mobile Telephony,” <i>Industry and Innovation</i> , Vol. 14, No. 3, 305-324, July 2007, available at https://www.tandfonline.com/doi/abs/10.1080/13662710701369262
2020	Excerpts from Barney, Lee S., “Developing Hybrid Applications for the iPhone,” Addison-Wesley, Pearson Education (2009)
2021	Li, Kevin A., et al., “PeopleTones: A System for the Detection and Notification of Buddy Proximity on Mobile Phones,” <i>MobiSys '08</i> , June 17-20, 2008
2022	Deposition transcript of Christopher Schmandt, <i>SAP America, Inc. v. Cyandia, Inc.</i> , No. IPR2024-01433, taken on June 18, 2025
2027	Marti, Stefan, et al., “Giving the Caller the Finger: Collaborative Responsibility for Cellphone Interruptions,” <i>ACM (CHI 2005)</i>

**V. SERVER-DRIVEN TACTILE
ALERTS WERE NOT COMMON IN MAY 2009**

6. Dr. Goodrich states that “a POSITA would understand that it was common by 2009 to send vibration alerts to mobile device[s].” EX2017, ¶53. I disagree. Though mobile phones had the ability to vibrate, it was not common for a *server* to instruct the mobile phone to provide a tactile alert.

7. Dr. Goodrich cites Exhibit 2018 (EX2017, ¶54), but this publication describes a phone-driven tactile alert, not a server-driven tactile alert. *See* EX2018, 245. Indeed, as explained by Dr. Goodrich, the user—not a server—pushes a

button to place the phone in Vibrate mode. *See* EX2017, ¶54. No server tells the iPhone to vibrate. *See* EX2018, 245. The phone decides to vibrate based on input from the user. *Id.* Similarly, Exhibits 2005 and 2019 (cited by Dr. Goodrich's declaration at paragraphs 54 and 57, respectively) describe the phone, not a server, deciding to vibrate, such as when the phone receives an SMS message. *See* EX2019, 315, 318, 322; EX2005 at 401.

8. Dr. Goodrich cites Exhibits 2003 and 2004, but these exhibits describe tactile alerts generally. EX2017, ¶54 (citing EX2003, 2004). They do not disclose server-driven tactile alerts. EX2003, abstract; EX2004, 354. Indeed, Dr. Goodrich does not even allege that these exhibits disclose server-driven tactile alerts.

9. Dr. Goodrich then quotes my deposition testimony where I explained that “[T]he fact that the phone could decide to vibrate does not mean that an application that runs server-based off the phone, such as described in the '948, could on its own decide that some event has happened which should trigger a notification and that that notification could be tactile. Phones at that time simply didn't have a way of doing that.” EX2017, ¶58 (quoting EX2022 at 19:15-22). Dr. Goodrich disagrees with my testimony, and cites three exhibits (EX2020, EX2021, and EX2027), one of which (EX2027), is my own paper. EX2017, ¶¶59-64.

10. Only one of these exhibits (EX2020) suggests a server-driven tactile alert and it was allegedly first published after May 2009. EX2020¹, 2.

11. The other two exhibits—Exhibit 2021 (describing PeopleTones) and Exhibit 2027 (describing my Finger Ring research)—do not describe server-driven alerts.

12. Exhibit 2021 describes PeopleTones, a project from the University of California San Diego (UCSD) which affords both tactile and auditory alerts when a “buddy” comes within geographic range of a user of a mobile phone. My understanding of the exhibit is that the server in the PeopleTones system did not determine that a tactile alert should be provided, did not instruct the end user device to provide a tactile alert, and, in fact, did not even send an alert to the end user device. *See* EX2021, 168-169.

13. First, I note that in discussing the need to choose an alert modality appropriate to a user’s context, the PeopleTones paper cites my own work on a project titled Nomadic Radio (EX1132). EX2021, 162. Nomadic Radio was a wearable wireless device which used auditory alerts of various types to signal events such as the arrival of email or voice messages. In Nomadic Radio, servers,

¹ Citations to EX2020 are to the page numbers (1-13) added by Patent Owner.

such as an email server², would send event notifications (e.g. new messages) to the Nomadic Radio client, but the client itself would determine whether and how to alert the user, based on user context such as how recently the user had interacted with the device, the importance of the message, and whether the user was engaged in a conversation. EX1132, 100-101. This determination was all performed on the client wearable device. EX1132, 96-97.

14. PeopleTones describes a similar process using a similar architecture to determine how to alert the user when a buddy is determined to be newly local to the user. The phone decides whether to provide an auditory alert, a tactile alert, or both, depending on ambient noise levels. EX2021, 168. “On the one hand, sound cues delivered in the middle of a meeting can be disruptive; on the other had a sound delivered in the middle of a loud concert would be futile.” *Id.* PeopleTones samples the environment using its microphone and decides which modality to use based on the ambient noise levels. EX2021, 169. “When a cue was triggered to be delivered, ambient noise level was measured for 5 seconds and its average amplitude computed. In quiet environments, only the vibrotactile cues were played. In loud environments, both vibrotactile and sound cues were played... .” EX2021,

² Incoming email arrived at the laboratory SMTP email server, as Nomadic Radio was often disconnected from the Internet.

169. Thus, to a POSITA, Exhibit 2021 describes that the user's phone, not the server, decides to provide a tactile alert (if at all).

15. This is confirmed by section 3.4, which describes “minimizing unnecessary transmissions over the data network” to minimize power consumption and extend battery life. EX2021, 165. If the ambient noise measurement were to take place on the server, this would require streaming 5 seconds of audio data over the network to the server. In contrast, the average magnitude calculation is simply a series of add operations, sample by sample, followed by one division, by the number of samples, which would consume significantly less power on the phone's processor, compared to streaming the raw audio to the server. This reinforces to a POSITA that the phone, not the server, performs the noise measurement, and hence the decision as to whether to provide a tactile alert.

16. PeopleTones also allows a user to simply specify alert preferences: “[T]he user can specify to have only vibrotactile cues, only audio cues, or both be played by selecting the appropriate phone profile.” EX2021, 168. Because the PeopleTones client already has built in local noise detection and alert modality selection logic, it would be needlessly complex to have the modality selection decision be performed on any processor other than on the client device, as fixed user-specified selection simply short-circuits the noise detection described above.

Further, even if the server did indicate the type of alert, it would not be deciding anything, but simply echoing those preferences.

17. Because the decision as to whether to use auditory or tactile cues is being made on the client device, the server has no role in determining how to signal the alert to the user. Thus, a POSITA would not understand Exhibit 2021 to describe a server-driven alert. Instead, as with Dr. Goodrich's other cited exhibits I addressed above, Exhibit 2021 also describes a phone-driven alert.

18. Indeed, Exhibit 2021 indicates that the PeopleTones server doesn't even decide when to alert the user. Rather, it sends state information (which cell towers can be seen by which buddy devices) and the phone itself processes this information in order to decide when and whether it is confident enough to alert. EX2021, 165. This takes place on the phone: "[W]e implemented a client-side filter for removing sensor noise." *Id.* This was implemented as the "two-bit counter" state transition algorithm shown in Figure 7. *Id.* As can be seen from the figure, it may take up to three sightings, as sent through the server, of buddy proximity before the phone would actually be confident enough to alert the user ("Report Near"). *Id.* So, much like my Nomadic Radio system, the server reports events, not alerts, and the client decides when to alert.

19. Rather than disclosing a system showing that it was common knowledge for a server to select when and which type of alert to transmit,

PeopleTones actually shows the client device itself decides when and how to alert the user; the server simply forwards events to the client.

20. In paragraph 64 of his declaration, Dr. Goodrich also refers to my “Finger Ring” paper (EX2027), arguing that it discloses “sending vibration alerts to mobile devices before 2009.” EX2017, ¶64. I disagree for several reasons.

21. *First*, and most obviously, the Finger Ring had only one means of alerting, a vibration motor, so any putative server (the claimed “processor communicatively coupled”) could not specify which alert modality to use, only that an alert should occur. EX2027, 1635. If an alert were sent, the server could not specify how to alert, and thus, did not instruct the end user device to provide a specific type of alert.

22. *Second*, Finger Ring did not even have a server. As Dr. Goodrich notes, the system “uses a decentralized network of autonomous body-worn sensor nodes” (wearable finger rings with associated speech sensor badges). EX2017, ¶64. A node (wearable finger ring plus badge) detects and broadcasts when its user starts and stops speaking. EX2027, 1634. If two nodes detect that their respective user starts speaking when the other node’s user finishes speaking, and that the two users’ speech rarely overlaps, each of the two nodes independently determines that the users are in a conversation. *See* EX2027, 1634. Then, if one of those users receives a phone call, that user’s badge broadcasts an “incoming phone call”

message to all nodes within range. *See* EX2027, 1634. At that point the two nodes (plus any other nodes in the conversation) would cause their rings to vibrate, and possibly broadcast a “button pressed” message. *See* EX2027, 1634. Note that each node within broadcast range hears the “incoming phone call” message but each independently decides whether the call implies that its user’s ring should vibrate. *See* EX2027, 1634.

23. Thus, as with the other exhibits described above, my Finger Ring paper (EX2027) does not disclose a server-driven tactile alert. It does not disclose a server, but rather a network of autonomous nodes which self-organize into logical clusters. The devices at the nodes (e.g., the wearable finger rings) can only vibrate and don’t do so based on any instruction from a server. There is no message sent specifying when an alert should be presented, but rather various event types which each node uses to decide whether to alert.

24. In sum, server-driven tactile alerts were not common prior to May 2009. I am not aware of any such systems prior to May 2009 and none of Dr. Goodrich’s pre-May 2009 cited exhibits describe such a system. Only one of Dr. Goodrich’s cited exhibits (EX2020) suggests such a system, but its earliest alleged publication post-dates the May 2009 filing date of the parent application. In my opinion, this one belated publication is hardly sufficient to establish that such server-driven alerts were common prior to May 2009. Thus, based on my

knowledge of systems in May 2009 and Dr. Goodrich's lack of evidence to the contrary, it is my opinion that server-driven tactile alerts were not common in May 2009.

I, Christopher M. Schmandt, do hereby declare and state, that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: September 19, 2025

A handwritten signature in black ink, appearing to read 'Chris Schmandt', written over a horizontal line.

Signature