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(54) **IN-MEETING GRAPHICAL USER INTERFACE DISPLAY USING CALENDAR INFORMATION AND SYSTEM**

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(56) **References Cited**

U.S. PATENT DOCUMENTS

4,460,807 A 7/1984 Kerr et al.
4,890,257 A 12/1989 Anthias et al.
(Continued)

FOREIGN PATENT DOCUMENTS

CN 101055561 10/2007
CN 101076060 11/2007
(Continued)

OTHER PUBLICATIONS

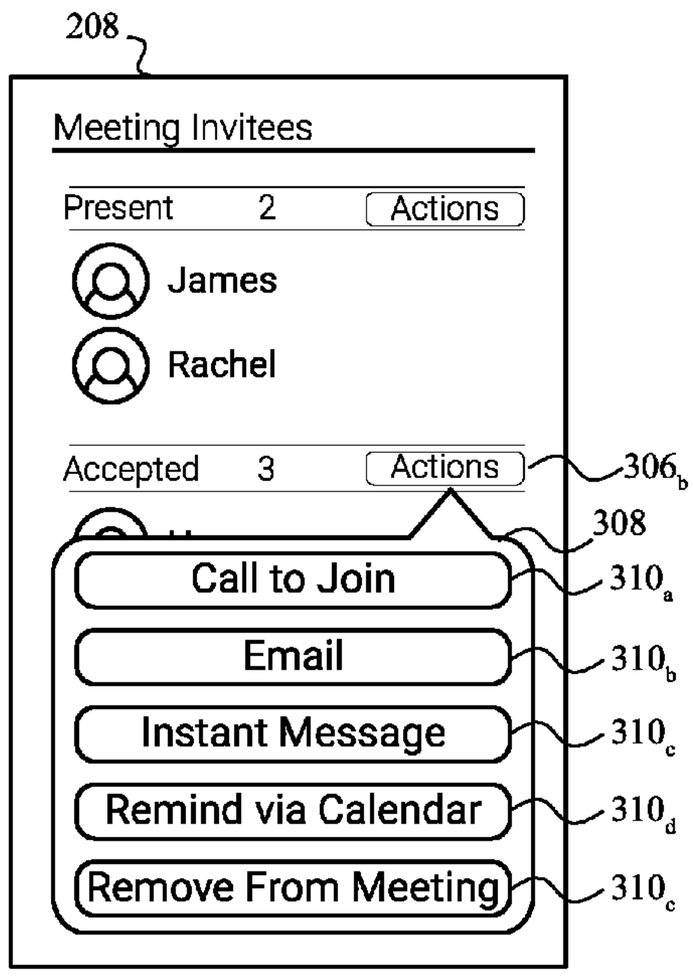
Author Unknown, "A Primer on the H.323 Series Standard," Version 2.0, available at http://www.packetizer.com/voip/h323/papers/primer/, retrieved on Dec. 20, 2006, 17 pages.
(Continued)

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(57) **ABSTRACT**

A meeting application can gather calendar information from a calendaring service, even if that calendaring service is independent from (e.g., a "third party to") the meeting service. The meeting application can incorporate the calendar information into an in-meeting graphical user interface so that the calendar information can be displayed with the meeting. In some embodiments, this includes listing all invitees and participants alongside their associated acceptance status (e.g., are they present, did they accept, did they decline, etc.). In some embodiments, the calendar information can inform a meeting timer that can indicate the remaining time for the meeting. In some embodiments, the calendar information can inform individual timers that indicate how much time individual participants have before their next appointment.

26 Claims, 7 Drawing Sheets



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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,977,605	A	12/1990	Fardeau et al.	
5,293,430	A	3/1994	Shiau et al.	
5,694,563	A	12/1997	Belfiore et al.	
5,699,082	A	12/1997	Marks et al.	
5,745,711	A	4/1998	Kitahara et al.	
5,767,897	A	6/1998	Howell	
5,825,858	A	10/1998	Shaffer et al.	
5,874,962	A	2/1999	de Judicibus et al.	
5,889,671	A	3/1999	Autermann et al.	
5,917,537	A	6/1999	Lightfoot et al.	
5,995,096	A	11/1999	Kitahara et al.	
6,023,606	A	2/2000	Monte et al.	
6,040,817	A	3/2000	Sumikawa	
6,075,531	A	6/2000	DeStefano	
6,085,166	A	7/2000	Beckhardt et al.	
6,191,807	B1	2/2001	Hamada et al.	
6,300,951	B1	10/2001	Filetto et al.	
6,392,674	B1	5/2002	Hiraki et al.	
6,424,370	B1	7/2002	Courtney	
6,463,473	B1	10/2002	Gubbi	
6,553,363	B1	4/2003	Hoffman	
6,554,433	B1	4/2003	Holler	
6,573,913	B1	6/2003	Butler et al.	
6,646,997	B1	11/2003	Baxley et al.	
6,665,396	B1	12/2003	Khouri et al.	
6,700,979	B1	3/2004	Washiya	
6,711,419	B1	3/2004	Mori	
6,754,321	B1	6/2004	Innes et al.	
6,754,335	B1	6/2004	Shaffer et al.	
RE38,609	E	10/2004	Chen et al.	
6,816,464	B1	11/2004	Scott et al.	
6,865,264	B2	3/2005	Berstis	
6,938,208	B2	8/2005	Reichardt	
6,978,499	B2	12/2005	Gallant et al.	
7,046,134	B2	5/2006	Hansen	
7,046,794	B2	5/2006	Piket et al.	
7,058,164	B1	6/2006	Chan et al.	
7,058,710	B2	6/2006	McCall et al.	
7,062,532	B1	6/2006	Sweat et al.	
7,085,367	B1	8/2006	Lang	
7,124,164	B1	10/2006	Chemtob	
7,149,499	B1	12/2006	Oran et al.	
7,180,993	B2	2/2007	Hamilton	
7,209,475	B1	4/2007	Shaffer et al.	
7,340,151	B2	3/2008	Taylor et al.	
7,366,310	B2	4/2008	Stinson et al.	
7,418,664	B2	8/2008	Ben-Shachar et al.	
7,441,198	B2	10/2008	Dempski et al.	
7,478,339	B2	1/2009	Pettiross et al.	
7,500,200	B2	3/2009	Kelso et al.	
7,530,022	B2	5/2009	Ben-Shachar et al.	
7,552,177	B2	6/2009	Kessen et al.	
7,577,711	B2	8/2009	McArdle	
7,584,258	B2	9/2009	Maresh	
7,587,028	B1	9/2009	Broerman et al.	
7,606,714	B2	10/2009	Williams et al.	
7,606,862	B2	10/2009	Swearingen et al.	
7,620,902	B2	11/2009	Manion et al.	
7,634,533	B2	12/2009	Rudolph et al.	
7,774,407	B2	8/2010	Daly et al.	
7,792,277	B2	9/2010	Shaffer et al.	
7,830,814	B1	11/2010	Allen et al.	
7,840,013	B2	11/2010	Dedieu et al.	
7,840,980	B2	11/2010	Gutta	
7,881,450	B1	2/2011	Gentle et al.	
7,920,160	B2	4/2011	Tamaru et al.	
7,956,869	B1	6/2011	Gilra	
7,986,372	B2	7/2011	Ma et al.	
7,995,464	B1	8/2011	Croak et al.	
8,059,557	B1	11/2011	Sigg et al.	
8,081,205	B2	12/2011	Baird et al.	
8,140,973	B2	3/2012	Sandquist et al.	
8,169,463	B2	5/2012	Enstad et al.	
8,219,624	B2	7/2012	Haynes et al.	
8,274,893	B2	9/2012	Bansal et al.	
8,290,998	B2	10/2012	Stienhans et al.	
8,301,883	B2	10/2012	Sundaram et al.	
8,340,268	B2	12/2012	Knaz	
8,358,327	B2	1/2013	Duddy	
8,423,615	B1	4/2013	Hayes	
8,428,234	B2	4/2013	Knaz	
8,433,061	B2	4/2013	Cutler	
8,434,019	B2	4/2013	Nelson	
8,437,461	B1 *	5/2013	Gartner	H04M 3/565 379/158
8,456,507	B1	6/2013	Mallappa et al.	
8,462,103	B1	6/2013	Moscovitch et al.	
8,478,848	B2	7/2013	Minert	
8,520,370	B2	8/2013	Waitzman, III et al.	
8,625,749	B2	1/2014	Jain et al.	
8,630,208	B1	1/2014	Kjeldaas	
8,638,354	B2	1/2014	Leow et al.	
8,645,464	B2	2/2014	Zimmet et al.	
8,675,847	B2	3/2014	Shaffer et al.	
8,694,587	B2	4/2014	Chaturvedi et al.	
8,694,593	B1	4/2014	Wren et al.	
8,706,539	B1	4/2014	Mohler	
8,732,149	B2	5/2014	Lida et al.	
8,738,080	B2	5/2014	Nhiayi et al.	
8,751,572	B1	6/2014	Behforooz et al.	
8,831,505	B1	9/2014	Seshadri	
8,850,203	B2	9/2014	Sundaram et al.	
8,860,774	B1	10/2014	Sheeley et al.	
8,874,644	B2	10/2014	Allen et al.	
8,890,924	B2	11/2014	Wu	
8,892,646	B2	11/2014	Chaturvedi et al.	
8,914,444	B2	12/2014	Hladik, Jr.	
8,914,472	B1	12/2014	Lee et al.	
8,924,862	B1	12/2014	Luo	
8,930,840	B1	1/2015	Riskó et al.	
8,947,493	B2	2/2015	Lian et al.	
8,972,494	B2	3/2015	Chen et al.	
9,003,445	B1	4/2015	Rowe	
9,031,839	B2	5/2015	Thorsen et al.	
9,032,028	B2	5/2015	Davidson et al.	
9,075,572	B2	7/2015	Ayoub et al.	
9,118,612	B2	8/2015	Fish et al.	
9,131,017	B2	9/2015	Kurupacheril et al.	
9,137,376	B1	9/2015	Basart et al.	
9,143,729	B2	9/2015	Anand et al.	
9,165,281	B2	10/2015	Orsolini et al.	
9,197,701	B1	11/2015	Petrov et al.	
9,197,848	B2	11/2015	Felkai et al.	
9,201,527	B2	12/2015	Kripalani et al.	
9,204,099	B2	12/2015	Brown	
9,219,735	B2	12/2015	Hoard et al.	
9,246,855	B2	1/2016	Maehiro	
9,258,033	B2	2/2016	Showering	

(56) **References Cited**

U.S. PATENT DOCUMENTS

9,268,398	B2	2/2016	Tipirneni
9,298,342	B2	3/2016	Zhang et al.
9,323,417	B2	4/2016	Sun et al.
9,335,892	B2	5/2016	Ubillos
9,349,119	B2	5/2016	Desai et al.
9,367,224	B2	6/2016	Ananthakrishnan et al.
9,369,673	B2	6/2016	Ma et al.
9,407,621	B2	8/2016	Vakil et al.
9,432,512	B2	8/2016	You
9,449,303	B2	9/2016	Underhill et al.
9,495,664	B2	11/2016	Cole et al.
9,513,861	B2	12/2016	Lin et al.
9,516,022	B2	12/2016	Borzycki et al.
9,525,711	B2	12/2016	Ackerman et al.
9,553,799	B2	1/2017	Tarricone et al.
9,563,480	B2	2/2017	Messerli et al.
9,609,030	B2	3/2017	Sun et al.
9,609,514	B2	3/2017	Mistry et al.
9,614,756	B2	4/2017	Joshi
9,640,194	B1	5/2017	Nemala et al.
9,667,799	B2	5/2017	Olivier et al.
9,674,625	B2	6/2017	Armstrong-Mutner
9,762,709	B1	9/2017	Snyder et al.
2001/0030661	A1	10/2001	Reichardt
2002/0018051	A1	2/2002	Singh
2002/0076003	A1	6/2002	Zellner et al.
2002/0078153	A1	6/2002	Chung et al.
2002/0140736	A1	10/2002	Chen
2002/0188522	A1	12/2002	McCall et al.
2003/0028647	A1	2/2003	Grosu
2003/0046421	A1	3/2003	Horvitz et al.
2003/0068087	A1	4/2003	Wu et al.
2003/0154250	A1	8/2003	Miyashita
2003/0174826	A1	9/2003	Hesse
2003/0187800	A1	10/2003	Moore et al.
2003/0197739	A1	10/2003	Bauer
2003/0227423	A1	12/2003	Arai et al.
2004/0039909	A1	2/2004	Cheng
2004/0054885	A1	3/2004	Bartram et al.
2004/0098456	A1	5/2004	Krzyzanowski et al.
2004/0210637	A1	10/2004	Loveland
2004/0253991	A1	12/2004	Azuma
2004/0267938	A1	12/2004	Shoroff et al.
2005/0014490	A1	1/2005	Desai et al.
2005/0031136	A1	2/2005	Du et al.
2005/0048916	A1	3/2005	Suh
2005/0055405	A1	3/2005	Kaminsky et al.
2005/0055412	A1	3/2005	Kaminsky et al.
2005/0085243	A1	4/2005	Boyer et al.
2005/0099492	A1	5/2005	Orr
2005/0108328	A1	5/2005	Berkeland et al.
2005/0131774	A1	6/2005	Huxter
2005/0175208	A1	8/2005	Shaw et al.
2005/0215229	A1	9/2005	Cheng
2005/0226511	A1	10/2005	Short
2005/0231588	A1	10/2005	Yang et al.
2005/0286711	A1	12/2005	Lee et al.
2006/0004911	A1	1/2006	Becker et al.
2006/0020697	A1	1/2006	Kelso et al.
2006/0026255	A1	2/2006	Malamud et al.
2006/0083305	A1	4/2006	Dougherty et al.
2006/0084471	A1	4/2006	Walter
2006/0164552	A1	7/2006	Cutler
2006/0224430	A1	10/2006	Butt
2006/0250987	A1	11/2006	White et al.
2006/0271624	A1	11/2006	Lyle et al.
2007/0005752	A1	1/2007	Chawla et al.
2007/0021973	A1	1/2007	Stremler
2007/0025576	A1	2/2007	Wen
2007/0041366	A1	2/2007	Vugenfirer et al.
2007/0047707	A1	3/2007	Mayer et al.
2007/0058842	A1	3/2007	Vallone et al.
2007/0067387	A1	3/2007	Jain et al.
2007/0091831	A1	4/2007	Croy et al.
2007/0100986	A1	5/2007	Bagley et al.
2007/0106747	A1	5/2007	Singh et al.
2007/0116225	A1	5/2007	Zhao et al.
2007/0139626	A1	6/2007	Saleh et al.
2007/0150453	A1	6/2007	Morita
2007/0168444	A1	7/2007	Chen et al.
2007/0198637	A1	8/2007	Deboy et al.
2007/0208590	A1	9/2007	Dorricott et al.
2007/0248244	A1	10/2007	Sato et al.
2007/0250567	A1	10/2007	Graham et al.
2008/0059986	A1	3/2008	Kalinowski et al.
2008/0068447	A1	3/2008	Mattila et al.
2008/0071868	A1	3/2008	Arenburg et al.
2008/0080532	A1	4/2008	O'Sullivan et al.
2008/0107255	A1	5/2008	Geva et al.
2008/0133663	A1	6/2008	Lentz
2008/0154863	A1	6/2008	Goldstein
2008/0209452	A1	8/2008	Ebert et al.
2008/0270211	A1	10/2008	Vander Veen et al.
2008/0278894	A1	11/2008	Chen et al.
2009/0012963	A1	1/2009	Johnson et al.
2009/0019374	A1	1/2009	Logan et al.
2009/0049151	A1	2/2009	Pagan
2009/0064245	A1	3/2009	Facemire et al.
2009/0075633	A1	3/2009	Lee et al.
2009/0089822	A1	4/2009	Wada
2009/0094088	A1	4/2009	Chen et al.
2009/0100142	A1	4/2009	Stern et al.
2009/0119373	A1	5/2009	Denner et al.
2009/0132949	A1	5/2009	Bosarge
2009/0193327	A1	7/2009	Roychoudhuri et al.
2009/0234667	A1	9/2009	Thayne
2009/0254619	A1	10/2009	Kho et al.
2009/0256901	A1	10/2009	Mauchly et al.
2009/0278851	A1	11/2009	Ach et al.
2009/0282104	A1	11/2009	O'Sullivan et al.
2009/0292999	A1	11/2009	LaBine et al.
2009/0296908	A1	12/2009	Lee et al.
2009/0306981	A1	12/2009	Cromack et al.
2009/0309846	A1	12/2009	Trachtenberg et al.
2009/0313334	A1	12/2009	Seacat et al.
2010/0005142	A1	1/2010	Xiao et al.
2010/0005402	A1	1/2010	George et al.
2010/0031192	A1	2/2010	Kong
2010/0061538	A1	3/2010	Coleman et al.
2010/0070640	A1	3/2010	Allen, Jr. et al.
2010/0073454	A1	3/2010	Lovhaugen et al.
2010/0077109	A1	3/2010	Yan et al.
2010/0094867	A1	4/2010	Badros et al.
2010/0095327	A1	4/2010	Fujinaka et al.
2010/0121959	A1	5/2010	Lin et al.
2010/0131856	A1	5/2010	Kalbfleisch et al.
2010/0157978	A1	6/2010	Robbins et al.
2010/0162170	A1	6/2010	Johns et al.
2010/0183179	A1	7/2010	Griffin, Jr. et al.
2010/0211872	A1	8/2010	Rolston et al.
2010/0215334	A1	8/2010	Miyagi
2010/0220615	A1	9/2010	Enstrom et al.
2010/0241691	A1	9/2010	Savitzky et al.
2010/0245535	A1	9/2010	Mauchly
2010/0250817	A1	9/2010	Collopy et al.
2010/0262266	A1	10/2010	Chang et al.
2010/0262925	A1	10/2010	Liu et al.
2010/0275164	A1	10/2010	Morikawa
2010/0302033	A1	12/2010	Devenyi et al.
2010/0303227	A1	12/2010	Gupta
2010/0316207	A1	12/2010	Brunson
2010/0318399	A1	12/2010	Li et al.
2011/0072037	A1	3/2011	Lotzer
2011/0075830	A1	3/2011	Dreher et al.
2011/0087745	A1	4/2011	O'Sullivan et al.
2011/0117535	A1	5/2011	Benko et al.
2011/0131498	A1	6/2011	Chao et al.
2011/0154427	A1	6/2011	Wei
2011/0230209	A1	9/2011	Kilian
2011/0264928	A1	10/2011	Hinckley
2011/0270609	A1	11/2011	Jones et al.
2011/0271211	A1	11/2011	Jones et al.
2011/0283226	A1	11/2011	Basson et al.
2011/0314139	A1	12/2011	Song et al.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2012/0009890 A1 1/2012 Curcio et al.
2012/0013704 A1 1/2012 Sawayanagi et al.
2012/0013768 A1 1/2012 Zurek et al.
2012/0026279 A1 2/2012 Kato
2012/0054288 A1 3/2012 Wiese et al.
2012/0072364 A1 3/2012 Ho
2012/0084714 A1 4/2012 Sirpal et al.
2012/0092436 A1 4/2012 Pahud et al.
2012/0140970 A1 6/2012 Kim et al.
2012/0179502 A1 7/2012 Farooq et al.
2012/0190386 A1 7/2012 Anderson
2012/0192075 A1 7/2012 Ebtekar et al.
2012/0233020 A1 9/2012 Eberstadt et al.
2012/0246229 A1 9/2012 Carr et al.
2012/0246596 A1 9/2012 Ording et al.
2012/0284635 A1 11/2012 Sitrick et al.
2012/0296957 A1 11/2012 Stinson et al.
2012/0303476 A1 11/2012 Krzyzanowski et al.
2012/0306757 A1 12/2012 Keist et al.
2012/0306993 A1 12/2012 Sellers-Blais
2012/0308202 A1 12/2012 Murata et al.
2012/0313971 A1 12/2012 Murata et al.
2012/0315011 A1 12/2012 Messmer et al.
2012/0321058 A1 12/2012 Eng et al.
2012/0323645 A1 12/2012 Spiegel et al.
2012/0324512 A1 12/2012 Cahnbley et al.
2013/0027425 A1 1/2013 Yuan
2013/0038675 A1 2/2013 Malik
2013/0047093 A1 2/2013 Reuschel et al.
2013/0050398 A1 2/2013 Krans et al.
2013/0055112 A1 2/2013 Joseph et al.
2013/0061054 A1 3/2013 Niccolai
2013/0063542 A1 3/2013 Bhat et al.
2013/0086633 A1 4/2013 Schultz
2013/0090065 A1 4/2013 Fisunenko et al.
2013/0091205 A1 4/2013 Kotler et al.
2013/0091440 A1 4/2013 Kotler et al.
2013/0094647 A1 4/2013 Mauro et al.
2013/0113602 A1 5/2013 Gilbertson et al.
2013/0113827 A1 5/2013 Forutanpour et al.
2013/0120522 A1 5/2013 Lian et al.
2013/0124551 A1 5/2013 Foo
2013/0129252 A1 5/2013 Lauper et al.
2013/0135837 A1 5/2013 Kemppinen
2013/0141371 A1 6/2013 Hallford et al.
2013/0148789 A1 6/2013 Hillier et al.
2013/0182063 A1 7/2013 Jaiswal et al.
2013/0185672 A1 7/2013 McCormick et al.
2013/0198629 A1 8/2013 Tandon et al.
2013/0210496 A1 8/2013 Zakarias et al.
2013/0211826 A1 8/2013 Mannby
2013/0212202 A1 8/2013 Lee
2013/0215215 A1 8/2013 Gage et al.
2013/0219278 A1 8/2013 Rosenberg
2013/0222246 A1 8/2013 Booms et al.
2013/0225080 A1 8/2013 Doss et al.
2013/0227433 A1 8/2013 Doray et al.
2013/0235866 A1 9/2013 Tian et al.
2013/0242030 A1 9/2013 Kato et al.
2013/0243213 A1 9/2013 Moquin
2013/0252669 A1 9/2013 Nhiayi
2013/0263020 A1 10/2013 Heiferman et al.
2013/0290421 A1 10/2013 Benson et al.
2013/0297704 A1 11/2013 Alberth, Jr. et al.
2013/0300637 A1 11/2013 Smits et al.
2013/0325970 A1 12/2013 Roberts et al.
2013/0329865 A1 12/2013 Ristock et al.
2013/0335507 A1 12/2013 Aarrestad et al.
2014/0012990 A1 1/2014 Ko
2014/0028781 A1 1/2014 MacDonald
2014/0040404 A1 2/2014 Pujare et al.
2014/0040819 A1 2/2014 Duffy
2014/0063174 A1 3/2014 Junuzovic et al.
2014/0068452 A1 3/2014 Joseph et al.
2014/0068670 A1 3/2014 Timmermann et al.
2014/0078182 A1 3/2014 Utsunomiya
2014/0108486 A1 4/2014 Borzycki et al.
2014/0111597 A1* 4/2014 Anderson H04L 12/1827 348/14.03
2014/0136630 A1 5/2014 Siegel et al.
2014/0157338 A1 6/2014 Pearce
2014/0161243 A1 6/2014 Contreras et al.
2014/0195557 A1 7/2014 Oztaskent et al.
2014/0198175 A1 7/2014 Shaffer et al.
2014/0237371 A1 8/2014 Klemm et al.
2014/0253671 A1 9/2014 Bentley et al.
2014/0280595 A1 9/2014 Mani et al.
2014/0282213 A1 9/2014 Musa et al.
2014/0296112 A1 10/2014 O'Driscoll et al.
2014/0298210 A1 10/2014 Park et al.
2014/0317561 A1 10/2014 Robinson et al.
2014/0337840 A1 11/2014 Hyde et al.
2014/0351327 A1 11/2014 Huang et al.
2014/0358264 A1 12/2014 Long et al.
2014/0372908 A1 12/2014 Kashi et al.
2015/0004571 A1 1/2015 Ironside et al.
2015/0009278 A1 1/2015 Modai et al.
2015/0029301 A1 1/2015 Nakatomi et al.
2015/0067552 A1 3/2015 Leorin et al.
2015/0070835 A1 3/2015 Mclean
2015/0074189 A1 3/2015 Cox et al.
2015/0081885 A1 3/2015 Thomas et al.
2015/0082350 A1 3/2015 Ogasawara et al.
2015/0085060 A1 3/2015 Fish et al.
2015/0088575 A1 3/2015 Asli et al.
2015/0089393 A1 3/2015 Zhang et al.
2015/0089394 A1 3/2015 Chen et al.
2015/0113050 A1 4/2015 Stahl
2015/0113369 A1 4/2015 Chan et al.
2015/0128068 A1 5/2015 Kim
2015/0172120 A1 6/2015 Dwarampudi et al.
2015/0178626 A1 6/2015 Pielot et al.
2015/0215365 A1 7/2015 Shaffer et al.
2015/0254760 A1 9/2015 Pepper
2015/0288774 A1 10/2015 Larabie-Belanger
2015/0301691 A1 10/2015 Qin
2015/0304120 A1 10/2015 Xiao et al.
2015/0304366 A1 10/2015 Bader-Natal et al.
2015/0319113 A1 11/2015 Gunderson et al.
2015/0350126 A1 12/2015 Xue
2015/0373063 A1 12/2015 Vashishtha et al.
2015/0373414 A1 12/2015 Kinoshita
2016/0037304 A1 2/2016 Dunkin et al.
2016/0043986 A1 2/2016 Ronkainen
2016/0044159 A1 2/2016 Wolff et al.
2016/0044380 A1 2/2016 Barrett
2016/0050079 A1 2/2016 Martin De Nicolas et al.
2016/0050160 A1 2/2016 Li et al.
2016/0050175 A1 2/2016 Chaudhry et al.
2016/0070758 A1 3/2016 Thomson et al.
2016/0071056 A1 3/2016 Ellison et al.
2016/0072862 A1 3/2016 Bader-Natal et al.
2016/0094593 A1 3/2016 Priya
2016/0105345 A1 4/2016 Kim et al.
2016/0110056 A1 4/2016 Hong et al.
2016/0165056 A1 6/2016 Bargetzi et al.
2016/0173537 A1 6/2016 Kumar et al.
2016/0182580 A1 6/2016 Nayak
2016/0266609 A1 9/2016 McCracken
2016/0269411 A1 9/2016 Malachi
2016/0277461 A1 9/2016 Sun et al.
2016/0283909 A1 9/2016 Adiga
2016/0307165 A1 10/2016 Grodum et al.
2016/0309037 A1 10/2016 Rosenberg et al.
2016/0321347 A1 11/2016 Zhou et al.
2017/0006162 A1 1/2017 Bargetzi et al.
2017/0006446 A1 1/2017 Harris et al.
2017/0070706 A1 3/2017 Ursin et al.
2017/0093874 A1 3/2017 Uthe
2017/0104961 A1 4/2017 Pan et al.
2017/0171260 A1 6/2017 Jerrard-Dunne et al.
2017/0324850 A1 11/2017 Snyder et al.

(56) **References Cited**

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

CN	102572370	7/2012
CN	102655583	9/2012
CN	101729528	11/2012
CN	102938834	2/2013
CN	103141086	6/2013
CN	204331453	5/2015
DE	3843033	9/1991
EP	959585	11/1999
EP	2773131	9/2014
EP	2341686	8/2016
WO	WO 98/55903	12/1998
WO	WO 2008/139269	11/2008
WO	WO 2012/167262	12/2012
WO	WO 2014/118736	8/2014

OTHER PUBLICATIONS

Author Unknown, ""I can see the future" 10 predictions concerning cell-phones," Surveillance Camera Players, http://www.notbored.org/cell-phones.html, Jun. 21, 2003, 2 pages.
Author Unknown, "Active screen follows mouse and dual monitors," KDE Community Forums, Apr. 13, 2010, 3 pages.
Author Unknown, "Implementing Media Gateway Control Protocols" A RADVision White Paper, Jan. 27, 2002, 16 pages.
Author Unknown, "Manage Meeting Rooms in Real Time," Jan. 23, 2017, door-tablet.com, 7 pages.
Averusa, "Interactive Video Conferencing K-12 applications," "Interactive Video Conferencing K-12 applications" copyright 2012. http://www.averusa.com/education/downloads/hvc brochure goved.pdf (last accessed Oct. 11, 2013).
Cisco Systems, Inc., "Cisco WebEx Meetings Server System Requirements release 1.5." 30 pages, Aug. 14, 2013.
Cisco White Paper, "Web Conferencing: Unleash the Power of Secure, Real-Time Collaboration," pp. 1-8, 2014.
Clarke, Brant, "Polycom Announces RealPresence Group Series," "Polycom Announces RealPresence Group Series" dated Oct. 8, 2012 available at http://www.323.tv/news/polycom-realpresence-group-series (last accessed Oct. 11, 2013).
Clauser, Grant, et al., "Is the Google Home the voice-controlled speaker for you?," The Wire Cutter, Nov. 22, 2016, pp. 1-15.
Cole, Camille, et al., "Videoconferencing for K-12 Classrooms," Second Edition (excerpt), http://www.iste.org/docs/excerpts/VIDCO2-excerpt.pdf (last accessed Oct. 11, 2013), 2009.
Epson, "BrightLink Pro Projector," BrightLink Pro Projector. http://www.epson.com/cgi-bin/Store/jsp/Landing/brightlink-pro-interactive-projectors.do?ref=van brightlink-pro—dated 2013 (last accessed Oct. 11, 2013).
Infocus, "Mondopad," Mondopad. http://www.infocus.com/sites/default/files/InFocus-Monopad-IN5520a-INF7021-Datasheet-EN.pdf (last accessed Oct. 11, 2013), 2013.
MacCormick, John, "Video Chat with Multiple Cameras," CSCW '13, Proceedings of the 2013 conference on Computer supported cooperative work companion, pp. 195-198, ACM, New York, NY, USA, 2013.
Microsoft, "Positioning Objects on Multiple Display Monitors," Aug. 12, 2012, 2 pages.
Mullins, Robert, "Polycom Adds Tablet Videoconferencing," Mullins, R. "Polycom Adds Tablet Videoconferencing" available at http://www.informationweek.com/telecom/unified-communications/polycom-adds-tablet-videoconferencing/231900660 dated Oct. 12, 2011 (last accessed Nov. 12, 2013).
Nu-Star Technologies, "Interactive Whiteboard Conferencing," Interactive Whiteboard Conferencing. http://www.nu-star.com/interactive-conf.php dated 2013 (last accessed Oct. 11, 2013).
Polycom, "Polycom RealPresence Mobile: Mobile Telepresence & Video Conferencing," http://www.polycom.com/products-services/hd-telepresence-video-conferencing/realpresence-mobile.html#stab1 (last accessed Oct. 11, 2013), 2013.
Polycom, "Polycom Turns Video Display Screens into Virtual Whiteboards with First Integrated Whiteboard Solution for Video Collaboration," Polycom Turns Video Display Screens into Virtual Whiteboards with First Integrated Whiteboard Solution for Video Collaboration—http://www.polycom.com/company/news/press-releases/2011/20111027 2.html—dated Oct. 27, 2011.
Polycom, "Polycom UC Board, Transforming ordinary surfaces into virtual whiteboards" 2012, Polycom, Inc., San Jose, CA, http://www.uatg.com/pdf/polycom/polycom-uc-boarcd- datasheet.pdf, (last accessed Oct. 11, 2013).
Stevenson, Nancy, "Webex Web Meetings for Dummies" 2005, Wiley Publishing Inc., Indianapolis, Indiana, USA, 339 pages.
Stodle. Daniel, et al., "Gesture-Based, Touch-Free Multi-User Gaming on Wall-Sized, High-Resolution Tiled Displays," 2008, 13 pages.
Thompson, Phil, et al., "Agent Based Ontology Driven Virtual Meeting Assistant," Future Generation Information Technology, Springer Berlin Heidelberg, 2010, 4 pages.
Tno, "Multi-Touch Interaction Overview," Dec. 1, 2009, 12 pages.
Toga, James, et al., "Demystifying Multimedia Conferencing Over the Internet Using the H.323 Set of Standards," Intel Technology Journal Q2, 1998, 11 pages.
Ubuntu, "Force Unity to open new window on the screen where the cursor is?" Sep. 16, 2013, 1 page.
VB Forums, "Pointapi," Aug. 8, 2001, 3 pages.
Vidyo, "VidyoPanorama," VidyoPanorama-http://www.vidyo.com/products/vidyopanorama/ dated 2013 (last accessed Oct. 11, 2013).
Choi, Jae Young, et al; "Towards an Automatic Face Indexing System for Actor-based Video Services in an IPTV Environment," IEEE Transactions on 56, No. 1 (2010): 147-155.
Cisco Systems, Inc. "Cisco webex: WebEx Meeting Center User Guide for Hosts, Presenters, and Participants" © 1997-2013, pp. 1-394 plus table of contents.
Cisco Systems, Inc., "Cisco Webex Meetings for iPad and iPhone Release Notes," Version 5.0, Oct. 2013, 5 pages.
Cisco Systems, Inc., "Cisco Unified Personal Communicator 8.5", 2011, 9 pages.
Eichen, Elliot, et al., "Smartphone Docking Stations and Strongly Converged VoIP Clients for Fixed-Mobile convergence," IEEE Wireless Communications and Networking Conference: Services, Applications and Business, 2012, pp. 3140-3144.
Grothaus, Michael, "How Interactive Product Placements Could Save Television," Jul. 25, 2013, 4 pages.
Hannigan, Nancy Kruse, et al., The IBM Lotus Samteime VB Family Extending the IBM Unified Communications and Collaboration Strategy (2007), available at http://www.ibm.com/developerworks/lotus/library/sametime8-new/, 10 pages.
Hirschmann, Kenny, "TWIDDLA: Smarter Than the Average Whiteboard," Apr. 17, 2014, 2 pages.
Nyamgondalu, Nagendra, "Lotus Notes Calendar and Scheduling Explained!" IBM, Oct. 18, 2004, 10 pages.
Schreiber, Danny, "The Missing Guide for Google Hangout Video Calls," Jun. 5, 2014, 6 pages.
Shervington, Martin, "Complete Guide to Google Hangouts for Businesses and Individuals," Mar. 20, 2014, 15 pages.
Shi, Saiqi, et al, "Notification That a Mobile Meeting Attendee Is Driving", May 20, 2013, 13 pages.

* cited by examiner

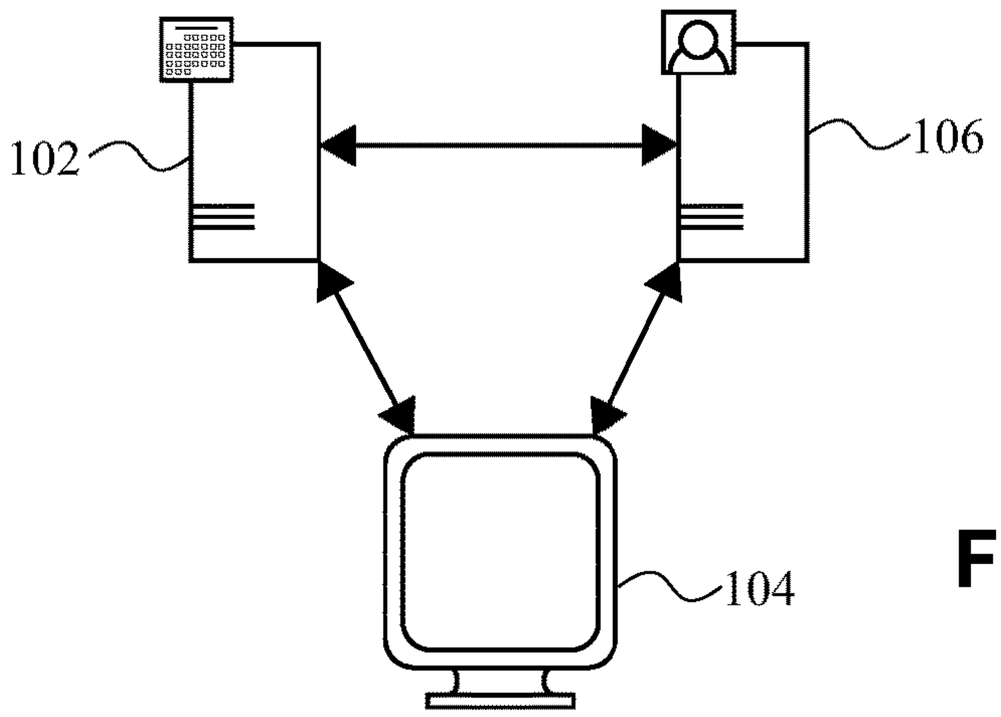

102
106
104

FIG. 1

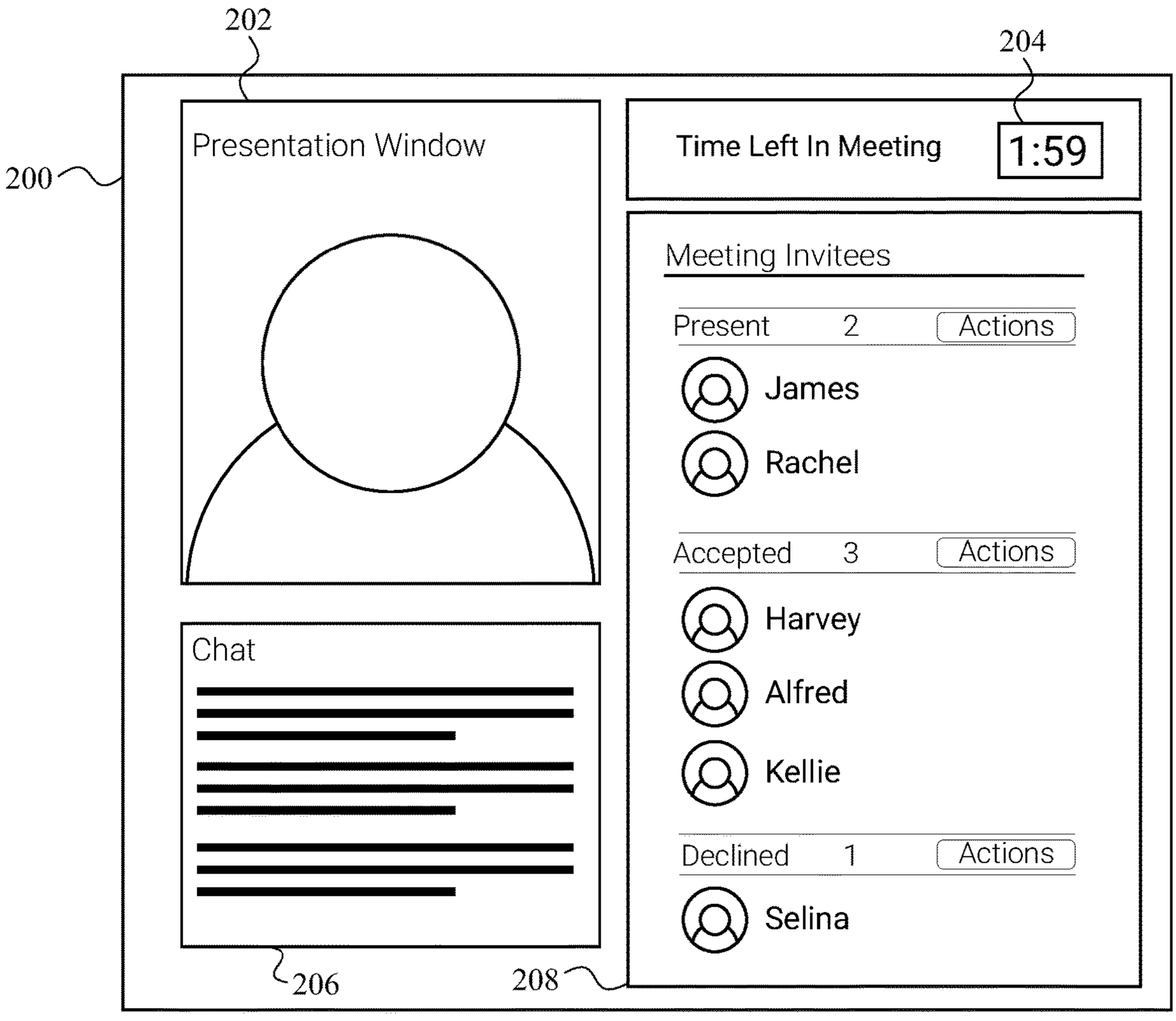

202
204
200
Presentation Window
Time Left In Meeting
1:59
Meeting Invitees
Present 2 Actions
James
Rachel
Accepted 3 Actions
Harvey
Alfred
Kellie
Declined 1 Actions
Selina
Chat
206
208

FIG. 2

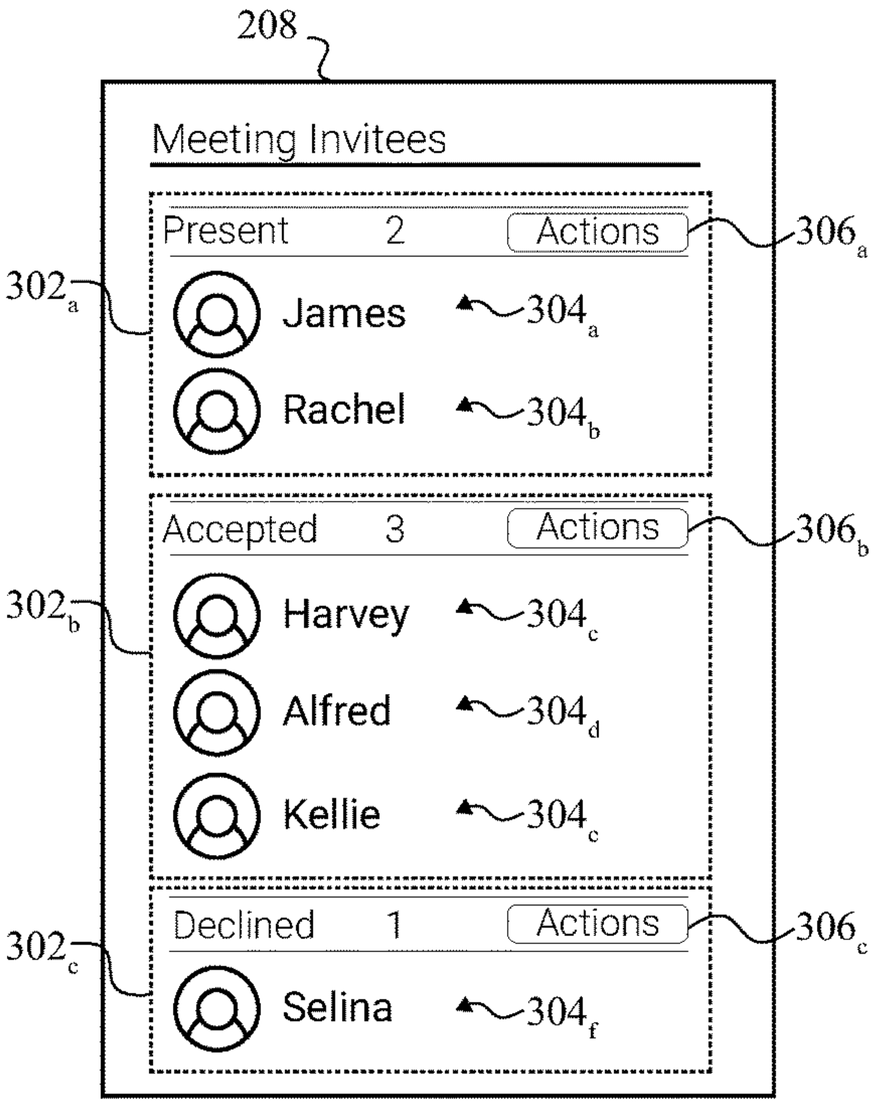


FIG. 3A

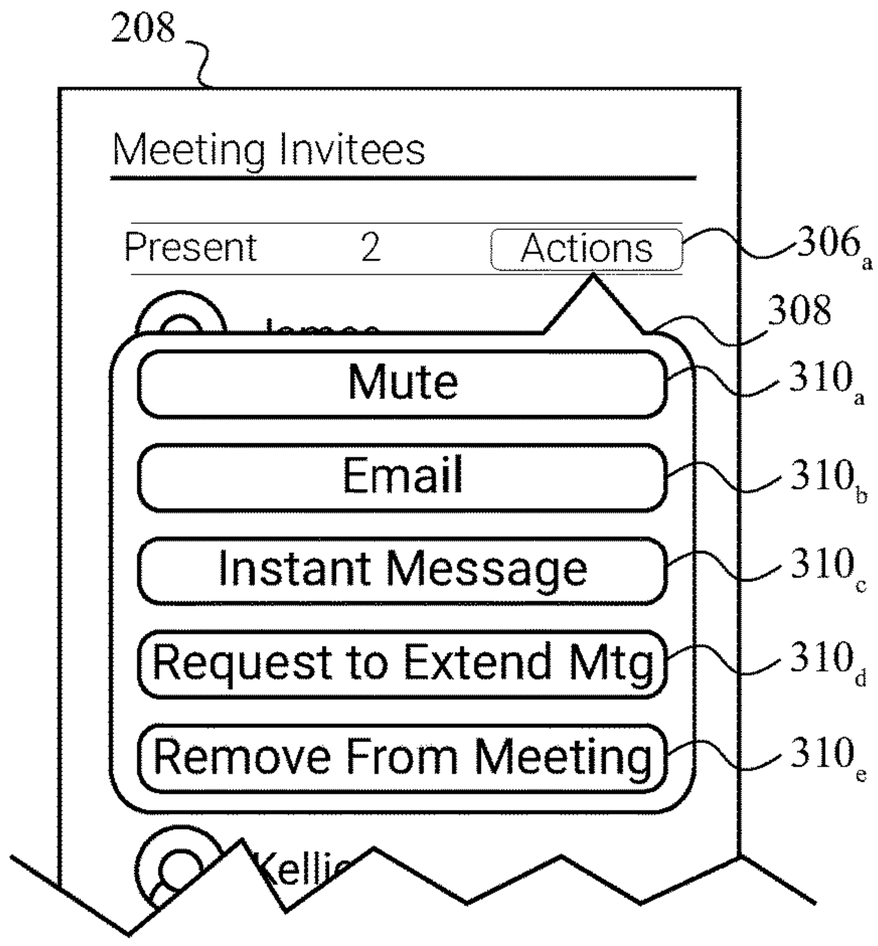


FIG. 3B

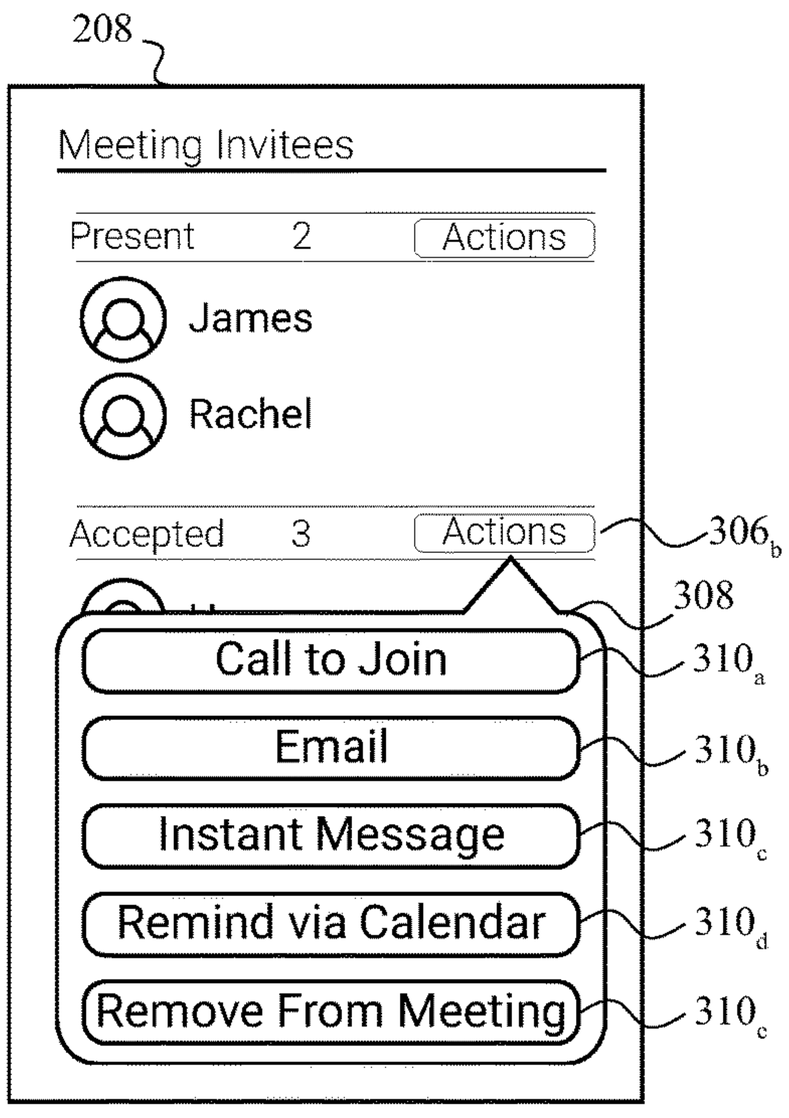


FIG. 3C

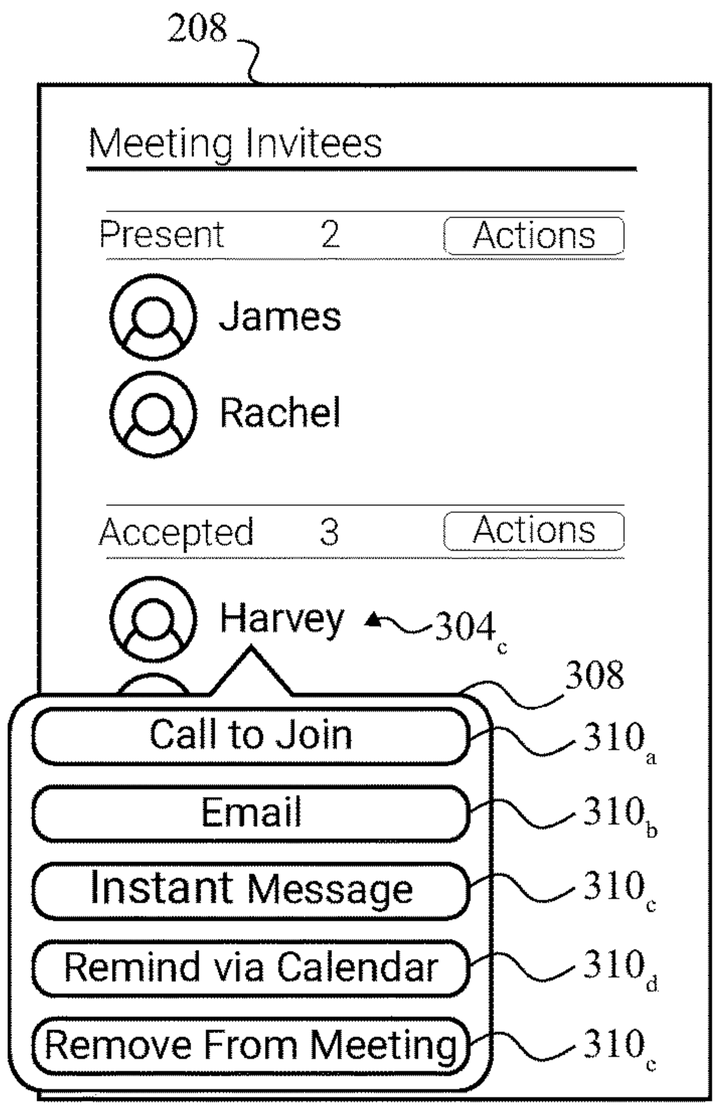


FIG. 3D

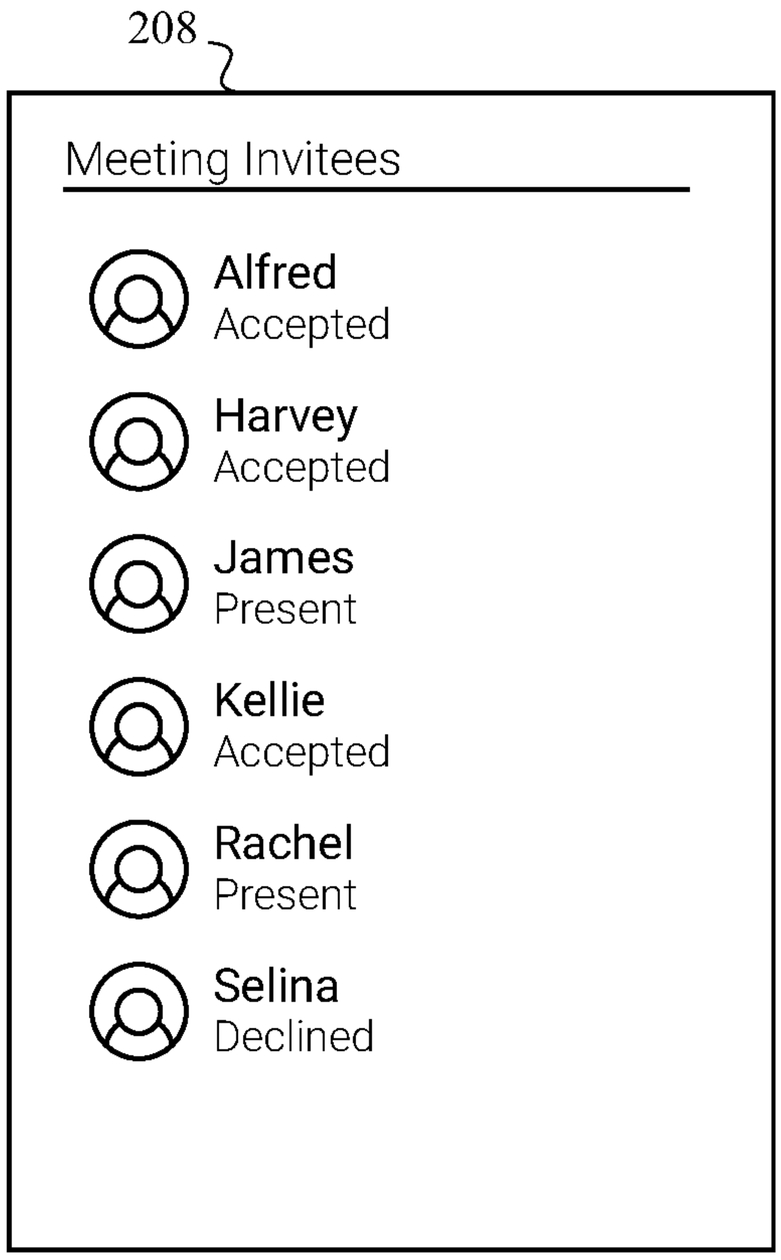

208
Meeting Invitees
Alfred
Accepted
Harvey
Accepted
James
Present
Kellie
Accepted
Rachel
Present
Selina
Declined

FIG. 3E

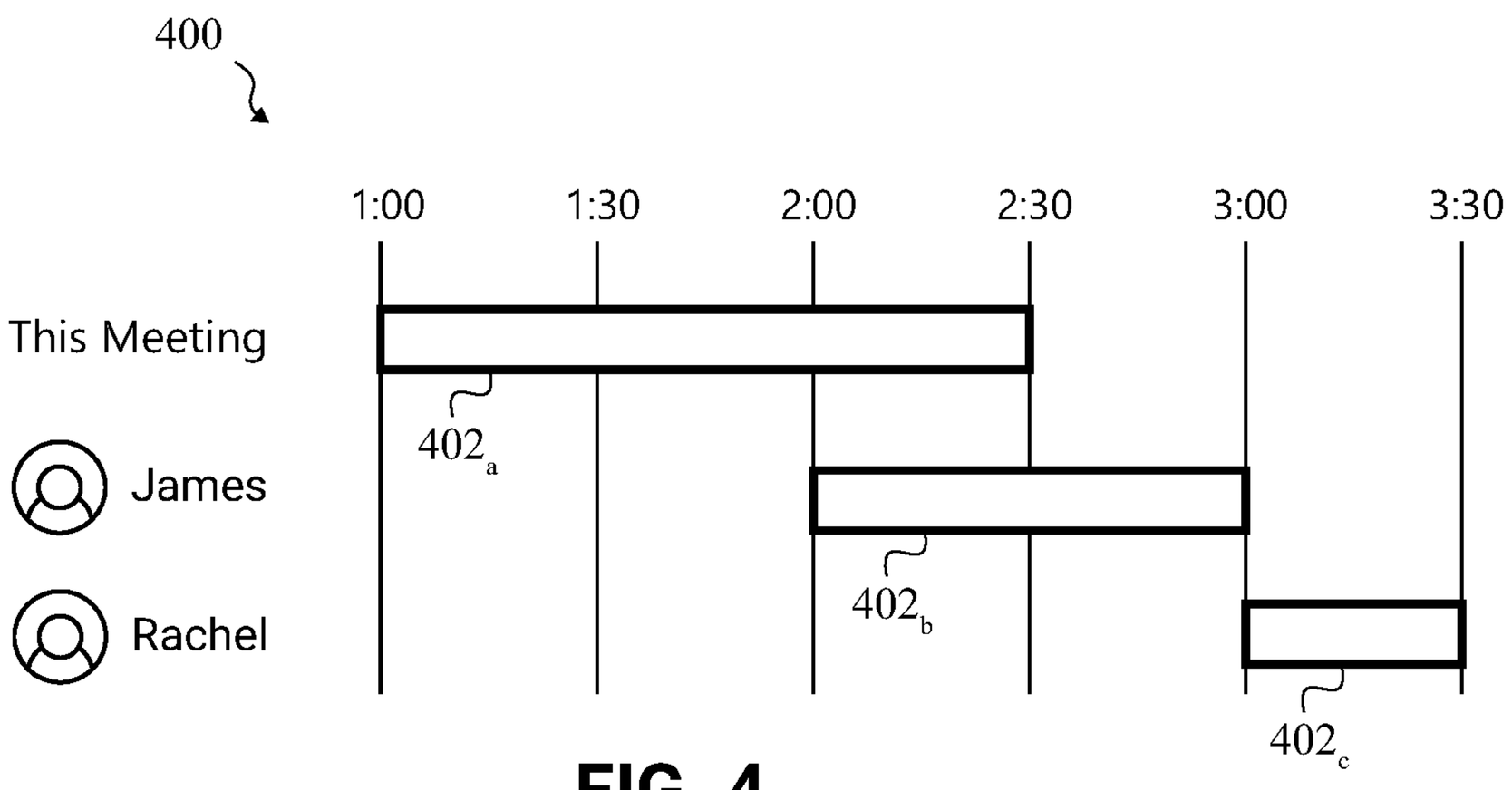

400
1:00
1:30
2:00
2:30
3:00
3:30
This Meeting
James
Rachel
402a
402b
402c

FIG. 4

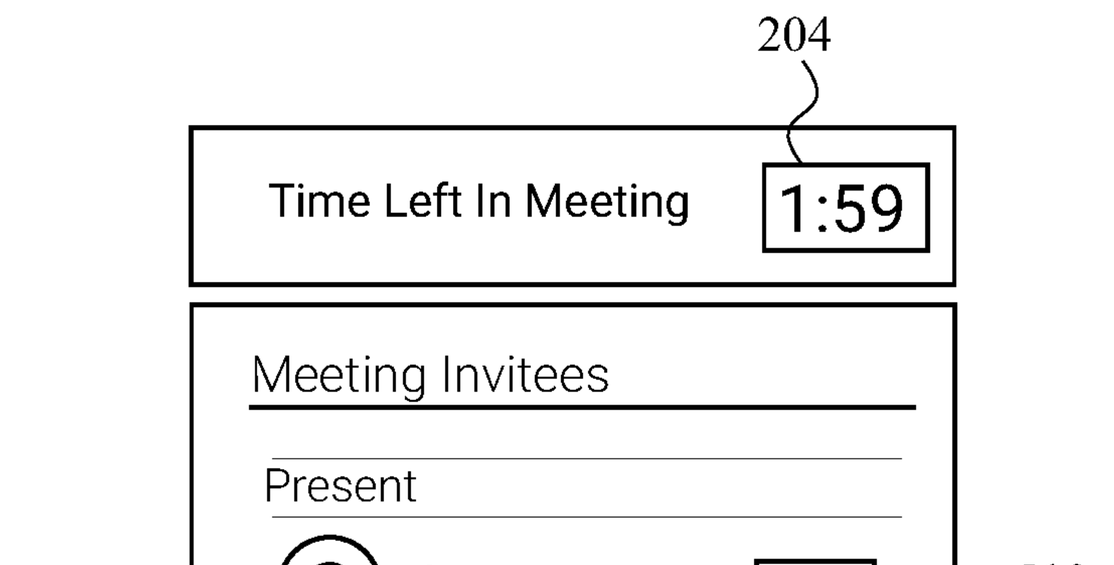

204
Time Left In Meeting
1:59
Meeting Invitees
Present
James
15:59
510a
Rachel
10:59
510b
Accepted
Harvey
10:59
510c
Alfred
1:59
510d
Kellie
-5:01
510e
Declined
Selina
208

FIG. 5

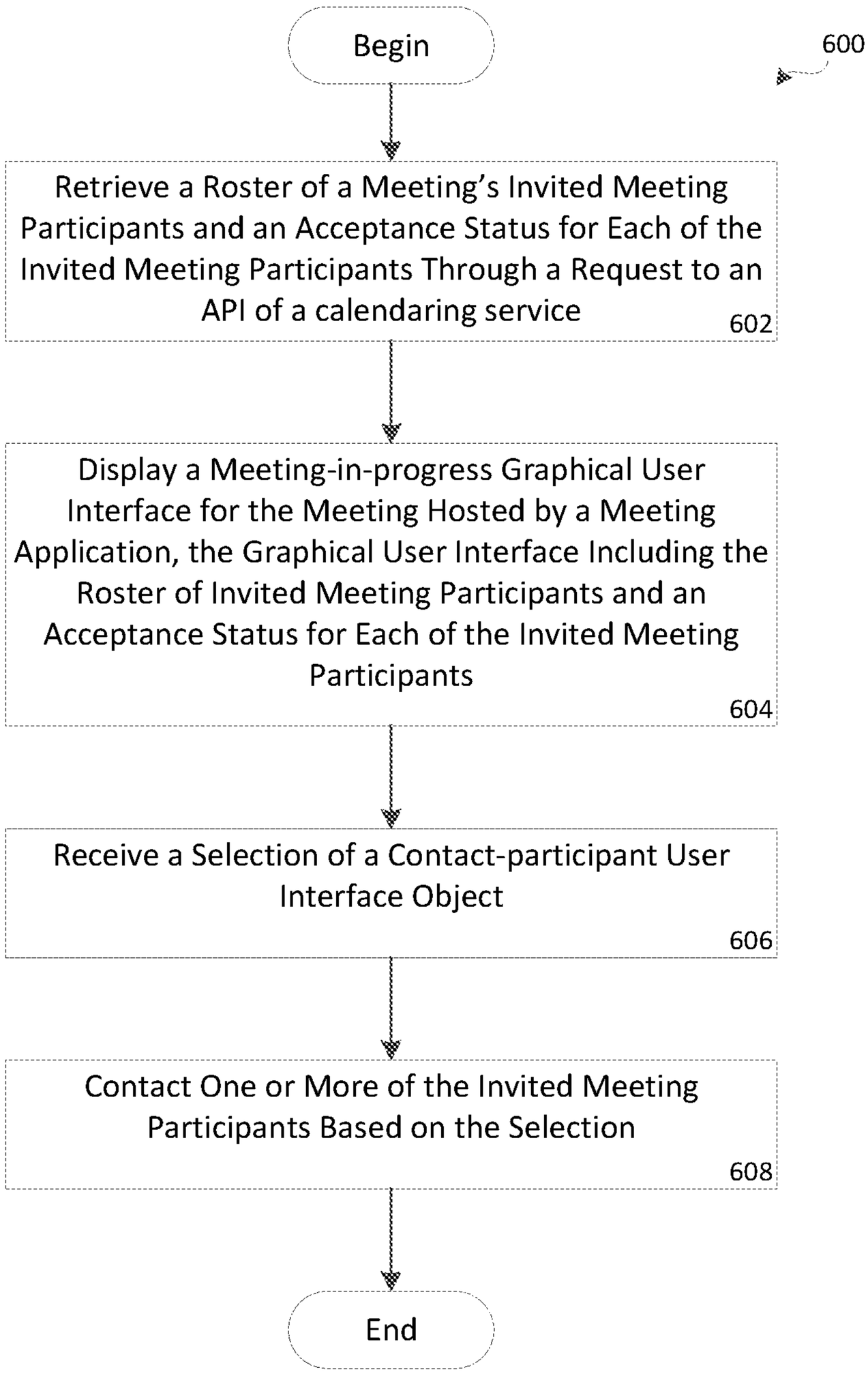

Begin
600
Retrieve a Roster of a Meeting's Invited Meeting Participants and an Acceptance Status for Each of the Invited Meeting Participants Through a Request to an API of a calendaring service
602
Display a Meeting-in-progress Graphical User Interface for the Meeting Hosted by a Meeting Application, the Graphical User Interface Including the Roster of Invited Meeting Participants and an Acceptance Status for Each of the Invited Meeting Participants
604
Receive a Selection of a Contact-participant User Interface Object
606
Contact One or More of the Invited Meeting Participants Based on the Selection
608
End

FIG. 6

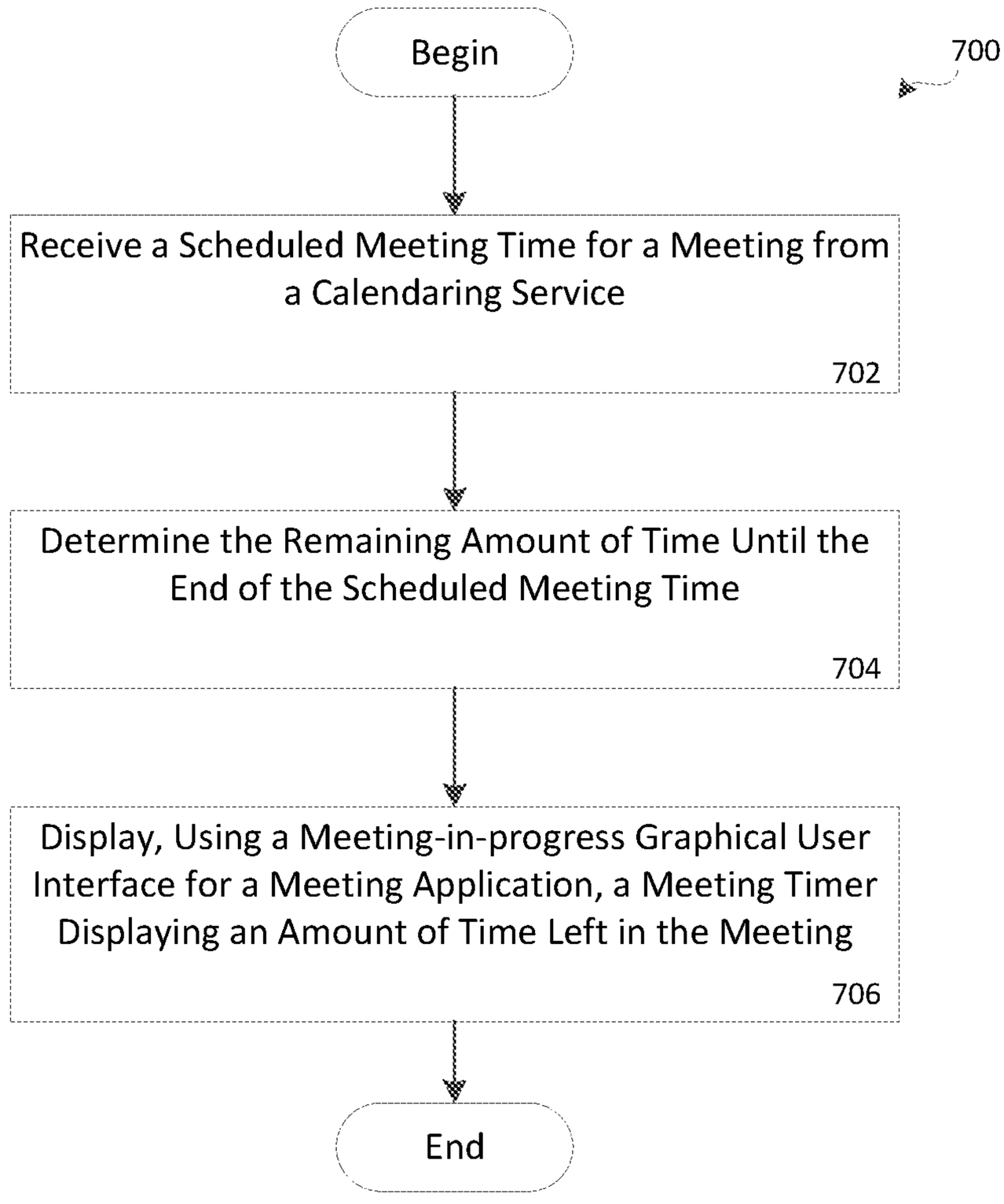

Begin
700
Receive a Scheduled Meeting Time for a Meeting from a Calendaring Service
702
Determine the Remaining Amount of Time Until the End of the Scheduled Meeting Time
704
Display, Using a Meeting-in-progress Graphical User Interface for a Meeting Application, a Meeting Timer Displaying an Amount of Time Left in the Meeting
706
End

FIG. 7

FIG. 8A

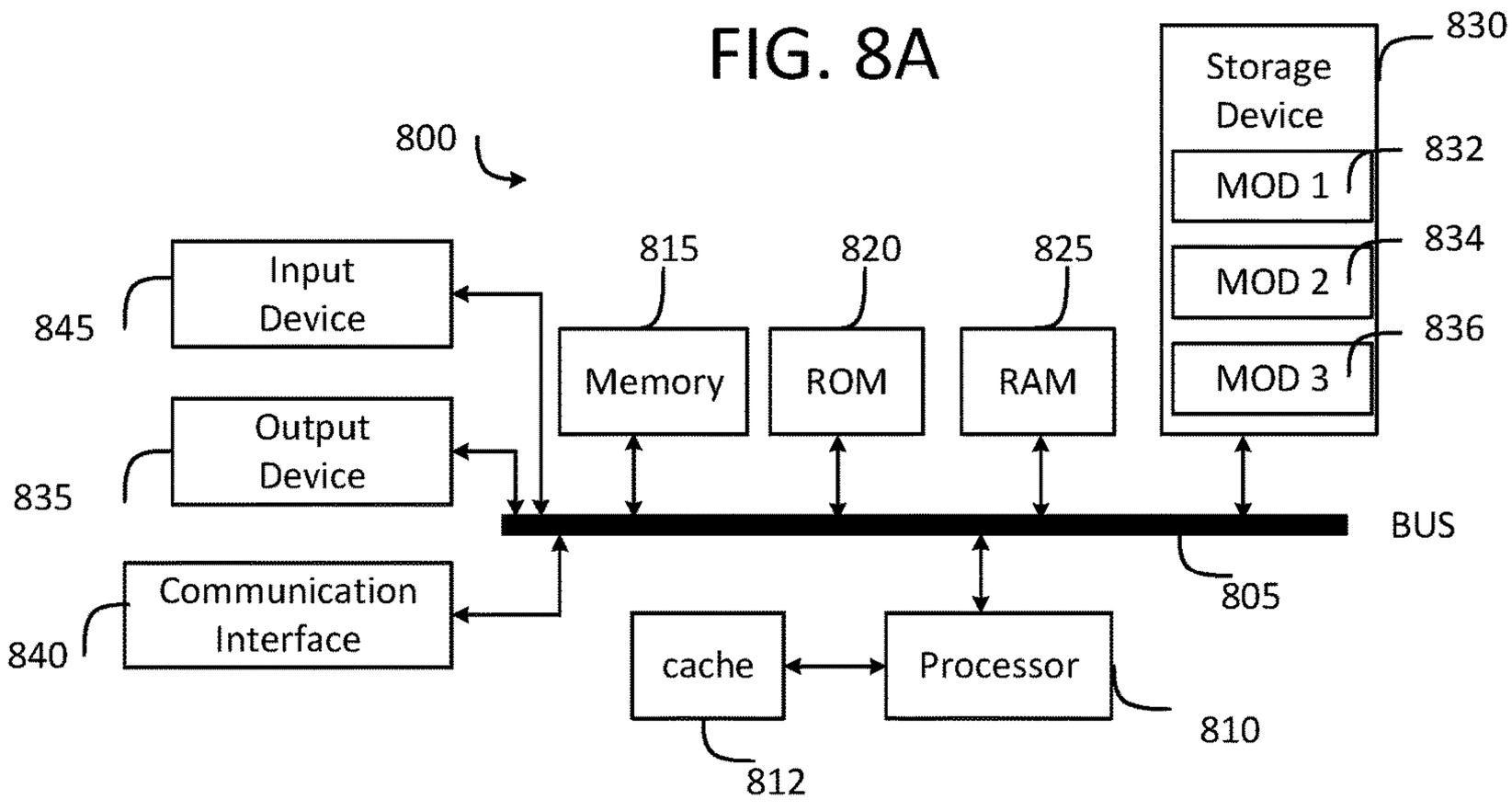
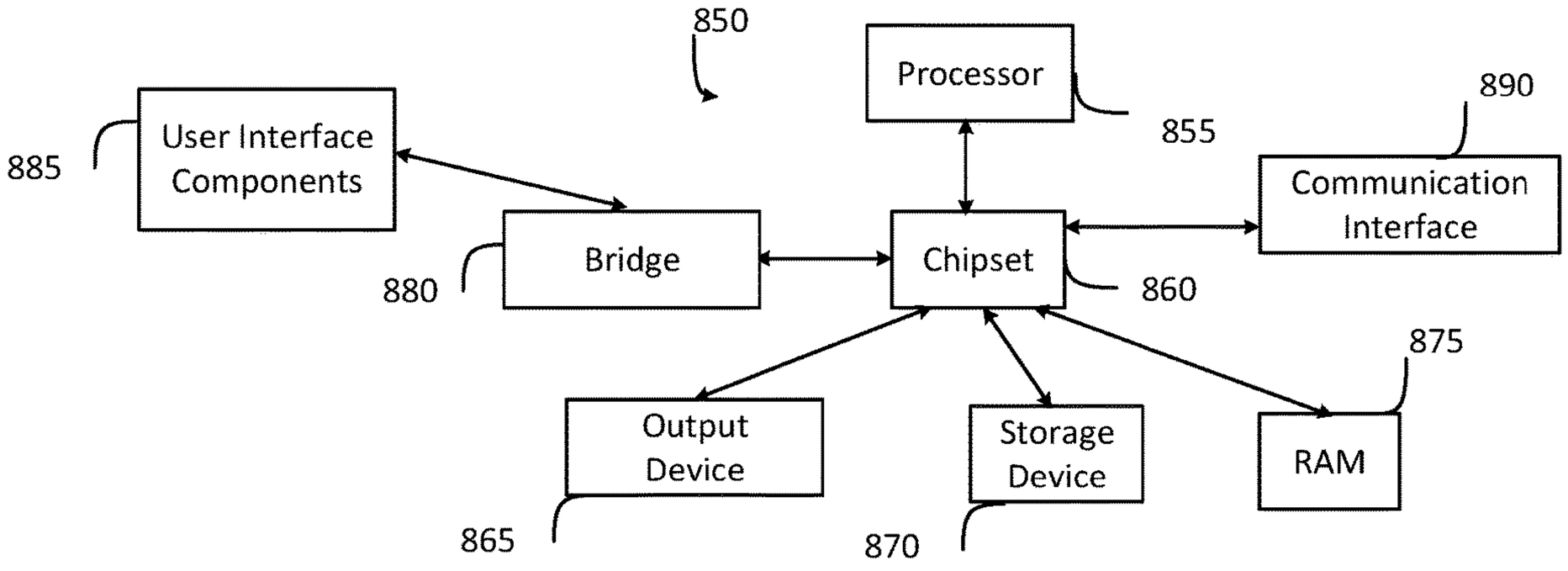

800
Input Device
845
Output Device
835
Communication Interface
840
815
Memory
820
ROM
825
RAM
Storage Device
830
MOD 1
832
MOD 2
834
MOD 3
836
BUS
805
cache
812
Processor
810

FIG. 8B


850
User Interface Components
885
Processor
855
890
Communication Interface
Bridge
880
Chipset
860
875
RAM
Output Device
865
Storage Device
870

IN-MEETING GRAPHICAL USER INTERFACE DISPLAY USING CALENDAR INFORMATION AND SYSTEM

TECHNICAL FIELD

The present technology pertains to meeting applications, and more specifically pertains to incorporating calendar information into an in-meeting graphical user interface for a meeting application.

BACKGROUND

Organizations of people typically will use software to help coordinate meetings. For example, they might user a calendaring system to send out meeting invitations and receive responses for the meeting invitations. Such a meeting can be conducted using software, such as video conferencing software. During the meeting, a meeting host will typically have to switch between a meeting application to a calendaring application to determine who accepted the meeting invitation and then to a communication application to contact invitees who accepted but are not present.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to describe the manner in which the above-recited and other advantages and features of the disclosure can be obtained, a more particular description of the principles briefly described above will be rendered by reference to specific embodiments thereof which are illustrated in the appended drawings. Understanding that these drawings depict only exemplary embodiments of the disclosure and are not therefore to be considered to be limiting of its scope, the principles herein are described and explained with additional specificity and detail through the use of the accompanying drawings in which:

FIG. **1** shows a client device in communication with a calendaring service and a meeting service;

FIG. **2** shows an example meeting-in-progress graphical user interface;

FIGS. **3**A, **3**B, **3**C, **3**D, and **3**E show various example rosters;

FIG. **4** shows an example timeline with various schedules;

FIG. **5** shows an example roster with individual timers;

FIG. **6** shows an example method for using calendar information to contact a participant;

FIG. **7** shows an example method for using calendar information to set a meeting timer; and

FIGS. **8**A and **8**B illustrate example system embodiments.

DESCRIPTION OF EXAMPLE EMBODIMENTS

Overview

Additional features and advantages of the disclosure will be set forth in the description which follows, and in part will be obvious from the description, or can be learned by practice of the herein disclosed principles. The features and advantages of the disclosure can be realized and obtained by means of the instruments and combinations particularly pointed out in the appended claims. These and other features of the disclosure will become more fully apparent from the following description and appended claims, or can be learned by the practice of the principles set forth herein.

Disclosed are systems, methods, and non-transitory computer-readable storage media for an improved in-meeting graphical user interface (GUI) that uses calendar information. This improved in-meeting GUI can receive meeting data (e.g., a video stream) for a meeting service and receive calendar information (e.g., the meeting start time, end time, participants, participants' acceptance status, etc.) from a calendaring service. Using the calendar information, the in-meeting GUI can present the participants' status, a timer showing when the meeting is scheduled to end, and a variety of additional features. The in-meeting GUI can further use the calendar information to contact invitees that have not yet joined the meeting. For example, to remind them to join or to have them join via telephone.

EXAMPLE EMBODIMENTS

Various embodiments of the disclosure are discussed in detail below. While specific implementations are discussed, it should be understood that this is done for illustration purposes only. A person skilled in the relevant art will recognize that other components and configurations may be used without parting from the spirit and scope of the disclosure.

The disclosed technology addresses the need in the art for incorporating calendar information, presence tools, and communication tools, into an in-meeting graphical user interface for a meeting application.

The meeting application described herein can gather calendar information from a calendaring service, even if that calendaring service is independent from (e.g., a "third party to") the meeting service. The meeting application can incorporate the calendar information into an in-meeting graphical user interface so that the calendar information can be displayed with the meeting. In some embodiments, this includes listing all invitees and participants alongside their associated acceptance status (e.g., are they present, did they accept, did they decline, etc.). In some embodiments, the calendar information can inform a meeting timer that can indicate the remaining time for the meeting. In some embodiments, the calendar information can inform individual timers that indicate how much time individual participants have before their next appointment.

FIG. **1** shows client device **104** in communication with calendaring service **102** and meeting service **106**. Client device **104** can run a calendar application (including a web application) that can view and modify a calendar associated with a user account. A calendar item can be created on client device **104** and sent to or synchronized with calendaring service **102**. Calendaring service **102** can manage calendar(s) for various user account(s). Calendaring service **102** can facilitate sharing of calendars so that one user can view the calendar of another user. A calendar item can have a starting date and time, an ending date and time, a location (e.g., room number, dial-in number, web address, etc.), notes, attendees, participants, etc. Calendaring service **102** can send invitations for a user or group of users to join a calendar item; calendaring service **102** can keep track of responses to such invitations.

Meeting service **106** can facilitate meetings between various users. Facilitating meetings can include coordinating the intercommunication of messages, video streams, audio streams, screen shares, etc. between participants (on respective client devices **104**). Meeting service **106** can send (or facilitate the sending of) the data mentioned above—the messages, video streams, audio streams, screen shares, etc. to client device **104**. Client device **104** can run a meeting graphical user interface to represent the data received from meeting service **106**.

In some embodiments, calendaring service **102** is a "third-party" to meeting service **106**. For example, calendaring service **102** can be operated by one service provider and meeting service **106** can be operated by another service provider.

In some embodiments, a calendar item can be associated with a meeting hosted by meeting service **106**. For example, when the calendar item is sent to participants, the participant can select a link in the invitation to join an associated meeting hosted by meeting service **106**. When a host creates the calendar item for the meeting, meeting service can "reserve" resources for the meeting to use. For example, the meeting service can reserve a link, a meeting number, bandwidth, etc. In some embodiments, each user account associated with meeting service **106** has his or her dedicated meeting "room" and when that user creates a calendar item for a meeting, the user's dedicated room is assigned to that calendar item.

A variety of techniques can be used to create a calendar item, reserve resources of the meeting service for a meeting, and associate the calendar item with the meeting. For example, a host can create a calendar item using a calendaring application. The calendaring application can send a request to reserve resources to the meeting service. The request can also provide an identifier for the calendar item. When the calendaring application sends the request to the meeting service, the meeting service can return a meeting identifier. In some embodiments, the calendaring service sends the request to reserve resources (instead of, or on behalf of, the calendar application) to the meeting service and similarly receives the meeting identifier. In some embodiments, the calendaring application can send the request to reserve resources to the meeting application and can receive a meeting identifier in response.

In some embodiments, a host uses a meeting application to send a meeting request to the meeting service to reserve resources for a meeting; the meeting service can return a meeting identifier. The meeting application can also send a request to calendaring service to create a calendar item; the request can include the meeting identifier so that the calendaring service can associate the calendar item with the meeting identifier. The calendaring service can then return an identifier for the calendar item which the meeting application can send to the meeting service for association with the meeting. In some embodiments, the meeting service (instead of or on behalf of the meeting application) sends the request to create a calendar item and, in the request, provides a meeting identifier. The calendaring service can then return a calendar item identifier for association with the meeting. In some embodiments, the meeting application can send the request to create a calendar item to the calendar application and can receive a calendar item identifier in response.

In some embodiments, a host can manually associate meeting resources with a calendar item. For example, the host can supply a meeting identifier to the calendaring service and/or a calendar item identifier to the meeting service. In some embodiments, the calendar application and meeting application are two modules as a part of a single organization application.

In some embodiments, the calendaring service and/or calendar application can get up-to-date information for the meeting from the meeting service using the meeting identifier and a meeting service application programming interface (API). In this way, the calendaring service and/or calendar application can receive up-to-date information from the meeting service about meeting resources etc. The calendaring application can benefit from meeting information (e.g., include a phone number to join the meeting within the calendar item, indicate who is currently in the meeting, indicate whether the meeting has ended early, etc.).

Similarly, in some embodiments the meeting service and/or meeting application can get up-to-date information for the calendar item from the calendaring service using the calendar item identifier and the calendaring service API. In this way, the meeting application can then benefit from calendar item information (e.g., who is invited to the meeting, who has accepted invitations, contact information for invitees, invitees' schedules, etc.). In some embodiments, the meeting service and/or meeting application can get up-to-date information for the calendar item from the calendaring service via one or more notifications broadcast by the calendaring service. The notifications may be synchronous or asynchronous.

Communications between calendaring service (or calendar application) and meeting service (or meeting application) can utilize a calendar item identifier or meeting identifier to specify the calendar item or meeting for the request.

Client device **104** can run a calendar application that interfaces (i.e., communicate with) with calendaring service **102** and a meeting application hosting a meeting graphical user interface that interfaces with meeting service **106**. The meeting application can also interface with calendaring service **102** and calendar application. Similarly, calendar application can interface with meeting service **106** and meeting graphical user interface. Meeting service **106** and calendaring service **102** can intercommunicate. Therefore, it should be understood that any application, service, or device can acquire data from any other application, service, or device—even at times going through another application, service, or device. For example, meeting graphical user interface can request information associated with a calendar item from meeting service **106**; for example the calendar item can be a calendar item associated with a current meeting. Meeting service **106** can acquire that information from calendaring service **102**. In some embodiments, calendar application and meeting application are the same application, and in some embodiments they are hosted by unrelated service providers. In some embodiments, calendar and/or meeting application are web applications that are rendered on client device **104**.

FIG. **2** shows an example meeting-in-progress graphical user interface **200** ("meeting GUI **200**"). Meeting GUI **200** can be presented to a user before a meeting, after a meeting, or during a meeting (e.g., while the meeting is in-progress). Meeting GUI **200** can be presented on client device **104** and hosted by a meeting application. In some embodiments, multiple users on various client devices **104** can be presented with similar, although not necessarily identical, meeting GUIs **200** corresponding to the same meeting.

Meeting GUI **200** can include presentation window **202**. Presentation window **202** can include a video stream from other meeting attendees, a screen share of another attendee, etc. Meeting GUI **200** can include chat window **206** which can contain messages from meeting attendees. Meeting GUI **200** can include meeting timer **204** which can display the amount of time left in the meeting. Meeting GUI can include roster **208** of invited meeting participants and their current status associated with the meeting.

FIGS. **3**A-**3**E show various example rosters **208**. In FIG. **3**A, roster **208** organizes invited meeting participants **304**$_a$-**304**$_f$ (generically, "participant **304**") into groups **302**$_a$-**302**$_c$ (generically, "group **302**") according to their accepted status. For example, James (participant **304**$_a$) and Rachel (participant **304**$_b$) are both "present" while Harvey, Alfred, and

Kellie (participants 304_c-304_e, respectively) are "accepted" and Selina (participant 304_g) is "declined". Accepted status can refer to any combination of a participant's **304** response to an event item invitation (e.g., "accept", "decline", "maybe", "interested", "ignore", "not-invited", etc.), the event item's transmission status for a participant **304** (e.g., "received", "viewed", "error", etc.), the participant's **304** current attendance status (e.g., "present", "muted", "view-only", etc.), the user's connection method (e.g., connected via telephone, conference facility, personal computer, etc.), and any other attribute that can describe the participant's **304** status. In some embodiments, participants **304** can be hidden within group **302**—this can be useful when large numbers of participants **304** are a part of a group.

In some embodiments, a participant's **304** accepted status can be informed based on calendaring service **102**. For example, meeting service **106** can communicate via an API to calendaring service **102** to retrieve accepted status information which can then be sent to client device **104**. In some embodiments, meeting service **106** can receive one or more notifications from calendaring service **102**, wherein the notifications contain accepted status information which can be read and then sent to client device **104**. Other information can be retrieved from calendaring service **102** for the purpose of being presented in the meeting GUI **200**, through one or more of the API or the notifications. For example, this information can include other calendar items for a participant **304**, contact information for a participant **304**, current location of a participant **304**, etc. A participant's **304** accepted status can also be informed by other data sources such as social media, employee directories, government databases, etc.

In FIG. **3**A, group 302_a represents "present" participants **304** which can mean participants **304** that have received an invitation, accepted the invitation, and are present. Group 302_b represents "accepted" participants **304** which can mean participants **304** that have received an invitation, accepted the invitation, and are not currently present in the meeting. Group 302_e represents a participant **304** that has "declined" the invitation and is not present. It should be understood that groupings can be based on various statuses and have various labels. A participant **304** can be in multiple groups **302**. It should be understood that the principles disclosed herein for a participant **304** can also apply to users that are not invited, are requesting to join, are the host, etc. In some embodiments, roster **208** can place the current user (i.e., the user that is viewing roster **208**) in a separate group **302**.

Action buttons **306** can be selectable objects that can provide a user with a way to interact with participants **304** in a group **302**. For example, in FIG. **3**B, selecting action button 306_a can trigger action menu **308** which can have multiple action buttons **310** for interacting with participants **304**. For example, selecting action button 310_a in FIG. **3**B can mute the participants **304** of the respective group **302**. Action buttons **310** can be a contact-participant user interface object. For example, action button 310_b can initiate emails to each participant **304** individually or one email to all participants **304** of the group **302**. Similarly, other action buttons **310** can initiate actions individually or to the group **302**. Other action buttons include instant message (action button 310_e), request to extend meeting (action button 310_d of FIG. **3**B), remove from meeting (action button 310_e), create meeting (e.g., for a future meeting), etc.

Action menu **308** can be contextual and provide different action buttons **310** based on the group **302** associated with the action button **306**. For example, in FIG. **3**C action button 306_b is associated with group 302_b which includes participants **304** that have accepted the meeting invitation but aren't present; because they are not present, action menu **308** includes action button 310_d to "remind via calendar" which can send out a calendar reminder to those participants **302**. Other context-specific action buttons **310** are contemplated. For example, a button to get the location of an absent participant **302**, a button to contact an assistant of an absent participant **302**, a button to allow an uninvited user to join meeting, a button to call a participant to have them join via telephone (action button 310_a of FIG. **3**C), etc.

In some embodiments, action menu **308** can be activated when a participant **304** is selected. This can be an action menu **308** specific to that participant **304**. For example, Harvey (participant 304_c) of FIG. **3**D can trigger action menu **308**. In such embodiments, action menu **308** can contain contextual action buttons **310** as described above. In some embodiments, action menu **308** can be triggered by selecting action button **306** or participant **304**.

In some embodiments, participants **304** can be organized according to various systems. For example, in FIG. **3**E participants **304** are organized alphabetically. In some embodiments, participants **304** can have an indicator that indicates their status (e.g., "accepted", "present", "declined", etc.

Meeting timer **204** (shown in FIG. **2**) can represent the amount of time remaining for the current meeting. Meeting timer **204** can be calculated based on various parameters as shown in FIG. **4**. For example, meeting timer can be calculated based on this meeting's schedule 402_a, a participant's schedule (e.g., schedule 402_b or schedule 402_c), a schedule for a conference room, a schedule for a resource (e.g., Telephone Bridge), etc. For example, even though this meeting's schedule 402_a does not end until 2:30, meeting timer **204** can show a countdown until 2:00 because that is when James' schedule 204_b has him at another meeting. Meeting timer **204** can also represent how late the meeting can be extended. For example, this meeting's schedule 402_a ends after James is scheduled to be busy but Rachel can remain on the meeting until 3:00 (as indicated by schedule 402_c), therefore the meeting can be extended until 3:00 without causing scheduling problems with any participant **304**. When calculating meeting timer **204**, travel time, inter-meeting breaks, set up time, etc. can be accounted for. In some embodiments, meeting timer **204** can be shown only when relevant (e.g., when there is only a short amount of time left in the meeting). Meeting timer **204** can be overlaid on top of presentation window **202**.

In some embodiments, when meeting timer **204** shows that the meeting should be over, the meeting can automatically end and close connections between participants. This can help ensure meetings do not exceed their allotted time.

As introduced above, an action button **310** can be selected to suggest to extend the meeting. If a user selects such an action button **310**, the meeting application can send such a suggestion only to those that are able to remain after the meeting's scheduled end time.

FIG. **5** shows individual timers 510_a-510_e (generically, "individual timer **510**") within roster **208**. Individual timers **510** can represent the availability of the respective participant **302**. The principles for meeting timer **204** can be applied to individual timers **510**. For example, individual timer 510_a for James can show that he has 15 minutes and 59 seconds of availability while individual timer 510_e for Kellie has negative 5 minutes and 1 second of availability. Negative availability can indicate that a participant **302** is late for another calendar item.

Information for calculating individual timers **510** can be retrieved according to the principles herein disclosed. For example, client device **104** can retrieve this data from calendaring service **102**. It can also be retrieved via meeting service **106**.

FIG. **6** shows an example method **600** according to some embodiments. A system performing example method **600** can begin and retrieve a roster of a meeting's invited meeting participants and an acceptance status for each of the invited meeting participants through a request to an API of a calendaring service (step **602**). In some embodiments, the system may receive one or more notifications from a calendaring service, where the notifications contain data underlying the roster of a meeting's invited meeting participants and an acceptance status for each of the invited meeting participants. One notification can contain all of the necessary data, or the data can be split across multiple notifications. The notifications may be asynchronous.

The system can then display a meeting-in-progress graphical user interface for the meeting hosted by a meeting application, the graphical user interface including the roster of invited meeting participants and an acceptance status for each of the invited meeting participants (step **604**). The meeting-in-progress graphical user interface can include a contact-participant user interface object (e.g., action button **306**). The contact-participant user interface object can be effective to receive a selection of the contact-participant user interface object. As a result of such a selection, the contact-participant interface object can be effective to automatically contact one or more of the invited meeting participants.

The system can then receive a selection of a contact-participant user interface object (step **606**). The system can then contact one or more of the invited meeting participants based on the selection (step **608**). For example, the one or more of the invited meeting participants can correspond with the selection. If the selected user interface object is associated with a group **302**, then step **608** can include contacting each meeting participant of the group.

FIG. **7** shows an example method **700** according to some embodiments. A system performing example method **700** can begin and receive a scheduled meeting time for a meeting from a calendaring service (step **702**). The scheduled meeting time can include a start time, an end time, a duration, etc. The system can then determine the remaining amount of time until the end of the scheduled meeting time (step **704**). The system can then display, using a meeting-in-progress graphical user interface for a meeting application, a meeting timer displaying an amount of time left in the meeting (step **706**).

FIG. **7**A, and FIG. **7**B illustrate exemplary possible system embodiments. The more appropriate embodiment will be apparent to those of ordinary skill in the art when practicing the present technology. Persons of ordinary skill in the art will also readily appreciate that other system embodiments are possible.

FIG. **7**A illustrates a conventional system bus computing system architecture **700** wherein the components of the system are in electrical communication with each other using a bus **705**. Exemplary system **700** includes a processing unit (CPU or processor) **710** and a system bus **705** that couples various system components including the system memory **715**, such as read only memory (ROM) **720** and random access memory (RAM) **725**, to the processor **710**. The system **700** can include a cache of high-speed memory connected directly with, in close proximity to, or integrated as part of the processor **710**. The system **700** can copy data from the memory **715** and/or the storage device **730** to the cache **712** for quick access by the processor **710**. In this way, the cache can provide a performance boost that avoids processor **710** delays while waiting for data. These and other modules can control or be configured to control the processor **710** to perform various actions. Other system memory **715** may be available for use as well. The memory **715** can include multiple different types of memory with different performance characteristics. The processor **710** can include any general purpose processor and a hardware module or software module, such as module **1 732**, module **2 734**, and module **3 736** stored in storage device **730**, configured to control the processor **710** as well as a special-purpose processor where software instructions are incorporated into the actual processor design. The processor **710** may essentially be a completely self-contained computing system, containing multiple cores or processors, a bus, memory controller, cache, etc. A multi-core processor may be symmetric or asymmetric.

To enable user interaction with the computing device **700**, an input device **745** can represent any number of input mechanisms, such as a microphone for speech, a touch-sensitive screen for gesture or graphical input, keyboard, mouse, motion input, speech and so forth. An output device **735** can also be one or more of a number of output mechanisms known to those of skill in the art. In some instances, multimodal systems can enable a user to provide multiple types of input to communicate with the computing device **700**. The communications interface **740** can generally govern and manage the user input and system output. There is no restriction on operating on any particular hardware arrangement and therefore the basic features here may easily be substituted for improved hardware or firmware arrangements as they are developed.

Storage device **730** is a non-volatile memory and can be a hard disk or other types of computer readable media which can store data that are accessible by a computer, such as magnetic cassettes, flash memory cards, solid state memory devices, digital versatile disks, cartridges, random access memories (RAMs) **725**, read only memory (ROM) **720**, and hybrids thereof.

The storage device **730** can include software modules **732**, **734**, **736** for controlling the processor **710**. Other hardware or software modules are contemplated. The storage device **730** can be connected to the system bus **705**. In one aspect, a hardware module that performs a particular function can include the software component stored in a computer-readable medium in connection with the necessary hardware components, such as the processor **710**, bus **705**, display **735**, and so forth, to carry out the function.

FIG. **7**B illustrates a computer system **750** having a chipset architecture that can be used in executing the described method and generating and displaying a graphical user interface (GUI). Computer system **750** is an example of computer hardware, software, and firmware that can be used to implement the disclosed technology. System **750** can include a processor **755**, representative of any number of physically and/or logically distinct resources capable of executing software, firmware, and hardware configured to perform identified computations. Processor **755** can communicate with a chipset **760** that can control input to and output from processor **755**. In this example, chipset **760** outputs information to output **765**, such as a display, and can read and write information to storage device **770**, which can include magnetic media, and solid state media, for example. Chipset **760** can also read data from and write data to RAM **775**. A bridge **780** for interfacing with a variety of user interface components **785** can be provided for interfacing

with chipset **760**. Such user interface components **785** can include a keyboard, a microphone, touch detection and processing circuitry, a pointing device, such as a mouse, and so on. In general, inputs to system **750** can come from any of a variety of sources, machine generated and/or human generated.

Chipset **760** can also interface with one or more communication interfaces **790** that can have different physical interfaces. Such communication interfaces can include interfaces for wired and wireless local area networks, for broadband wireless networks, as well as personal area networks. Some applications of the methods for generating, displaying, and using the GUI disclosed herein can include receiving ordered datasets over the physical interface or be generated by the machine itself by processor **755** analyzing data stored in storage **770** or **775**. Further, the machine can receive inputs from a user via user interface components **785** and execute appropriate functions, such as browsing functions by interpreting these inputs using processor **755**.

It can be appreciated that exemplary systems **700** and **750** can have more than one processor **710** or be part of a group or cluster of computing devices networked together to provide greater processing capability.

For clarity of explanation, in some instances the present technology may be presented as including individual functional blocks including functional blocks comprising devices, device components, steps or routines in a method embodied in software, or combinations of hardware and software.

In some embodiments the computer-readable storage devices, mediums, and memories can include a cable or wireless signal containing a bit stream and the like. However, when mentioned, non-transitory computer-readable storage media expressly exclude media such as energy, carrier signals, electromagnetic waves, and signals per se.

Methods according to the above-described examples can be implemented using computer-executable instructions that are stored or otherwise available from computer readable media. Such instructions can comprise, for example, instructions and data which cause or otherwise configure a general purpose computer, special purpose computer, or special purpose processing device to perform a certain function or group of functions. Portions of computer resources used can be accessible over a network. The computer executable instructions may be, for example, binaries, intermediate format instructions such as assembly language, firmware, or source code. Examples of computer-readable media that may be used to store instructions, information used, and/or information created during methods according to described examples include magnetic or optical disks, flash memory, USB devices provided with non-volatile memory, networked storage devices, and so on.

Devices implementing methods according to these disclosures can comprise hardware, firmware and/or software, and can take any of a variety of form factors. Typical examples of such form factors include laptops, smart phones, small form factor personal computers, personal digital assistants, and so on. Functionality described herein also can be embodied in peripherals or add-in cards. Such functionality can also be implemented on a circuit board among different chips or different processes executing in a single device, by way of further example.

The instructions, media for conveying such instructions, computing resources for executing them, and other structures for supporting such computing resources are means for providing the functions described in these disclosures.

Although a variety of examples and other information was used to explain aspects within the scope of the appended claims, no limitation of the claims should be implied based on particular features or arrangements in such examples, as one of ordinary skill would be able to use these examples to derive a wide variety of implementations. Further and although some subject matter may have been described in language specific to examples of structural features and/or method steps, it is to be understood that the subject matter defined in the appended claims is not necessarily limited to these described features or acts. For example, such functionality can be distributed differently or performed in components other than those identified herein. Rather, the described features and steps are disclosed as examples of components of systems and methods within the scope of the appended claims.

The invention claimed is:

1. A non-transitory computer-readable medium comprising computer executable instructions stored thereon, the instructions when executed are effective to cause a computer to:

display, via a display, a meeting-in-progress graphical user interface for a meeting hosted by a meeting application, the graphical user interface including a roster of invited meeting participants based on an acceptance status for each of the invited meeting participants, the roster including a first listing of any present ones of the invited meeting participants, a second listing of any accepted ones of the invited meeting participants, and a third listing of any declined ones of the invited meeting participants,

wherein,

at least one of the first listing, the second listing, or the third listing of the acceptance status includes a first menu of available actions for a first grouping of the invited meeting participants,

another one of the first listing, the second listing, or the third listing of the acceptance status includes a second menu of available actions for a second grouping of the invited meeting participants, and

selection of one or more actions in the first menu of available actions or the second menu of available actions causes the one or more actions to be executed for every participant listed in a corresponding one of the first grouping of the invited meeting participants or the second grouping of the invited meeting participants.

2. The computer-readable medium of claim **1**, wherein the meeting-in-progress graphical user interface includes a contact-participant user interface object, the contact-participant user interface object being effective to receive a selection of the contact-participant user interface object, and after receipt of the selection, contact one or more of the invited meeting participants.

3. The computer-readable medium of claim **2**, wherein the instructions are effective to cause the computer to automatically contact one or more of the invited meeting participants by: creating an instant message using an instant message application and delivering the instant message to the one or more of the invited meeting participants.

4. The computer-readable medium of claim **2**, wherein the instructions are effective to cause the computer to contact one or more of the invited meeting participants by: prompting a user to enter a message to create an instant message using an instant message application and delivering the instant message to the one or more of the invited meeting participants.

5. The computer-readable medium of claim 1, wherein,

the first menu of available actions includes a first plurality of interaction options,

the first plurality of interaction options includes mute, email, and instant message,

the second menu of available actions includes a second plurality of interaction options,

the second plurality of interaction options includes call to join and remind via calendar,

the first menu includes at least one action not listed via the second menu, and

the first menu is displayed at a different time than the second menu.

6. The computer-readable medium of claim 1, wherein the meeting-in-progress graphical user interface includes a contact-participant user interface object next to the meeting participants organized into the accepted status, wherein an accepted status means that the participant has accepted a meeting invitation but has not joined the meeting, the contact-participant user interface object being effective to contact the meeting participants organized into the accepted status.

7. The computer-readable medium of claim 1, wherein the instructions are effective to cause the computer to:

retrieve the roster of invited meeting participants and the acceptance status for each of the invited meeting participants through a request to an API of a calendaring service.

8. The computer-readable medium of claim 1, wherein the instructions are effective to cause the computer to:

receive one or more notifications from a calendaring service, the one or more notifications comprising one or more of the roster of invited meeting participants and the acceptance status for each of the invited meeting participants.

9. The computer-readable medium of claim 1, wherein the meeting-in-progress graphical user interface for the meeting application is configured to display a meeting timer, the meeting timer displaying an amount of time left in the meeting, the amount of time left in the meeting being calculated by:

receiving a scheduled meeting time from a calendaring service and determining the remaining amount of time until an end of the scheduled meeting time.

10. A system comprising:

a processor;

a display; and

memory including instructions that when executed by the processor, cause the system to:

display, via the display, a meeting-in-progress graphical user interface for a meeting hosted by a meeting application, the graphical user interface including a roster of invited meeting participants based on an acceptance status for each of the invited meeting participants, the roster including a first listing of any present ones of the invited meeting participants, a second listing of any accepted ones of the invited meeting participants, and a third listing of any declined ones of the invited meeting participants,

wherein,

at least one of the first listing, the second listing, or the third listing of the acceptance status includes a first menu of available actions for a first grouping of the invited meeting participants,

another one of the first listing, the second listing, or the third listing of the acceptance status includes a second menu of available actions for a second grouping of the invited meeting participants, and

selection of one or more actions in the first menu of available actions or the second menu of available actions causes the one or more actions to be executed for every participant listed in a corresponding one of the first grouping of the invited meeting participants or the second grouping of the invited meeting participants.

11. The system of claim 10, wherein the meeting-in-progress graphical user interface includes a contact-participant user interface object, the contact-participant user interface object being effective to receive a selection of the contact-participant user interface object, and after receipt of the selection, contact one or more of the invited meeting participants.

12. The system of claim 11, wherein the instructions are effective to cause the system to automatically contact one or more of the invited meeting participants by: creating an instant message using an instant message application and delivering the instant message to the one or more of the invited meeting participants.

13. The system of claim 11, wherein the instructions are effective to cause the system to contact one or more of the invited meeting participants by: prompting a user to enter a message to create an instant message using an instant message application and delivering the instant message to the one or more of the invited meeting participants.

14. The system of claim 10,

wherein,

the first menu of available actions includes a first plurality of interaction options,

the first plurality of interaction options includes mute, email, and instant message,

the second menu of available actions includes a second plurality of interaction options,

the second plurality of interaction options includes call to join and remind via calendar,

the first menu includes at least one action not listed via the second menu, and

the first menu is displayed at a different time than the second menu.

15. The system of claim 10, wherein the meeting-in-progress graphical user interface includes a contact-participant user interface object next to the meeting participants organized into the accepted status, wherein an accepted status means that the participant has accepted a meeting invitation but has not joined the meeting, the contact-participant user interface object being effective to contact the meeting participants organized into the accepted status.

16. The system of claim 10, wherein the instructions are effective to cause the system to:

retrieve the roster of invited meeting participants and the acceptance status for each of the invited meeting participants through a request to an API of a calendaring service.

17. The system of claim 10, wherein the instructions are effective to cause the system to:

receive one or more notifications from a calendaring service, the one or more notifications comprising one or more of the roster of invited meeting participants and the acceptance status for each of the invited meeting participants.

18. The system of claim 10, wherein the meeting-in-progress graphical user interface for the meeting application is configured to display a meeting timer, the meeting timer

displaying an amount of time left in the meeting, the amount of time left in the meeting being calculated by:

receiving a scheduled meeting time from a calendaring service and determining the remaining amount of time until an end of the scheduled meeting time.

19. A method comprising:

displaying, via a display, a meeting-in-progress graphical user interface for a meeting hosted by a meeting application, the graphical user interface including a roster of invited meeting participants based on an acceptance status for each of the invited meeting participants, the roster including a first listing of any present ones of the invited meeting participants, a second listing of any accepted ones of the invited meeting participants, and a third listing of any declined ones of the invited meeting participants,

wherein,

at least one of the first listing, the second listing, or the third listing of the acceptance status includes a first menu of available actions for a first grouping of the invited meeting participants,

another one of the first listing, the second listing, or the third listing of the acceptance status includes a second menu of available actions for a second grouping of the invited meeting participants, and

selection of one or more actions in the first menu of available actions or the second menu of available actions causes the one or more actions to be executed for every participant listed in a corresponding one of the first grouping of the invited meeting participants or the second grouping of the invited meeting participants.

20. The method of claim **19**, wherein the meeting-in-progress graphical user interface includes a contact-participant user interface object, the contact-participant user interface object being effective to receive a selection of the contact-participant user interface object, and after receipt of the selection, contact one or more of the invited meeting participants.

21. The method of claim **20**, further comprising, automatically contacting one or more of the invited meeting participants by: creating an instant message using an instant message application and delivering the instant message to the one or more of the invited meeting participants.

22. The method of claim **20**, further comprising contacting one or more of the invited meeting participants by: prompting a user to enter a message to create an instant message using an instant message application and delivering the instant message to the one or more of the invited meeting participants.

23. The method of claim **19**,

wherein,

the first menu of available actions includes a first plurality of interaction options,

the first plurality of interaction options includes mute, email, and instant message,

the second menu of available actions includes a second plurality of interaction options,

the second plurality of interaction options includes call to join and remind via calendar,

the first menu includes at least one action not listed via the second menu, and

the first menu is displayed at a different time than the second menu.

24. The method of claim **19**, wherein the meeting-in-progress graphical user interface includes a contact-participant user interface object next to the meeting participants organized into the accepted status, wherein an accepted status means that the participant has accepted a meeting invitation but has not joined the meeting, the contact-participant user interface object being effective to contact the meeting participants organized into the accepted status.

25. The method of claim **19**, further comprising:

retrieving the roster of invited meeting participants and the acceptance status for each of the invited meeting participants through a request to an API of a calendaring service.

26. The method of claim **19**, further comprising:

receiving one or more notifications from a calendaring service, the one or more notifications comprising one or more of the roster of invited meeting participants and the acceptance status for each of the invited meeting participants.

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