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Lamourne et al.

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(54) **METHOD AND APPARATUS FOR
CONTROLLING MULTIMEDIA PLAYERS IN
A MULTI-ZONE SYSTEM**

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Related U.S. Application Data

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(51) **Int. Cl.**

G06F 17/00 (2006.01)
G06F 3/00 (2006.01)

(52) **U.S. Cl.** 700/94; 715/716

(58) **Field of Classification Search** 700/94; 715/716, 734, 735; 709/220, 221; 381/56

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,239,458 A * 8/1993 Suzuki 700/83

5,299,266 A *	3/1994	Lumsden	381/119
5,751,819 A *	5/1998	Dorrough	381/56
7,218,708 B2 *	5/2007	Berezowski et al.	379/37
2002/0109710 A1 *	8/2002	Holtz et al.	345/723
2002/0124097 A1 *	9/2002	Isely et al.	709/231
2002/0188762 A1 *	12/2002	Tomassetti et al.	709/251
2003/0126211 A1 *	7/2003	Anttila et al.	709/205
2004/0008852 A1 *	1/2004	Also et al.	381/119
2004/0252400 A1 *	12/2004	Blank et al.	360/70
2005/0047605 A1 *	3/2005	Lee et al.	381/56
2007/0038999 A1 *	2/2007	Millington	718/100

* cited by examiner

Primary Examiner—Curtis Kuntz

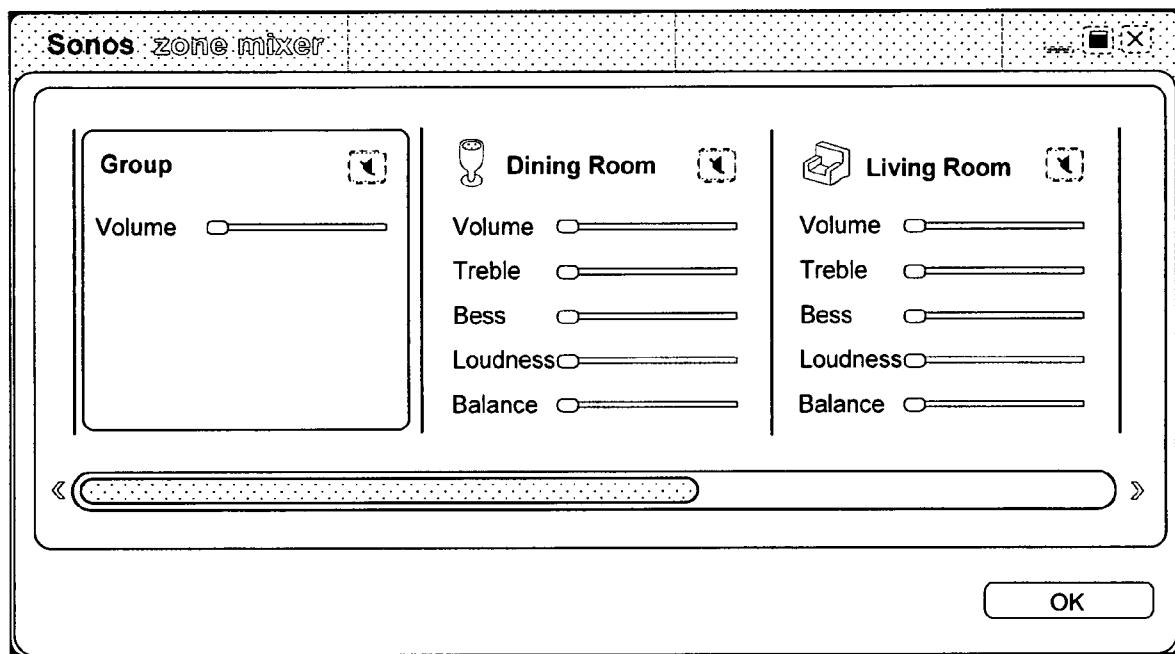
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(57) **ABSTRACT**

Techniques for controlling zone group and zone group characteristics such as audio volume in a multi-zone system are disclosed. The multi-zone system includes a number of multimedia players, each preferably located in a zone. A controller may control the operations of all of the zone players remotely from any one of the zones. Two or more zone players may be dynamically grouped as a zone group for synchronized operations. According to one aspect of the techniques, a zone group configuration can be managed, updated, modified via an interactive user interface provided in a controlling device. The zone group configuration may be saved in one of zone players. According to another aspect of the techniques, the audio volume control of a zone group can be performed individually or synchronously as a group.

44 Claims, 14 Drawing Sheets



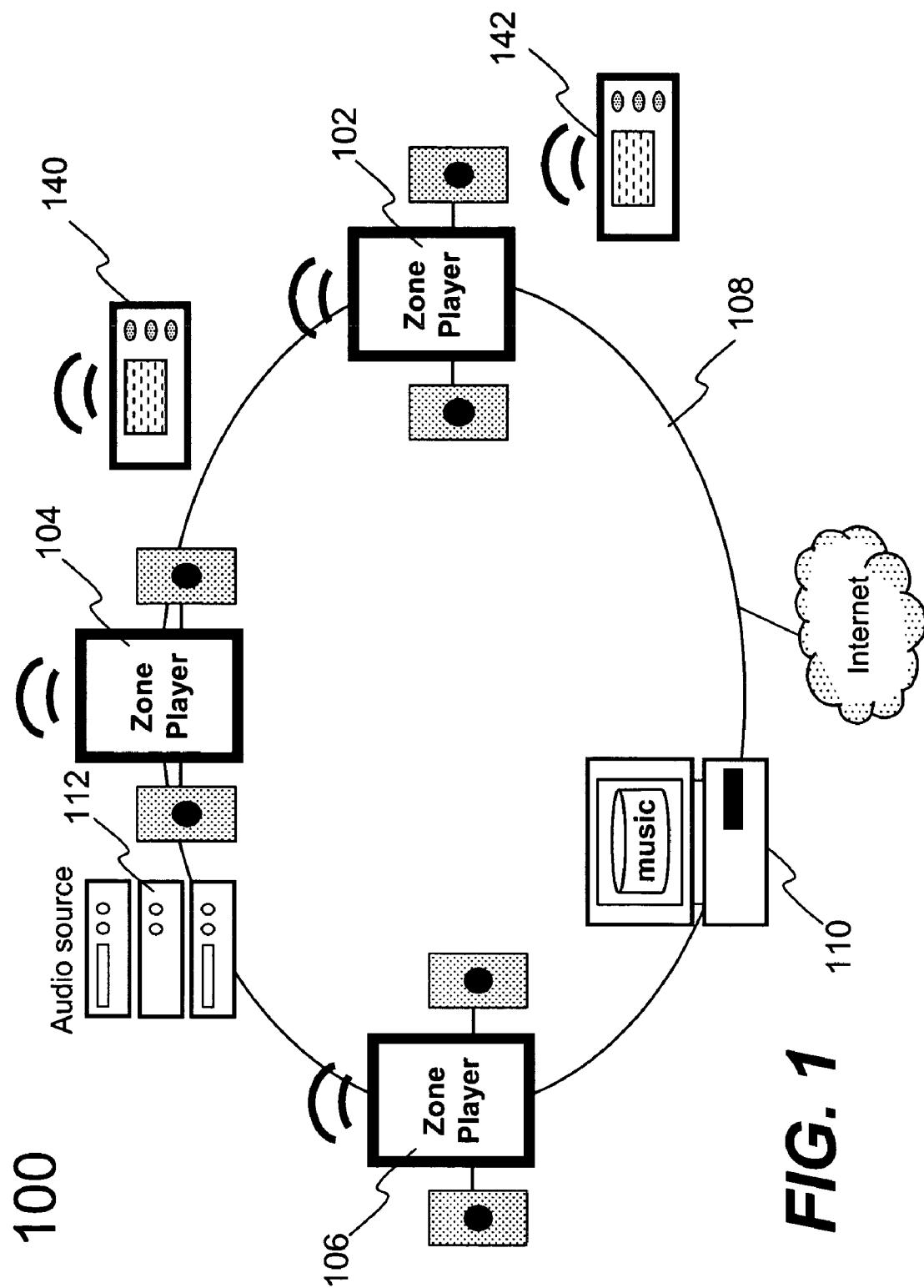


FIG. 1

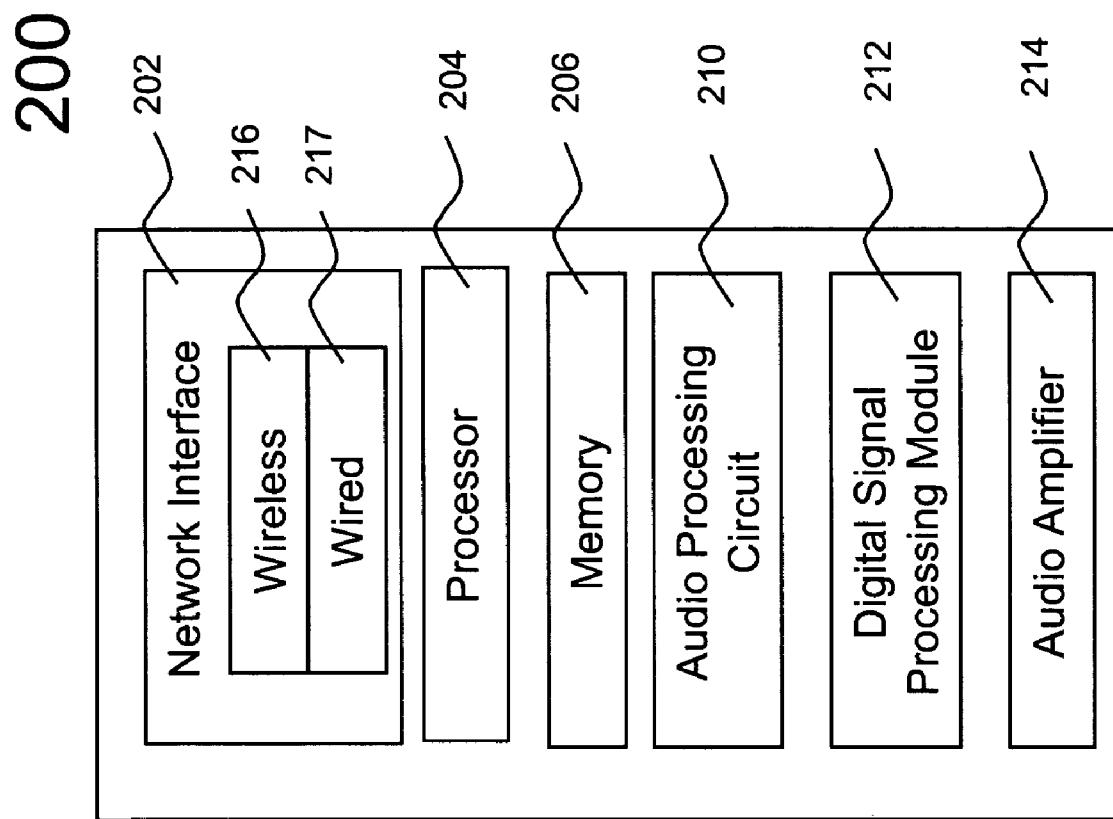


FIG. 2A

240

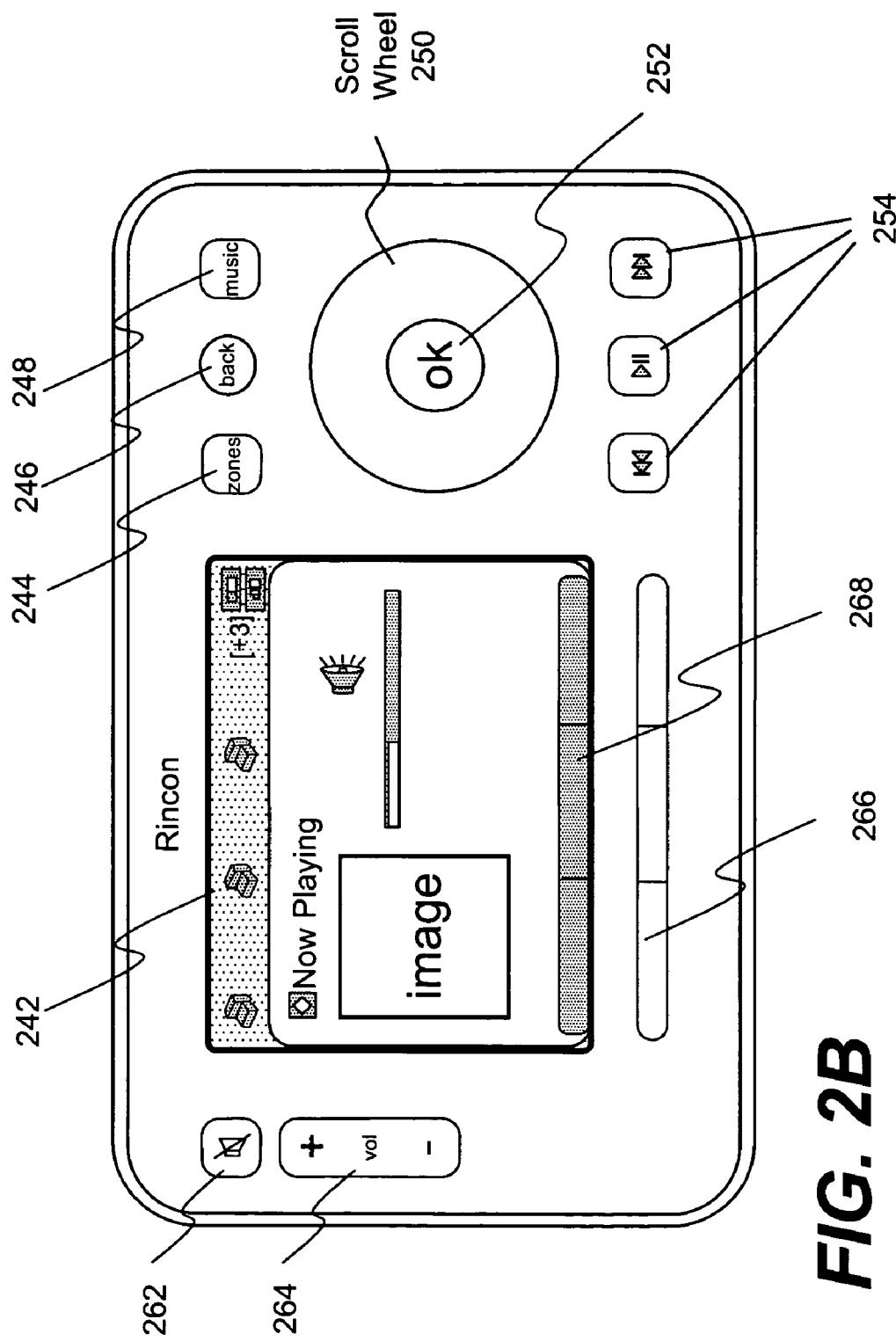
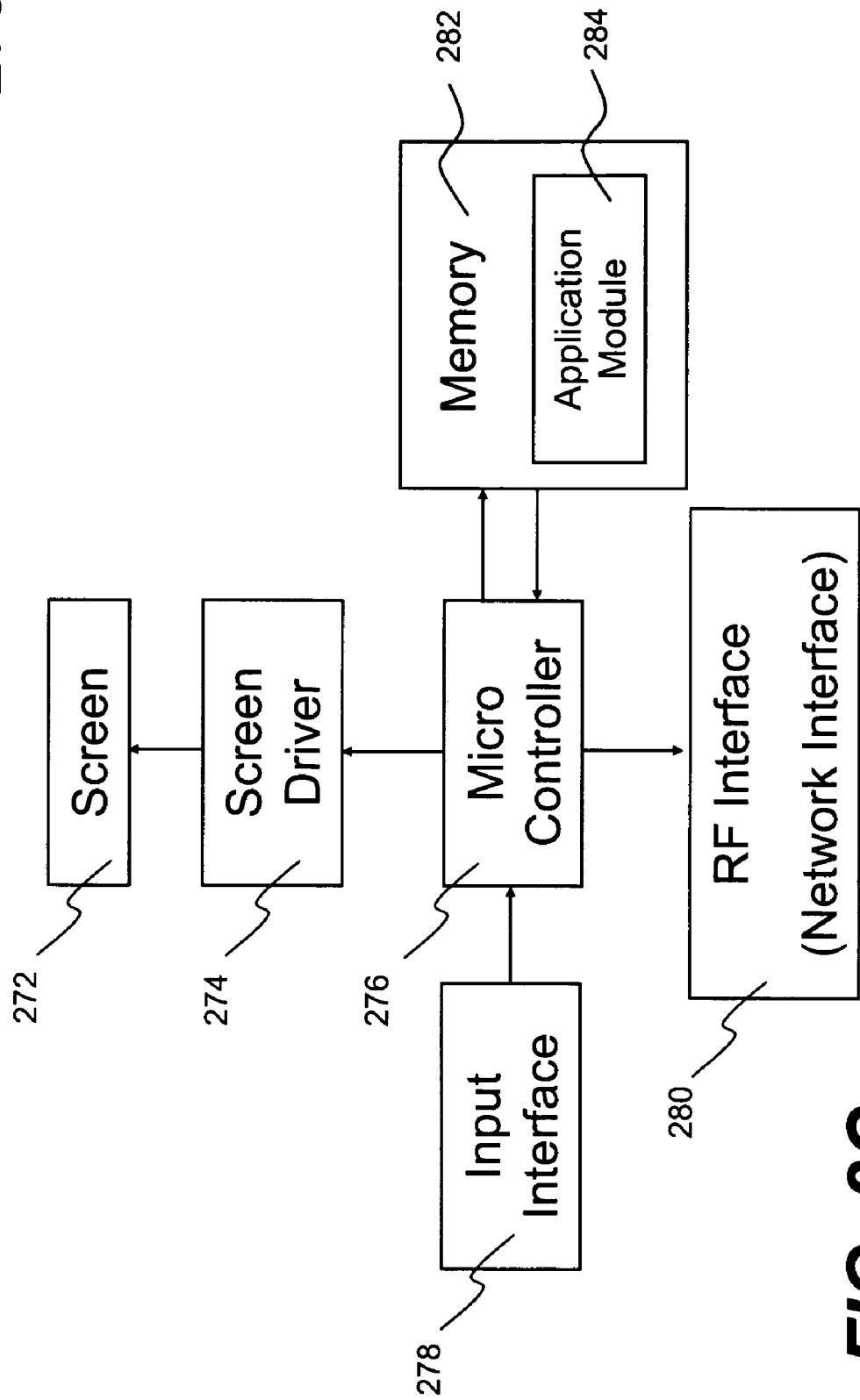


FIG. 2B

270

**FIG. 2C**

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