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Bush et al.

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(54) **HANDS-FREE, VOICE-OPERATED REMOTE CONTROL TRANSMITTER**

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(58) Field of Search **704/200, 275, 704/272, 231, 233, 251, 252, 255, 250**

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,322,718	A	3/1982	Faierstain	
4,725,827	A *	2/1988	Galgos, Jr. et al.	340/696
4,771,283	A *	9/1988	Imoto	340/825.71
4,774,511	A	9/1988	Rumbolt et al.	
4,905,279	A	2/1990	Nishio	
5,142,398	A	8/1992	Heep	
5,199,080	A *	3/1993	Kimura et al.	381/110
5,226,090	A	7/1993	Kimura	
5,247,580	A	9/1993	Kimura et al.	
5,267,323	A	11/1993	Kimura	
5,444,673	A *	8/1995	Mathurin	368/63
5,452,274	A	9/1995	Thompson	
5,471,557	A	11/1995	Chung et al.	
5,691,710	A	11/1997	Pietraszak et al.	
5,774,859	A	6/1998	Houser et al.	
5,777,571	A	7/1998	Chuang	
5,790,754	A	8/1998	Mozer et al.	
5,852,804	A	12/1998	Sako	
5,878,394	A	3/1999	Muhling	

(List continued on next page.)

OTHER PUBLICATIONS

"24AA64/24LC64 64K I²C[™] CMOS Serial EEPROM" published by Microchip Technology Inc. 1999, Document No. DS21189C, pp. 1-12.

"CMOS Low Voltage 2Ω SPST Switches ADG701/ADG702" published by Analog Devices, Inc. 1998, pp. 1-8.

"CMOS Low Voltage 4Ω SPDT Switch ADG719" published by Analog Devices, Inc. 1998, pp. 1-8.

(List continued on next page.)

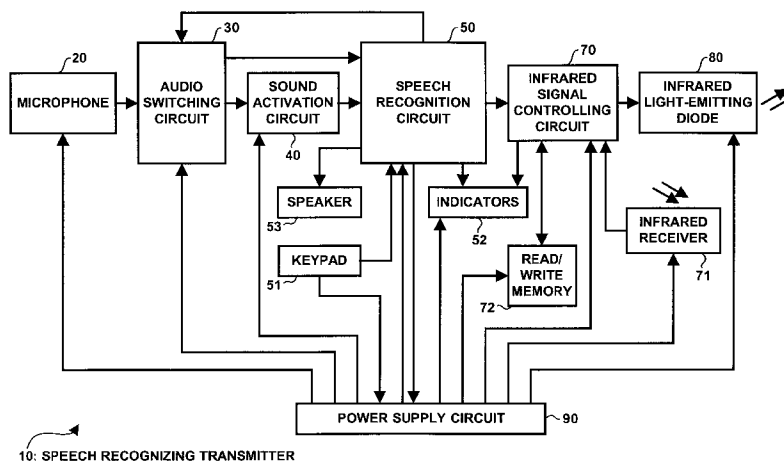
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(57) **ABSTRACT**

A wireless, programmable, sound-activated and voice-operated remote control transmitter can be used to add hands-free speech control operation to a plurality of remotely controlled appliances manufactured by various manufacturers, each of which is normally controlled with one or more signals from an associated remote control transmitter. The system may be pre-programmed with a universal library of codes for controlling various appliance categories and appliances produced by various manufacturers within each category. The system may also be programmed using the controlled appliances' remote control transmitters and one or more operators' spoken commands. Once programming is complete, there is no need for the operator to manually operate the system, allowing true hands-free voice control of the remotely controlled products. Voice commands are organized into a plurality of linked recognition vocabulary sets, each representing a subset of the complete voice command vocabulary available. These subsets are structured in a fashion that is intuitive to the user because the structure is consistent with controlled appliance operation. As such, the system allows a user to easily navigate via voice commands between recognition sets to attain access to the intended voice commands.

55 Claims, 27 Drawing Sheets



U.S. PATENT DOCUMENTS

5,959,751	A	9/1999	Darbee et al.	
5,983,186	A	11/1999	Miyazawa et al.	
6,012,029	A	* 1/2000	Cirino et al.	704/275
6,052,666	A	* 4/2000	Diel et al.	704/275
6,070,140	A	* 5/2000	Tran	704/275
6,119,088	A	9/2000	Ciluffo	

OTHER PUBLICATIONS

“DM1000 Component Directional Microphone” published by Lucent Technologies, pp. 1–2.

“MACH 4 CPLD Family High Performance EE CMOS Programmable Logic,” Publication 17466 ,published by Lattice Semiconductor Corporation, May 1999 pp. 1–62.

“Preliminary Product Specification Z86L81/86/98 28–Pin Low–Voltage Infrared Microcontroller”, Document No. DS000701–IRX1298, published by Zilog, Inc. 1999, pp. 1–55.

“RSC–300/364 DataBook” published by Sensory, Inc., Aug. 1999, pp. 1–50.

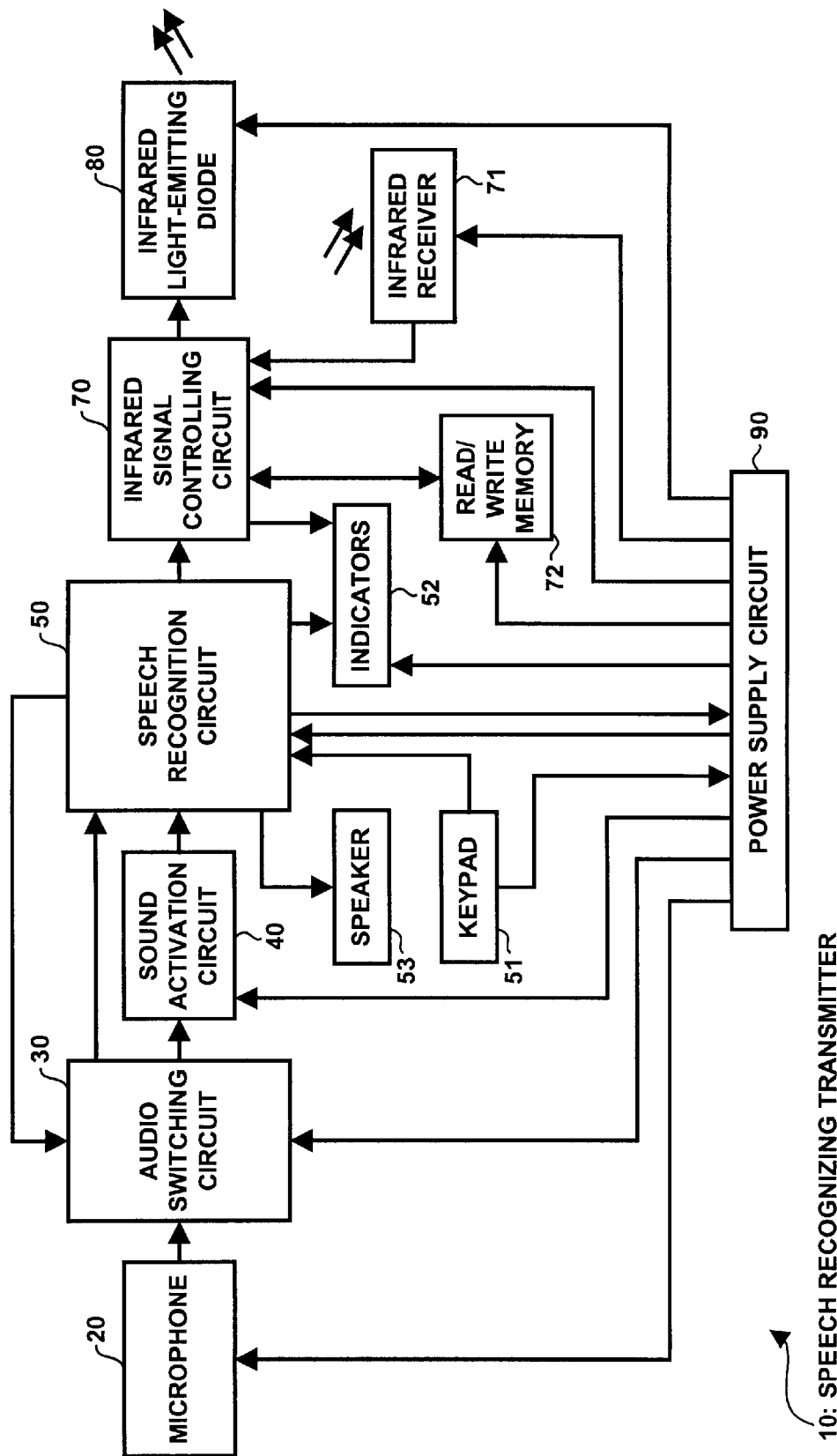
“RSC–300/364 Recognition • Synthesis • Control”, datasheet part No. 80–0111–6, published by Sensory, Inc.1999, pp. 1–8.

“Build a Voice–Activated Tape Recorder Switch”, by Marc Spiwak, *Popular Electronics* magazine , Jan. 1996, pp. 35–36, 79.

“Voice Direct™ Speech Recognition IC”, datasheet part No. 80–0022–5, published by Sensory Inc., Sep. 8, 1998, pp. 1–4.

* cited by examiner

FIG. 1



10: SPEECH RECOGNIZING TRANSMITTER

FIG. 2a

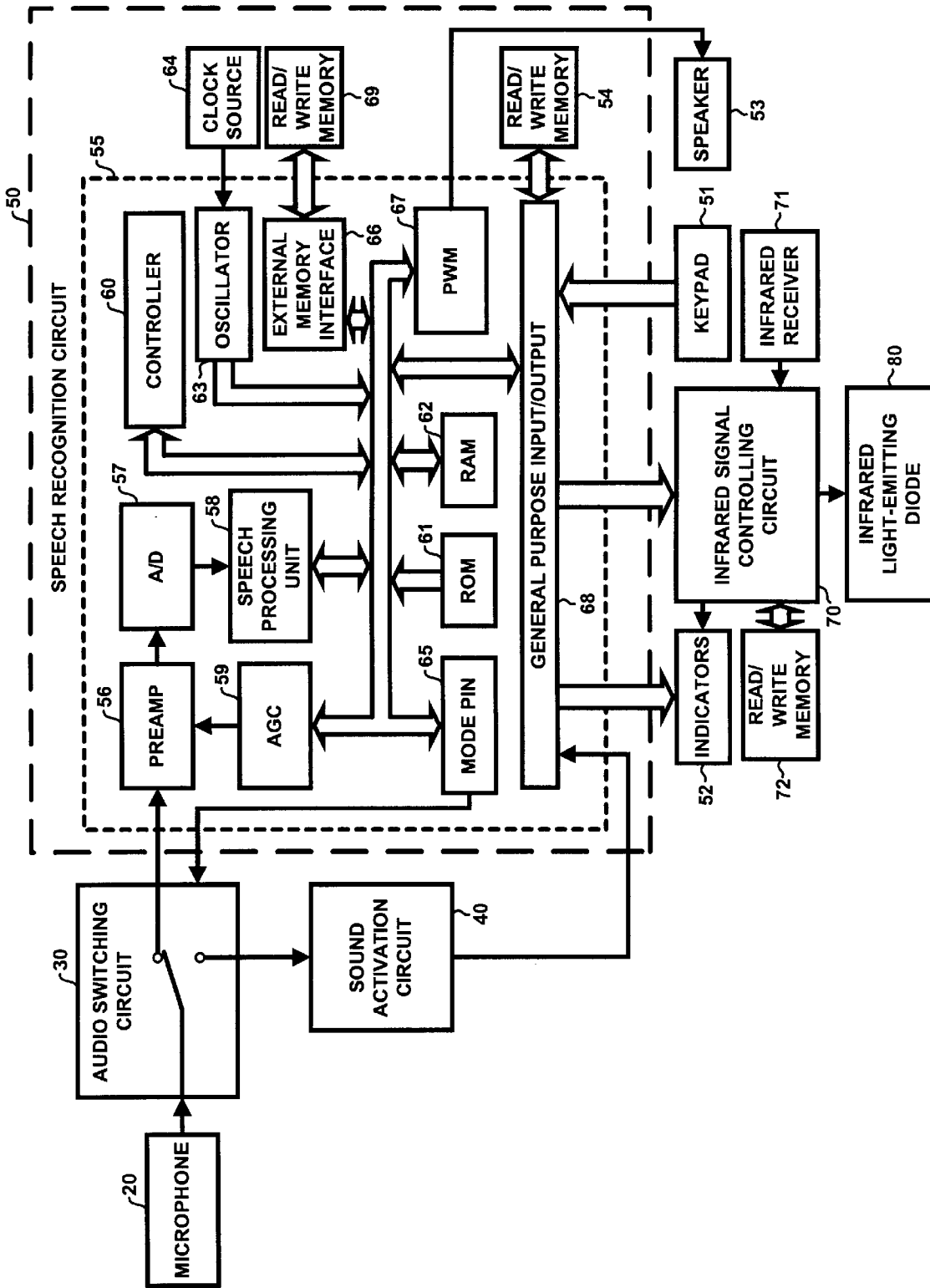
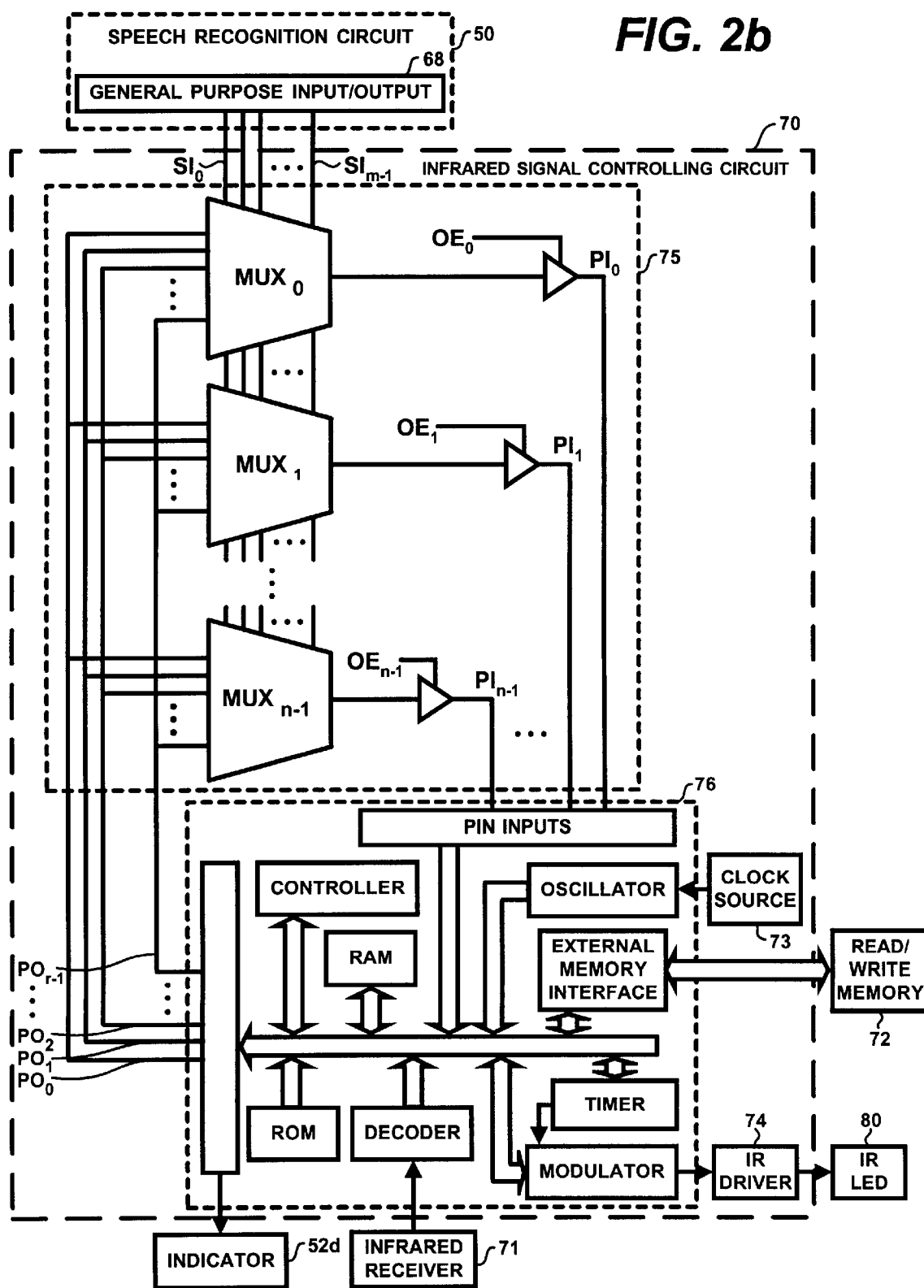


FIG. 2b



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