United States Patent [19]

Oshizawa

[11] Patent Number: 5,987,381

[45] Date of Patent: Nov. 16, 1999

[54] **AUTOMOBILE NAVIGATION SYSTEM USING REMOTE DOWNLOAD OF DATA**

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[21] Appl. No.: **08/816,107**

[22] Filed: **Mar. 11, 1997**

[51] **Int. Cl.**^{6} **G06F 165/00**

[52] **U.S. Cl.** **701/209**; 701/202; 701/210; 340/990; 340/995

[58] **Field of Search** .... 701/202, 207, 701/208, 209, 210, 211; 73/178 R; 340/988, 990, 995, 989

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,301,506	11/1981	Turco	364/436
4,350,970	9/1982	von Tomkewitsch	340/23
4,796,191	1/1989	Honey et al.	364/450
4,812,843	3/1989	Champion, III et al.	340/905
4,914,605	4/1990	Loughmiller, Jr. et al.	364/518
4,954,958	9/1990	Savage et al.	701/202
5,172,321	12/1992	Ghaem et al.	340/995
5,177,685	1/1993	Davis et al.	364/443
5,184,303	2/1993	Link	364/449
5,523,950	6/1996	Peterson	364/436
5,544,061	8/1996	Morimoto et al.	701/202
5,745,867	4/1998	Mills	701/202
5,774,827	6/1998	Smith, Jr. et al.	701/202
5,845,227	12/1998	Peterson	701/209
5,862,509	1/1999	Desai et al.	701/202

FOREIGN PATENT DOCUMENTS

0123562	4/1984	European Pat. Off. .
WO 90/02391	8/1989	WIPO .
WO 92/10808	10/1991	WIPO .
WO 92/14215	2/1992	WIPO .

OTHER PUBLICATIONS

Duncan, Don, "RESCU, remote emergency satellite cellular unit," *Proceedings of the National Technical Meeting, Institute of Navigation 1996,* E.I. Conference No. 45483, pp. 361–366.

Abstract, Martin, Norman, "Look to the sky automakers plug into automatic communication systems," *Chilton's Automotive Industries,* v. 176, No. 3, Mar. 1996, pp. 74–75.

Abstract, Demmler, Al, "OnStar," *Automotive Engineering,* v. 104, Jun. 1996, pp. 85–86.

Abstract, Mateja, Jim, "Safety system dials 9–1–1 for motorists," *Traffic Safety,* v. 96, Jul./Aug. 1996, pp. 4–5.

Abstract, Schofield, Julie Anne, "Electronics create the cybercar," *Design News,* v. 50[51], Oct. 9, 1995, pp. 116–118.

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[57] **ABSTRACT**

A method of enabling an on-board vehicle navigation system to compute a route from a current position of the vehicle to a desired destination is provided. A user of the navigation system in a vehicle utilizes a cellular telephone or any other wireless, two-way audio communications link to contact an operator in a remote communications center. The user informs the operator of his desired destination. The operator in the communications center accesses a computer database to determine the exact location of the desired destination in terms of latitude/longitude, street address, or other similar information. The operator then causes the information specifying the exact location to be transmitted from the communications center to the on-board vehicle navigation system over a data link. The on-board vehicle navigation system receives the location information and uses it to compute a route from the vehicle's current position to the desired destination.
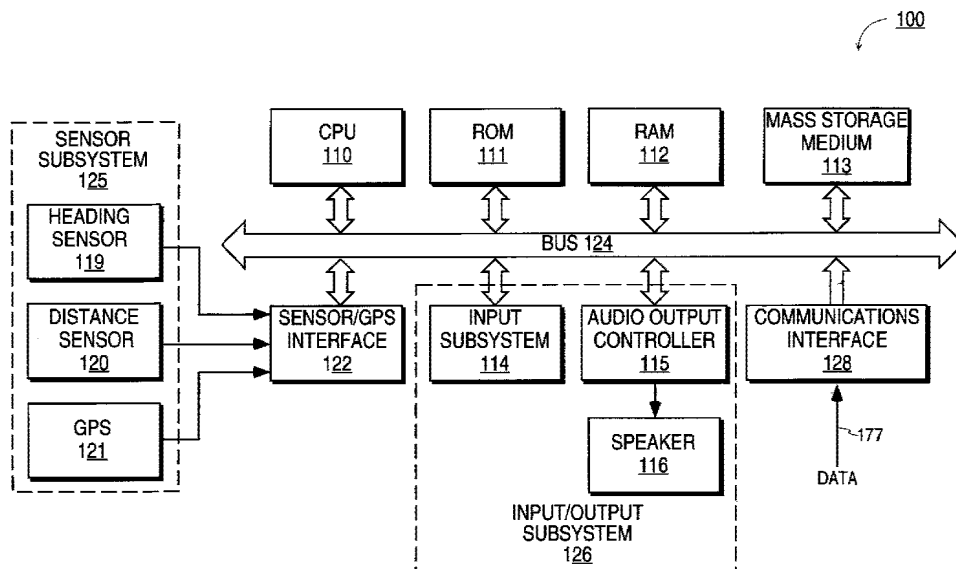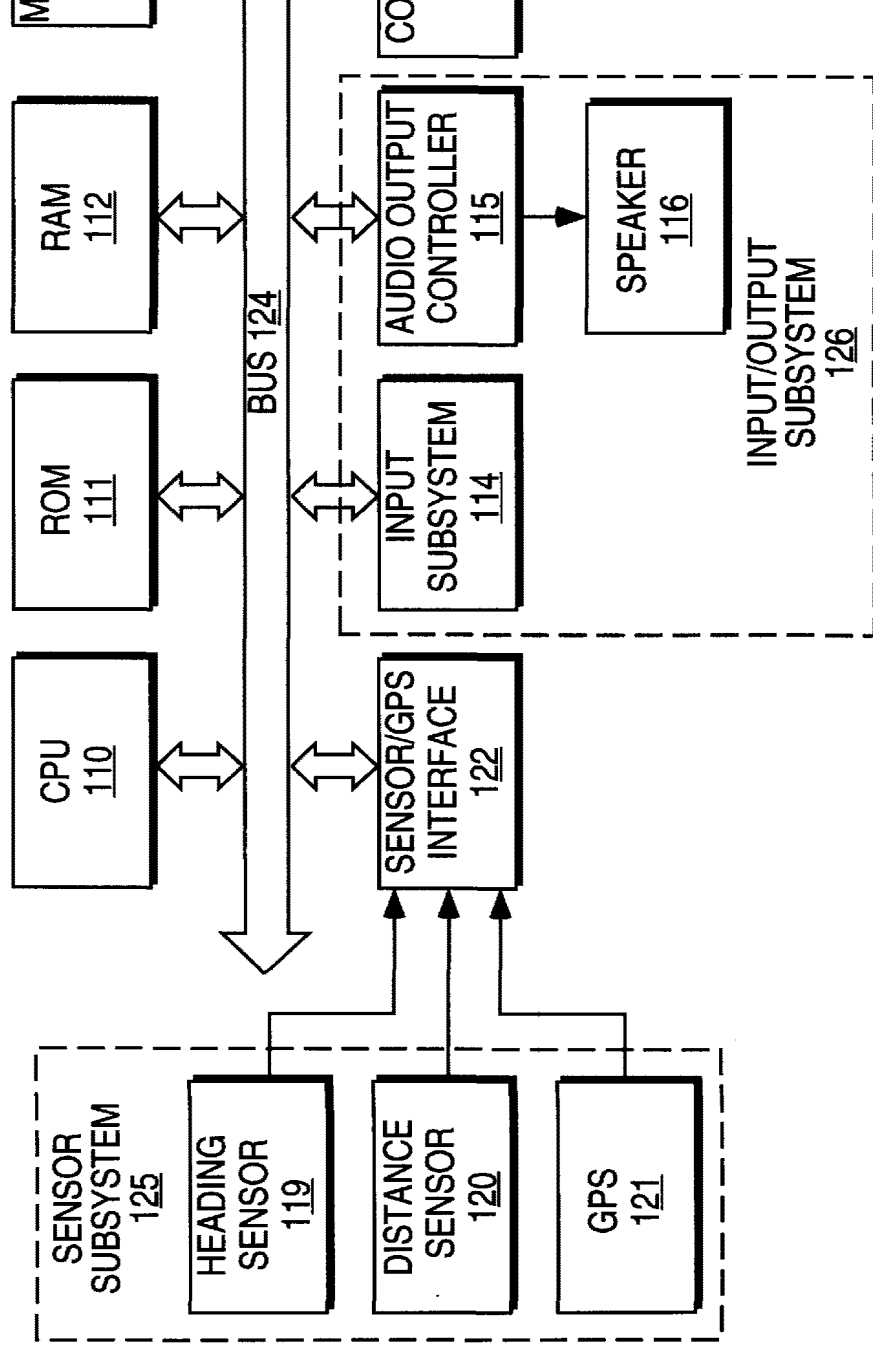
43 Claims, 4 Drawing Sheets

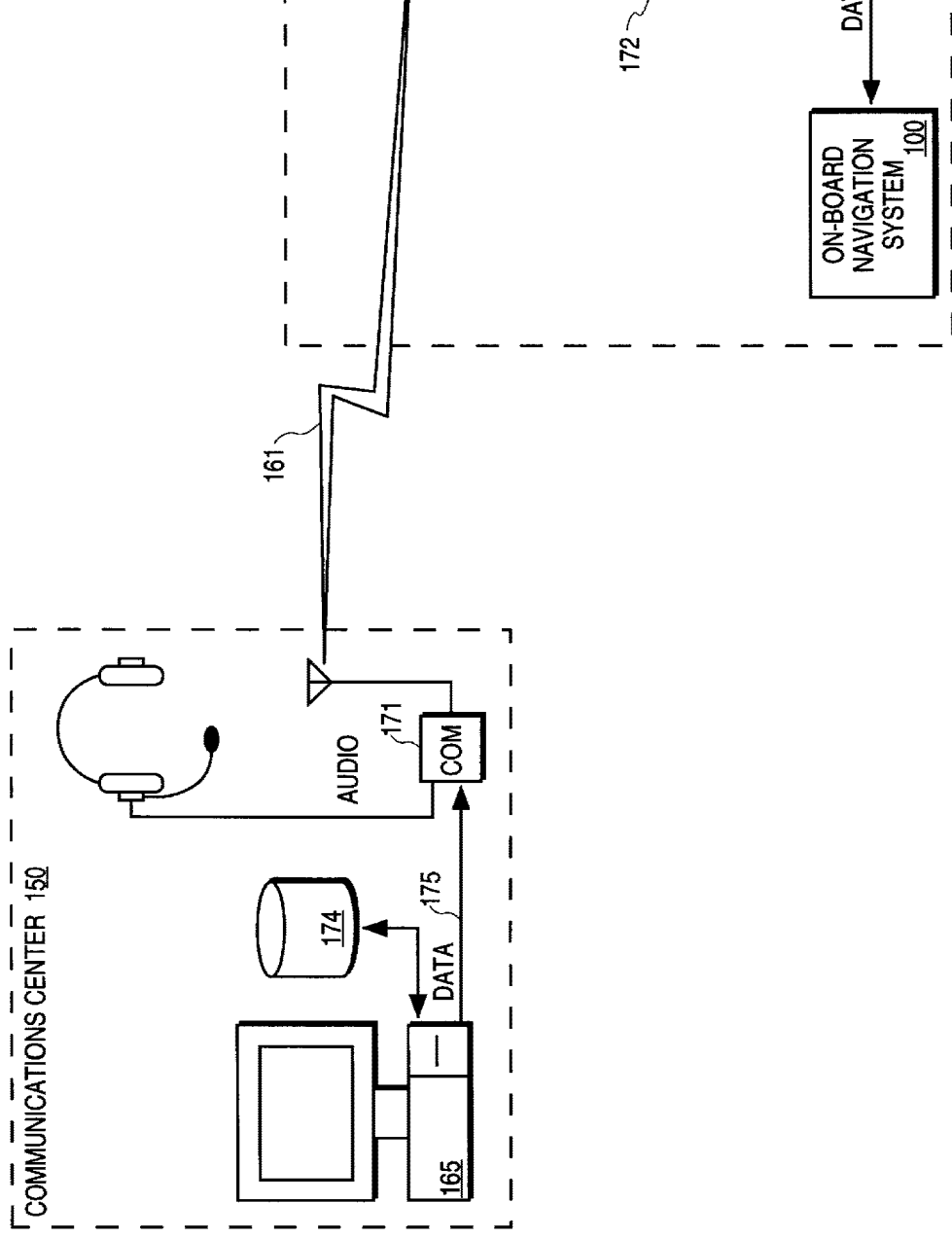# FIG. 1

FIG. 2A

ON-BOARD
NAVIGATION
SYSTEM 100

161

COMMUNICATIONS CENTER 150

AUDIO

COM

171

172

DATA

174

175

DATA

165

COMMUNICATIONS CENTER 150

171

AUDIO

181

174

DATA

165

180

163

162

130

172

ON-BOARD
NAVIGATION
SYSTEM 100

FIG. 2B

BEGIN

USER INITIATES 2-WAY AUDIO COMMUNICATION WITH OPERATOR IN COMMUNICATIONS CENTER — 301

USER COMMUNICATES DESIRED DESTINATION TO OPERATOR — 302

OPERATOR ACCESSES DATABASE WITH DESIRED DESTINATION TO DETERMINE COORDINATES OF DESIRED DESTINATION — 303

OPERATOR CAUSES COORDINATES AND ANY SECONDARY INFORMATION TO BE TRANSMITTED TO ON-BOARD NAVIGATION SYSTEM — 304

ON-BOARD NAVIGATION SYSTEM RECEIVES COORDINATES AND SECONDARY INFORMATION (IF ANY) AND USES TO COMPUTE ROUTE — 305

ON-BOARD NAVIGATION SYSTEM OUTPUTS AUDIBLE NAVIGATION INSTRUCTIONS TO USER — 306

END

FIG. 3

DOCKET ALARM
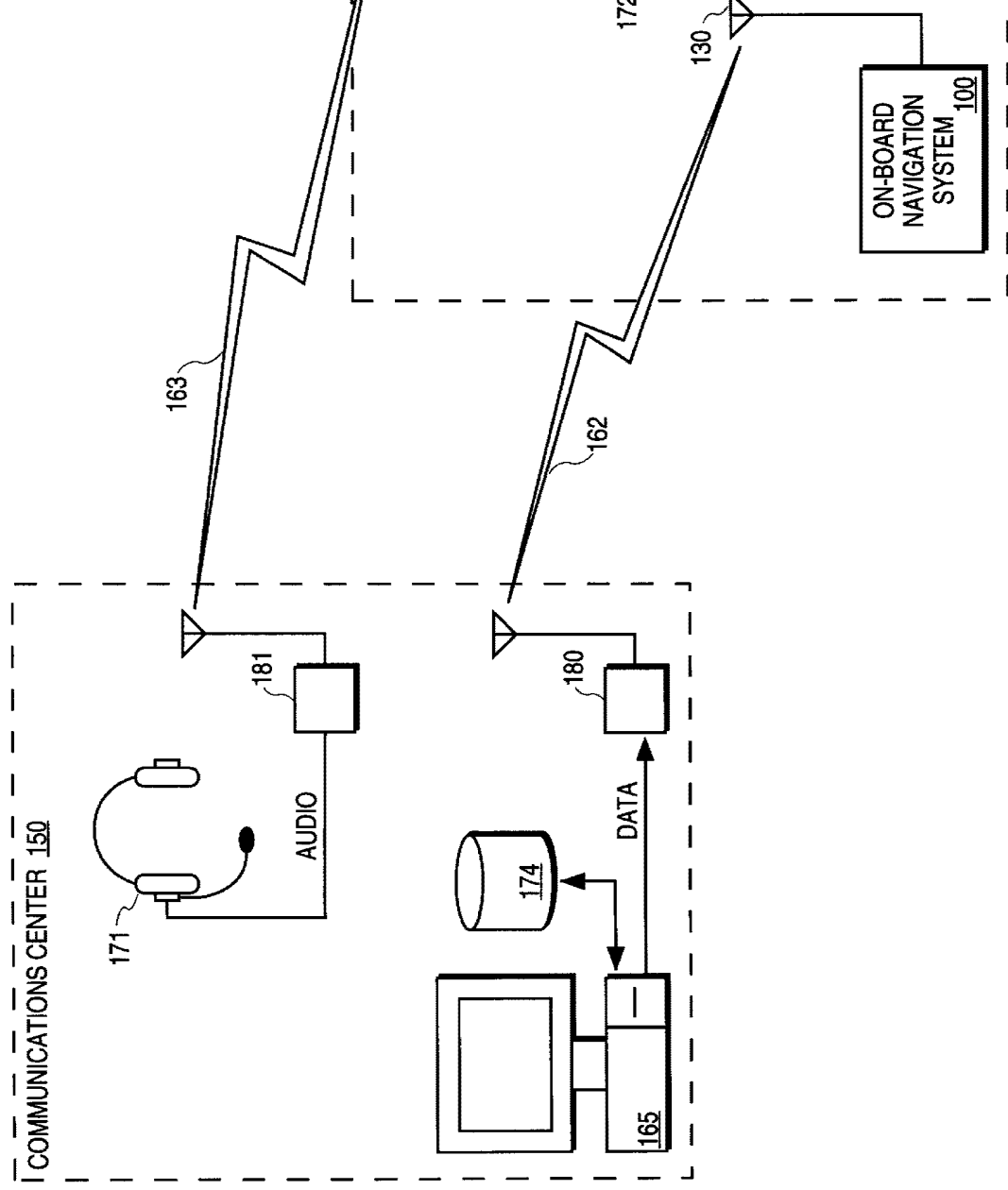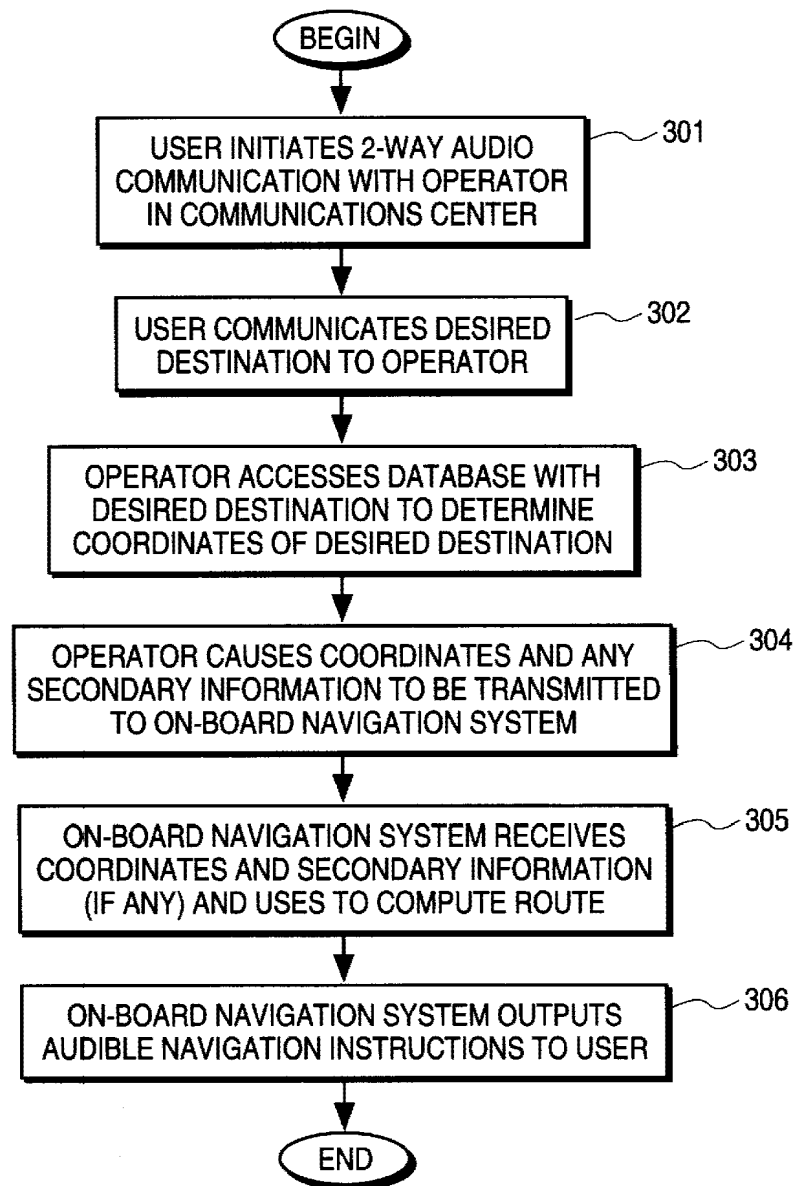
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