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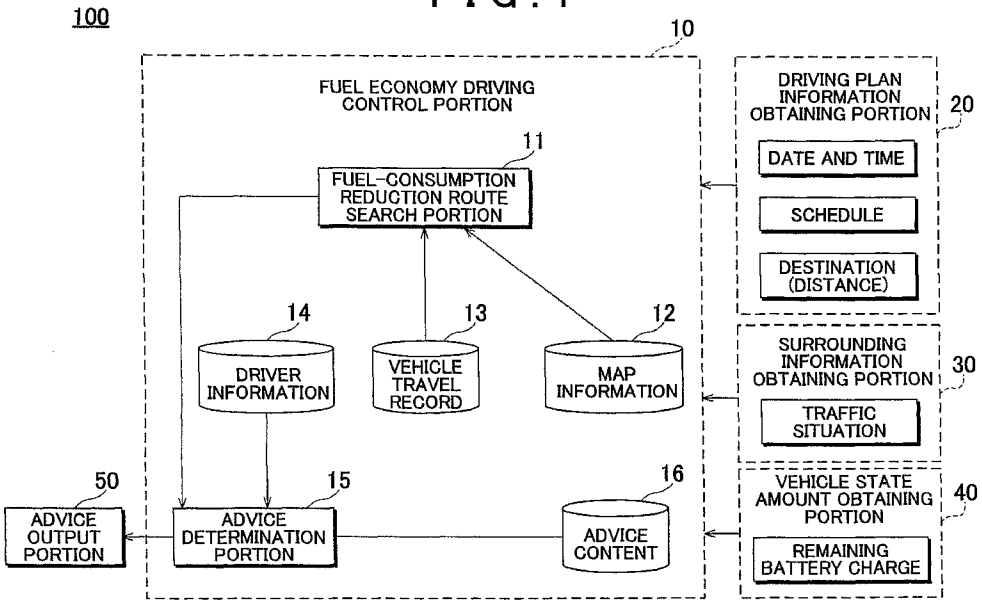
(54) Title: FUEL ECONOMY DRIVING ASSISTANCE APPARATUS

FIG. 1



(57) Abstract: A fuel economy driving assistance apparatus (100) includes advice provision means (50) for providing a driver with driving advice that contributes to improvement of fuel economy of a vehicle; driving tendency estimation means (15) for estimating a driving tendency of the driver in each driving situation; and advice mode changing means (15) for changing a mode of the driving advice, according to the driving tendency of the driver estimated by the driving tendency estimation means (15).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
F02B G01F B60W B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP 1 780 393 A (NISSAN DIESEL MOTOR CO [JP]) 2 May 2007 (2007-05-02) paragraph [0001] - paragraph [0088]; figures 1-7	1,8,11, 15-18 2-7, 12-14
A	US 6 092 021 A (EHLBECK JAMES M [US] ET AL) 18 July 2000 (2000-07-18) column 1, line 1 - column 28, line 32; figures 1-16	
Y	WO 2006/070511 A (NISSAN MOTOR LIGHT TRUCK CO LT [JP]; TANAKA JUNICHI [JP]; SHIGEYOSHI E) 6 July 2006 (2006-07-06) abstract; figures 1-10	2-7, 12-14

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 439 158 A (WEBER HAROLD J [US]) 27 March 1984 (1984-03-27) column 1, line 1 - column 12, line 6; figures 1-13	1
A	US 4 542 460 A (WEBER HAROLD J [US]) 17 September 1985 (1985-09-17) column 1, line 1 - column 12, line 68; figures 1-14	1
A,P	US 2007/276582 A1 (COUGHLIN BILL [US]) 29 November 2007 (2007-11-29) paragraph [0001] - paragraph [0053]; figures 1-10	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2008/002309

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1780393 A	02-05-2007	WO 2006018944 A1 US 2007256481 A1	23-02-2006 08-11-2007
US 6092021 A	18-07-2000	NONE	
WO 2006070511 A	06-07-2006	JP 2006184222 A	13-07-2006
US 4439158 A	27-03-1984	NONE	
US 4542460 A	17-09-1985	NONE	
US 2007276582 A1	29-11-2007	AU 2007267562 A1 WO 2007140232 A2	06-12-2007 06-12-2007