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(54) Title: VEHICULAR COMPONENT CONTROL USING MAPS

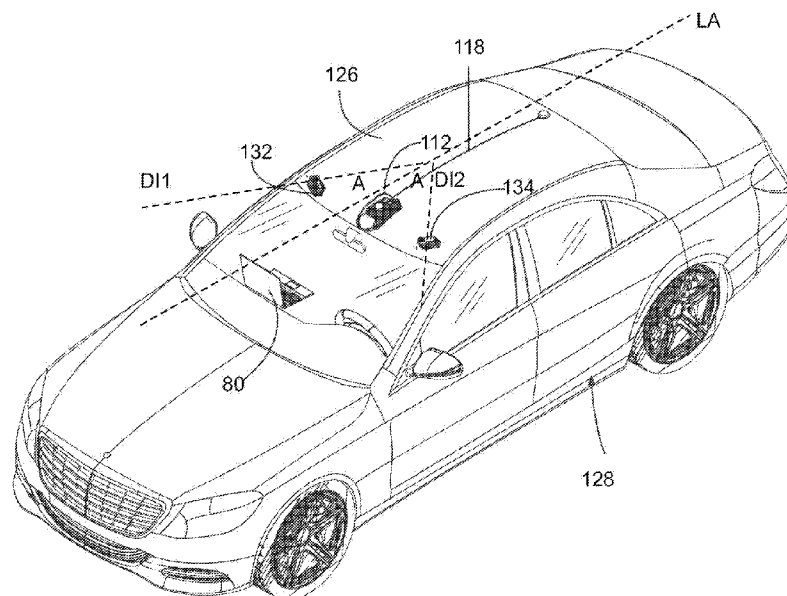


Fig. 4B

(57) Abstract: Method and system for adjusting a vehicular component based on vehicle position includes obtaining kinematic data from an inertial measurement unit on the vehicle, deriving, using a processor, information about current vehicle position from the data obtained from the IMU and an earlier known vehicle position, and adjusting, using the Processor the derived current vehicle position to obtain a corrected current vehicle position. Obtaining at least one image of an external vehicle area using a camera assembly in a fixed relationship to the IMU, identifying multiple landmarks in each image, analyzing each image to derive positional information about each landmark, obtaining from a map database positional information about each landmark, and adjusting the derived current vehicle position based on identified discrepancies to obtain the corrected current vehicle position. Operation of the vehicular component is changed based on the corrected current vehicle position.



MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM,
PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC,
SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR,
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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G01C 21/10 (2017.01)

CPC - G01C 21/165

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)

IPC (8) - G01C 21/10 (2017.01)

CPC - G01C 21/165

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

CPC - G01S5/16, G05D1/027, G05D1/0246 (See keywords below)

USPC - 701/426, 353/30, 345/633, 701/500, 701/480, 353/28

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Thomsoninnovation.com; Patbase; Google Scholar; Google Patents; Gogole.com; Freepatentsonline; ProQuest Dialog

Search Terms: Inertial measurement unit, IMU, kinematic, motion, acceleration, image, camera, picture, feature, landmark, location, position, adjust, correct, update, display, navigation, guidance, GPS, vehicle, etc.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y -- A	US 2012/0078510 A1 (MA et al.), 29 March 2012 (29.03.2012), entire document, especially Abstract; Para [0011], [0017], [0027], [0033]	1-10, 12-17 and 19-20 ----- 11 and 18
Y -- A	US 2011/0054791 A1 (SURAMPUDI et al.), 03 March 2011 (03.03.2011), entire document, especially Abstract; Para [0019], [0028], [0035]-[0038], [0040], [0042]	1-10, 12-17 and 19-20 ----- 11 and 18
Y -- A	US 2012/0114178 A1 (PLATONOV et al.), 10 May 2012 (10.05.2012), entire document, especially Abstract; Para [0005]-[0006], [0072]-[0075]	12 and 19 ----- 11 and 18
A	US 2013/0304383 A1 (BAGESHWAR et al.), 14 November 2013 (14.11.2013), entire document	1-20
A	US 2008/0262718 A1 (FARWELL), 23 October 2008 (23.10.2008), entire document	1-20

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