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[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR OBSTACLE DETECTION FOR VEHICLES USING PLANAR SENSOR DATA

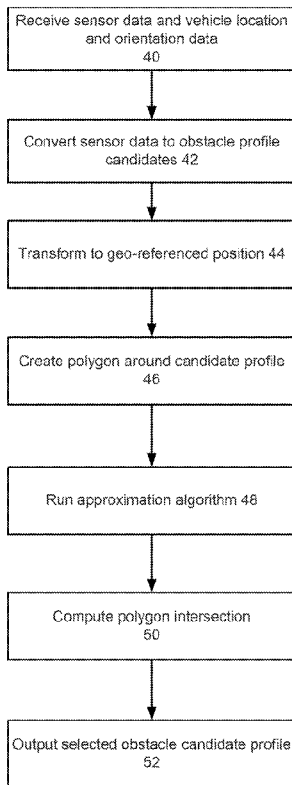


FIG. 4

(57) Abstract: A method is provided for automatically detecting an obstacle from a moving vehicle using a planar sensor mounted on the vehicle. The method includes the steps of: (a) receiving data at a computer system from the sensor, said data comprising a series of points defined by a planar coordinate system relative to the sensor where the sensor detected a return during a frame, and receiving data at the computer system indicating the vehicle's geo-referenced location and orientation; (b) identifying, by the computer system, an obstacle candidate profile from the series of points; (c) transforming, by the computer system, the obstacle candidate profile from a sensor-relative representation to a geo-referenced representation; (d) repeating steps (a) to (c) for a given number of frames; and (e) detecting, by the computer system, an obstacle when the obstacle candidate profiles in the geo-referenced representation for each of the given number of frames substantially coincide.

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EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,
LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
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A. CLASSIFICATION OF SUBJECT MATTER**G05D 1/02(2006.01)i, G01S 19/03(2010.01)i**

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G05D 1/02; G01S 13/89; G01C 9/00; G05D 1/00; G01S 17/89; G06T 15/00; G01C 3/08; G01S 19/03

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: obstacle, detecting, vehicle, planar sensor, series, frame and geo-reference

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| Y | US 2010-0114416 A1 (KWONG WING AU et al.) 06 May 2010 See paragraphs [0005]-[0060]; claims 1-19; and figures 1-5. | 1-19 |
| Y | US 2010-0020074 A1 (LUKASZ PIOTR TABOROWSKI et al.) 28 January 2010 See paragraphs [0070]-[0136]; claims 1-4; and figure 1. | 1-19 |
| A | JP 2008-076390 A (TRIPLE-IN HOLDING AG) 03 April 2008 See abstract; paragraphs [0014]-[0042]; and claims 1-3. | 1-19 |
| A | US 2002-0013675 A1 (ALOIS KNOLL et al.) 31 January 2002 See paragraphs [0285]-[0290]; claims 1-3; and figure 21. | 1-19 |
| A | US 2012-0095619 A1 (ROBERT TODD PACK et al.) 19 April 2012 See paragraphs [0096]-[0145]; claims 1-8; and figures 1-5. | 1-19 |

 Further documents are listed in the continuation of Box C. See patent family annex.

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Information on patent family members

International application No.

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| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
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| US 2012-0095619 A1 | 19/04/2012 | None | |