



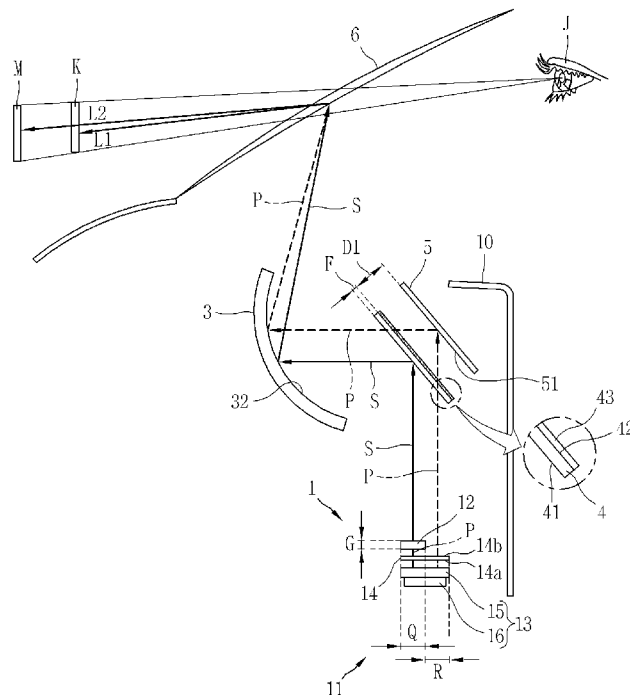
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN, KP, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, 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,

(54) Title: HEAD-UP DISPLAY FOR VEHICLE



(57) Abstract: The present invention relates to a head-up display for a vehicle configured to change display positions of a plurality of virtual images displayed through a windshield of the vehicle or the like to implement augmented reality and a control method thereof, and a head-up display for a vehicle according to an embodiment of the present disclosure may include a mirror unit comprising a first mirror for reflecting first and second image lights toward a windshield of the vehicle; a display layer located at the windshield of the vehicle to display a first virtual image corresponding to the first image light in a first region, and display a second virtual image corresponding to the second image light in a second region; and a controller configured to change an inclination of the first mirror to change a display position of the first and the second virtual image.



SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT,  
TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/KR2017/004857****A. CLASSIFICATION OF SUBJECT MATTER****G02B 27/01(2006.01)i, B60K 35/00(2006.01)i**

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)  
G02B 27/01; B60R 1/00; B60K 35/00; B60R 11/02; G06T 15/10; G09G 5/00Documentation 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 modelsElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
eKOMPASS(KIPO internal) & Keywords: HUD, mirror, rotate, first and second virtual images**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 5145710 B2 (NIPPON SEIKI CO., LTD.) 20 February 2013 See paragraphs [0021]-[0022] and figure 1.	1-4, 13, 20
A		5-12, 14-19
Y	US 2016-0202482 A1 (PANASONIC INTELLECTUAL PROPERTY MANAGEMENT CO., LTD.) 14 July 2016 See paragraphs [0026], [0035] and figures 3-4.	1-4, 13, 20
Y	US 2014-0247262 A1 (JOHNSON CONTROLS AUTOMOTIVE ELECTRONICS SAS) 04 September 2014 See paragraph [0014], claim 1 and figure 1.	13
A	JP 2013-047021 A (NIPPON SEIKI CO., LTD.) 07 March 2013 See claims 1-2 and figures 2, 6.	1-20
A	JP 2016-060445 A (NIPPON SEIKI CO., LTD.) 25 April 2016 See claim 1 and figures 1-2, 5.	1-20

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

\* Special categories of cited documents:

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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Name and mailing address of the ISA/KR

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/KR2017/004857**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 5145710 B2	20/02/2013	JP 2008-151992 A WO 2008-075530 A1	03/07/2008 26/06/2008
US 2016-0202482 A1	14/07/2016	EP 3133435 A1 EP 3133436 A1 EP 3133436 A4 EP 3133437 A1 US 2016-0195727 A1 US 2016-0202479 A1 WO 2015-159521 A1 WO 2015-159522 A1 WO 2015-159523 A1	22/02/2017 22/02/2017 29/03/2017 22/02/2017 07/07/2016 14/07/2016 22/10/2015 22/10/2015 22/10/2015
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JP 2013-047021 A	07/03/2013	None	
JP 2016-060445 A	25/04/2016	None	