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(54) Title: NOISE ADAPTIVE SOLID-STATE LIDAR SYSTEM

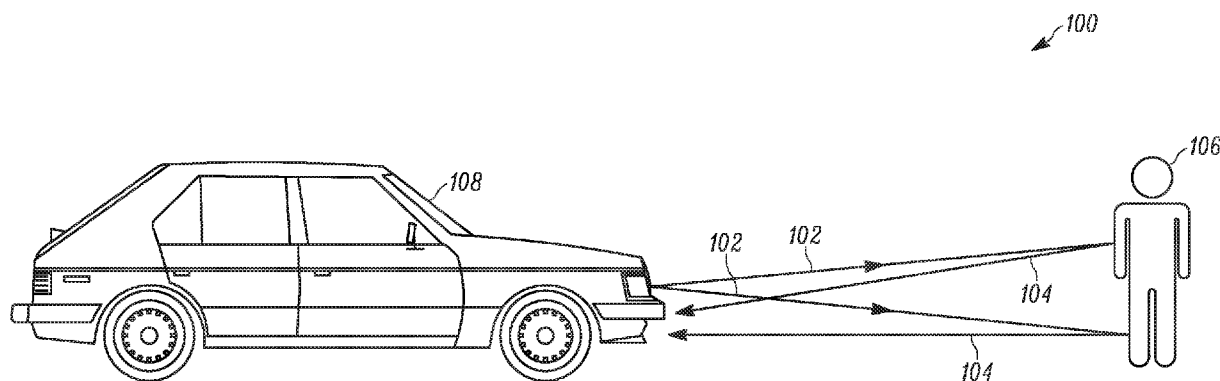


FIG. 1

(57) Abstract: A light detection and ranging (LIDAR) system includes an optical transmitter comprising a plurality of lasers, where each of the plurality of lasers illuminates a field-of-view. A transmitter controller is configured to pulse desired ones of the plurality of lasers so that the plurality of lasers generate light in a desired illumination region. An optical receiver comprises a plurality of detectors positioned to detect light over the desired illumination region. The plurality of detectors generates an electrical detection signal. A time-of-flight measurement circuit measures the time-of-flight of light from the plurality of lasers to the plurality of detectors. The optical receiver calculates range information from the time-of-flight measurements. A receiver controller is electrically connected to the transmitter controller and is configured to bias at least some of the plurality of detectors at a bias point that achieves a desired detection signal noise level.



Declarations under Rule 4.17:

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- *of inventorship (Rule 4.17(iv))*

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2018/057026**A. CLASSIFICATION OF SUBJECT MATTER****G01S 7/486(2006.01)i, G01S 7/484(2006.01)i, G01S 7/481(2006.01)i, G01S 17/93(2006.01)i, G05D 1/02(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)

G01S 7/486; A01G 7/00; G01J 1/58; G01N 21/17; G01N 21/49; G01S 17/10; G01S 17/93; G01S 7/481; G01S 7/484; H01S 5/183; H01S 5/42; G05D 1/02

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: Light Detection and Ranging (LIDAR), noise, Noise-to-Signal Ratio (SNR), Time-of-Flight (ToF), bias

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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DY	US 2017-0307736 A1 (OPSYS TECH LTD.) 26 October 2017 See paragraphs [0052]-[0128] and figures 7, 9, 18.	1-13
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Y	US 2016-0266242 A1 (ADVANCED SCIENTIFIC CONCEPTS, INC.) 15 September 2016 See paragraph [0048] and claim 1.	1-13
Y	US 2006-0231771 A1 (HYO SANG LEE et al.) 19 October 2006 See paragraph [0083].	9-12
A	JP 4108478 B2 (COMMONWEALTH SCIENTIFIC & INDUSTRIAL RESEARCH ORGANISATION) 25 June 2008 See claims 1-4.	1-40
A	US 2015-0340841 A1 (TRILUMINA CORP.) 26 November 2015 See paragraphs [0040]-[0095] and claims 1, 13, 20.	1-40



Further documents are listed in the continuation of Box C.



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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

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