

70 Documents

Publication numbers	Title	Current assignees
DE102014003152 A1	Method and device for determining at least one object parameter of a means of transport	JENOPTIK
DE102017208334 A1	Method for monitoring a vehicle by means of at least one unmanned aerial vehicle, control device, unmanned aerial vehicle and ground monitoring device	JENOPTIK
DE102018118190 A1	Method and device for monitoring a driving behaviour of a vehicle which drives in a highly automated fashion and infrastructure facility, vehicle or monitoring vehicle having the device	JENOPTIK
DE102019134900 A1	Motor vehicle with a vehicle installation for a traffic monitoring device	JENOPTIK
DE102020125866 A1	Housing for a monitoring system, monitoring system, and cooling arrangement	JENOPTIK
DE102020006460 A1	Method for monitoring a sensor system of a vehicle with the aid of an infrastructure system	JENOPTIK
DE102020006459 A1	Method for monitoring a sensor system of a vehicle and release of an autonomous drive operation for vehicles/routes	JENOPTIK
DE102021108046 A1	Method and controller for providing a control signal for controlling a display apparatus and system for displaying information for road users	JENOPTIK
DE102021134170 A1	Method and device for providing at least one emission value for a means of transport	JENOPTIK
DE102021006106 A1	Stationary traffic monitoring system for monitoring a detection region of a traffic area and designed to communicate with vehicles travelling on the traffic area, and motor vehicle	JENOPTIK
DE102021130032 A1	Method and device for recognising the validity of a vehicle parameter	JENOPTIK
DE102013104425 B3	Method for detecting speeding offences with restrictive data storage	JENOPTIK
DE102013104411 B3	Method for detecting and documenting the speeds of multiple vehicles in an image document	JENOPTIK
DE102013102683 A1	Method for detecting traffic offences in an area with traffic lights by measuring the rear of vehicles using a radar device	JENOPTIK
DE102013114821 B3	Method for aligning a laser scanner to a path	JENOPTIK
DE102013007039 A1	Method for focusing an optical imaging system	JENOPTIK
DE102013104443 A1	Traffic monitoring system for speed measurement and allocation of moving vehicles in a multi-target receiving module	JENOPTIK

Publication numbers	Title	Current assignees
DE102013019801 A1	Method for measuring the speed of a motor vehicle moving along a road	JENOPTIK
EP3278010 A1	A camera system	JENOPTIK TRAFFIC SOLUTIONS
DE102014008732 A1	Traffic monitoring system for monitoring a coverage area of a traffic area	JENOPTIK
DE102014010990 A1	Method and apparatus for detecting a speed and a distance of at least one object with respect to a receiver of a reception signal	JENOPTIK
DE102014012285 A1	Method and axle-counting device for contact-free axle counting of a vehicle and axle-counting system for road traffic	JENOPTIK
DE202016100889 U1	Device for documenting a traffic violation in a traffic space and traffic monitoring device for monitoring a traffic space	JENOPTIK
DE102015012873 A1	Method and device for documenting a rule violation of a vehicle through a detection region of an object-tracking device	JENOPTIK
DE102016000532 A1	Method and device for operating a traffic monitoring device, traffic monitoring device and traffic monitoring system	JENOPTIK
DE102016113367 A1	Housing for a mobile traffic monitoring device and traffic monitoring system	JENOPTIK
EP3372731 A1	Traffic monitoring assembly	JENOPTIK
DE102017208333 A1	Method for monitoring a vehicle by means of at least one unmanned aerial vehicle, control device and unmanned aerial vehicle	JENOPTIK
DE102017221034 B3	Method and device for ascertaining an installation angle between a roadway on which a vehicle travels and a detection direction of a measurement or radar sensor	JENOPTIK
DE102018104808 A1	Method and device for estimating the height of a reflector of a vehicle	JENOPTIK
DE102018106594 A1	Method and device for monitoring and/or detecting a sensor system of a vehicle	JENOPTIK
EP3599572 A1	Method and apparatus for recognizing a license plate of a vehicle	JENOPTIK TRAFFIC SOLUTIONS
EP3798897 A1	Methods for artificial neural networks	JENOPTIK TRAFFIC SOLUTIONS
DE102019126562 A1	Method and device for recording a traffic situation when a vehicle passes a recording apparatus	JENOPTIK
DE102020134212 B3	Method and device for assigning identification information and identification data to a vehicle	JENOPTIK
DE102008016188 A1	Method for parallel alignment of a laser scanner to a	JENOPTIK, ...

Publication numbers	Title	Current assignees
	roadway	
DE102008021588 A1	Laser and method for producing pulsed laser radiation	JENOPTIK LASER, ...
EP2157558 A1	Method and device for photographing a vehicle	JENOPTIK, ...
DE102009007055 A1	Method for measuring the speed of a vehicle and visual allocation in documentation	JENOPTIK
DE102009013667 A1	Method for producing a known fixed spatial relationship between a laser scanner and a digital camera for traffic monitoring	JENOPTIK
DE102009043742 A1	Method for immediate penalisation of a traffic offense	JENOPTIK
DE102009060499 A1	Method and assembly for detecting traffic violations in an area with traffic lights	JENOPTIK
DE102010012811 A1	Method for measuring speeds and assigning the measured speeds to appropriate vehicles by detecting and combining object tracking data and image tracking data	JENOPTIK
DE102010056405 A1	Method for generating an image document in which a vehicle measured by a radar device can be identified and image document generated with this method	JENOPTIK
DE102011050660 A1	Methods for aligning and controlling the alignment of a traffic monitoring device relative to the edge of a roadway	JENOPTIK
DE102011052218 A1	Trailer for monitoring traffic	JENOPTIK
DE102011053052 B3	Method and apparatus for identifying motor vehicles for monitoring traffic	JENOPTIK
DE102011053284 B3	Method for verifying the speed of an appropriate vehicle by means of a camera	JENOPTIK
DE102011055269 A1	Method for carrying out a dynamic range compression in traffic photography	JENOPTIK
DE102012102600 B3	Method for verifying the alignment of a traffic monitoring device	JENOPTIK
DE102012102651 B3	Testing device and testing method for a traffic monitoring device with a laser scanner	JENOPTIK
DE102012106860 A1	Device and method for identifying and documenting at least one object passing through an irradiation field	JENOPTIK
DE102012107444 B3	Method for classifying moving vehicles by tracking a position size of the vehicle	JENOPTIK
DE102012107445 A1	Method for classifying vehicles in motion	JENOPTIK
DE102012112754 A1	Method and assembly for detecting traffic offences in an area with traffic lights by measuring the rear of vehicles using a radar device	JENOPTIK
DE102012113009 A1	Method for the automatic classification of moving vehicles	JENOPTIK
DE102013006942 B3	Device for a system for monitoring vehicles in traffic	JENOPTIK

Publication numbers	Title	Current assignees
DE102018133178 A1	Method and controller for setting up traffic monitoring for a monitoring location, and system for carrying out traffic monitoring for a monitoring location	JENOPTIK
DE102004044887 A1	Method and device for monitoring road traffic	RADARLUX RADAR SYSTEMS
DE102005043070 A1	Method for the high-precision three-dimensional measurement and/or reconstruction of objects with the aid of digital image recordings, for example for the image evaluation of traffic routes	FRIEDRICH SCHILLER UNIVERSITAT JENA, ...
DE202007004950 U1	Traffic monitoring device with a device housing with vertical drawer	JENOPTIK, ...
DE102007022372 A1	Method and device for determining the automobile class of automobiles	JENOPTIK, ...
DE102007022373 A1	Method for conclusively determining the speed of a vehicle	JENOPTIK, ...
EP2048515 A1	Method for determining and documenting traffic violations at a traffic light	JENOPTIK, ...
DE102007051801 A1	Traffic monitoring system	JENOPTIK
DE102007058742 A1	Method and device for sophisticated detecting of traffic violations in a restricted area controlled by traffic lights	JENOPTIK, ...
DE502007005292 D1	Method for documenting near simultaneous traffic violations	JENOPTIK
DE102011050659 A1	Method for aligning and controlling the alignment of a traffic monitoring device	JENOPTIK
DE102019107279 A1	Method and device for detecting a traffic law violation due to the allowable distance between a following vehicle and a guide vehicle being undershot	JENOPTIK
DE102016109148 A1	Service vehicle or aircraft having a carrier platform and a toll checking device, toll checking system, and method for checking a toll payment	JENOPTIK

Method and device for determining at least one object parameter of a means of transport

DE102014003152 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING MICHAEL PRÖFROCK DIMA</p> <p><u>Priority data including date</u> 2014DE-10003152 2014-03-03</p>	<p><u>IPC - International classification</u> G01S-007/41* G01S-013/91 G06F-017/18 G08G-001/052</p> <p><u>CPC - Cooperative classification</u> G01S-007/41 G01S-013/92* G08G-001/052 G08G-001/056</p>
--	--

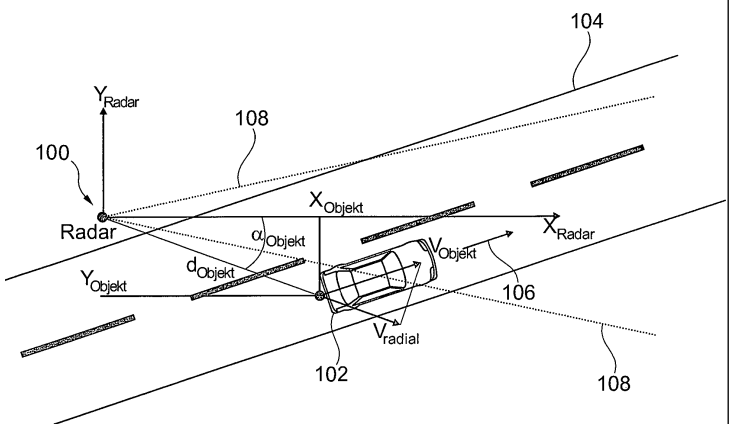
Family

[DE102014003152](#)

A1 2015-09-03



The invention relates to a method for determining at least one object parameter (1042) of a means of transport (102). The method comprising a step of reading (1160) a plurality of first raw targets (210) at a first time (t1) and a plurality of second raw targets (210) at a second time (t2) and a step of solving (1162) a mathematical model using the first raw targets (210) and the second raw targets (210), to determine the at least one object parameter (1042). A first raw target (210) and/or a second raw target (210) is a raw target (210) which represents a characteristic point of the means of transport (102) determined by means of a radar measurement, wherein a position at the first time (t1) and/or second time (t2) can be assigned and/or is assigned to each characteristic point.



Title

Method and device for determining at least one object parameter of a means of transport

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

PRÖFROCK DIMA

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

**Method for monitoring a vehicle by means of at least one unmanned aerial vehicle,
control device, unmanned aerial vehicle and ground monitoring device
DE102017208334 A1**

<p>Current assignees JENOPTIK*</p> <p>Inventors LEHNING MICHAEL REISS MAIK GRAW PETER LEIJSEN MARCO</p> <p>Priority data including date 2017DE-10208334 2017-05-17</p>	<p>IPC - International classification</p> <table border="0"> <tr> <td>B60R-016/02</td> <td>G07B-015/06*</td> <td>G08C-017/02</td> </tr> <tr> <td>G08G-001/00</td> <td>G08G-001/01*</td> <td>G08G-001/052</td> </tr> </table> <p>CPC - Cooperative classification</p> <table border="0"> <tr> <td>G07B-015/06/3</td> <td>G08G-001/01/2</td> <td>G08G-001/052*</td> </tr> </table>	B60R-016/02	G07B-015/06*	G08C-017/02	G08G-001/00	G08G-001/01*	G08G-001/052	G07B-015/06/3	G08G-001/01/2	G08G-001/052*
B60R-016/02	G07B-015/06*	G08C-017/02								
G08G-001/00	G08G-001/01*	G08G-001/052								
G07B-015/06/3	G08G-001/01/2	G08G-001/052*								

Family					
DE102017208334	A1	2018-11-22	   	EP3404637	A1 2018-11-21    

The invention relates to a method for monitoring of a (110) vehicle by means of an unmanned aerial vehicle (100), at least the vehicle having (110) a On-Board unit (108) for providing for monitoring of the (110) vehicle and has a data (118) communication means (104) for the aircraft (100) relevant wireless communication with the On-Board unit (108) and/or to a ground monitoring device (102) for monitoring of said (110) vehicle. The method uses a drive (114) signal for driving at least one actuator (116) of the aircraft, in at least one communication position of the aerial vehicle (100) to navigate, a signal transmission path between the communication (104) device in a vehicle (110) and/or between the bottom and the monitoring device (102) and the associated with the vehicle (110) transmission quality is above a predetermined minimum value (100). In a further step the transmission of the relevant data (118) for monitoring of the (110) vehicle, via the communication (104) device when the aircraft is (100) in the communication position.

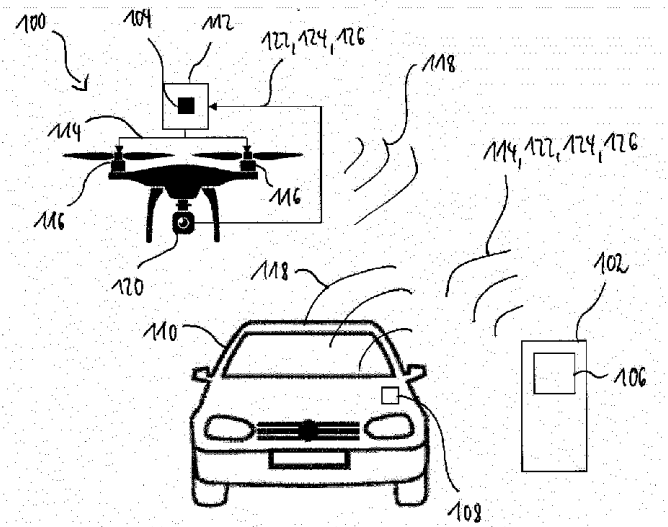


Fig. 1

Title

Method for monitoring a vehicle by means of at least one unmanned aerial vehicle, control device, unmanned aerial vehicle and ground monitoring device

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

REISS MAIK

GRAW PETER

LEIJSEN MARCO

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

PENDING

Method and device for monitoring a driving behaviour of a vehicle which drives in a highly automated fashion and infrastructure facility, vehicle or monitoring vehicle having the device
DE102018118190 A1

<p>Current assignees JENOPTIK*</p> <p>Inventors SKRZECZYNSKI GREGOR</p> <p>Priority data including date 2018DE-10118190 2018-07-27</p>	<p>IPC - International classification B60W-040/09* G08G-001/017* G08G-001/0967 G08G-001/16</p> <p>CPC - Cooperative classification G08G-001/017* G 0 8 G - G 0 8 G - 0 0 1 / 0 9 6 7 / 2 5 0 0 1 / 0 9 6 7 / 4 1 G 0 8 G - 0 0 1 / 0 9 6 7 / 8 3</p>
---	--

Family					
DE102018118190	A1	2020-01-30	   	WO2020/020666	A1 2020-01-30    

The invention relates to a method for monitoring a driving behaviour of a vehicle (100) which drives in a highly automated fashion. The method has a step of reading in an input signal (140) which represents reference data referring to a driving behaviour of the vehicle (100) which drives in highly automated fashion. The method also comprises a step of carrying out a comparison of the driving behaviour with a predefined reference driving behaviour in order to generate a comparison result. The method also comprises a step of making available an output signal (150) in accordance with the result of the comparison. In this context, the output signal (150) represents monitoring information about the driving behaviour with respect to the reference driving behaviour.

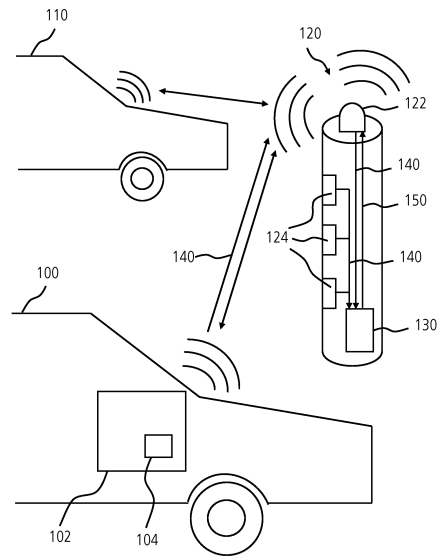


FIG 1

Title

Method and device for monitoring a driving behaviour of a vehicle which drives in a highly automated fashion and infrastructure facility, vehicle or monitoring vehicle having the device

Current assignees

JENOPTIK

Inventors

SKRZECZYNSKI GREGOR

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

PENDING

Motor vehicle with a vehicle installation for a traffic monitoring device DE102019134900 A1

<p>Current assignees JENOPTIK*</p> <p>Inventors LOOS KAI URBANEK MARTIN</p> <p>Priority data including date 2019DE-10134900 2019-12-18</p>	<p>IPC - International classification</p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">B60R-011/00*</td> <td style="border: none;">B60R-011/04*</td> <td style="border: none;">G01S-013/92</td> </tr> <tr> <td style="border: none;">G01S-013/931</td> <td style="border: none;">G01S-017/58</td> <td style="border: none;">G01S-017/86</td> </tr> <tr> <td style="border: none;">G01S-017/89</td> <td style="border: none;">G08G-001/00</td> <td style="border: none;">G08G-001/04</td> </tr> </table> <p>CPC - Cooperative classification</p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">G01S-013/92*</td> <td style="border: none;">G01S-017/58</td> <td style="border: none;">G01S-017/86</td> </tr> <tr> <td style="border: none;">G01S-017/89</td> <td style="border: none;">G01S-2013/9323</td> <td style="border: none;">G01S-2013/93273</td> </tr> <tr> <td style="border: none;">G08G-001/017/5</td> <td style="border: none;">G08G-001/054</td> <td></td> </tr> </table>	B60R-011/00*	B60R-011/04*	G01S-013/92	G01S-013/931	G01S-017/58	G01S-017/86	G01S-017/89	G08G-001/00	G08G-001/04	G01S-013/92*	G01S-017/58	G01S-017/86	G01S-017/89	G01S-2013/9323	G01S-2013/93273	G08G-001/017/5	G08G-001/054	
B60R-011/00*	B60R-011/04*	G01S-013/92																	
G01S-013/931	G01S-017/58	G01S-017/86																	
G01S-017/89	G08G-001/00	G08G-001/04																	
G01S-013/92*	G01S-017/58	G01S-017/86																	
G01S-017/89	G01S-2013/9323	G01S-2013/93273																	
G08G-001/017/5	G08G-001/054																		

<p>Family</p> <p>DE102019134900 A1 2021-06-24 EP3838681</p>	<p>A1 2021-06-23 </p>
--	--------------------------------

The invention relates to a motor vehicle (108) having a vehicle installation (102) with a traffic monitoring device (104), wherein the vehicle installation has an adjusting unit (106) in order to position the traffic monitoring device from a first rest position (I) to a different second measuring position (II), wherein the motor vehicle has a first side (50) and a second side (60) and the adjustment unit positions the traffic monitoring device from the rest position (I) on the first side (50) to the different second measuring position (II) in the direction of the second side (60), characterized in that a passenger region (50 a) is arranged on the first side (50) and a driver region (60 a) is arranged on the second side (60)...

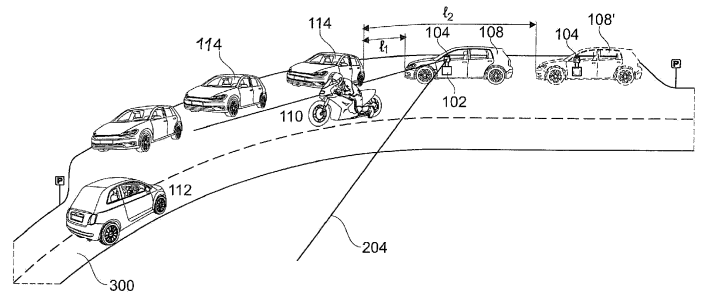


Fig. 1

Title

Motor vehicle with a vehicle installation for a traffic monitoring device

Current assignees

JENOPTIK

Inventors

LOOS KAI

URBANEK MARTIN

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

PENDING

Housing for a monitoring system, monitoring system, and cooling arrangement

DE102020125866 A1

<p>Current assignees JENOPTIK*</p> <p>Inventors BÜKRÜ TUNCAY LEMJIMER BRAHIM</p> <p>Priority data including date 2020DE-10125866 2020-10-02 2021WO-EP76998 2021-09-30</p>	<p>IPC - International classification G01S-007/02 G01S-013/00 G08G-001/00 H05K-005/02 H05K-007/20*</p> <p>CPC - Cooperative classification G01S-007/027 G01S-013/91 G08G-001/017/5 H05K-007/20/409*</p>
--	--

Family							
EP4205519	A1	2023-07-05		WO2022/069663	A1	2022-04-07	
DE102020125866	A1	2022-04-07					

The invention relates to a housing (102) having a one-piece housing upper part (104) for a monitoring system (100) for monitoring the surroundings of the monitoring system (100), the housing having a first side wall (550) with a front side and a rear side, a second side wall, which is opposite the first side wall (550) and has a front side and a rear side, and a ceiling connecting the first side wall (550) and the second side wall. A guide device (744) is shaped so as to deflect an airflow (112), which flows along at least one of the side walls, at an angle of at least 45°, in particular at a right angle, and/or to guide an airflow between the front side and the rear side of the at least one side wall (550).

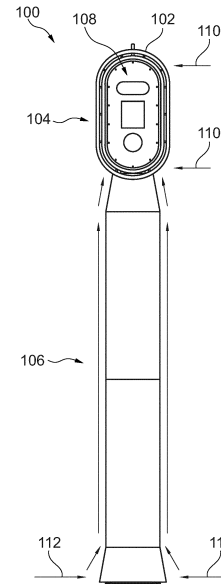


Fig. 1

Title

Housing for a monitoring system, monitoring system, and cooling arrangement

Current assignees

JENOPTIK

Inventors

BÜKRÜ TUNCAY

LEMJIMER BRAHIM

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

PENDING

PENDING

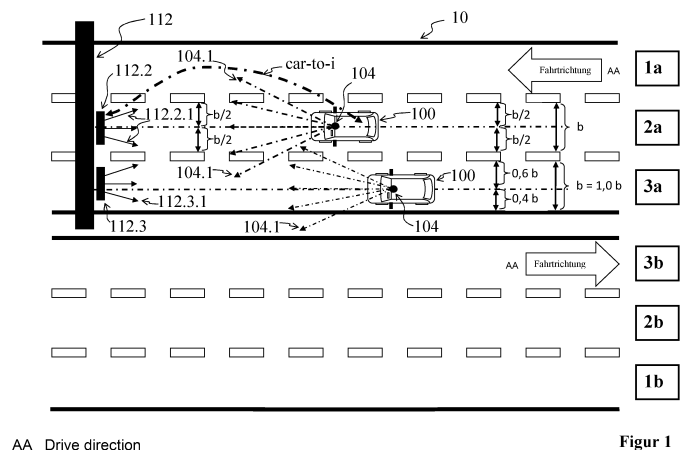
Method for monitoring a sensor system of a vehicle with the aid of an infrastructure system

DE102020006460 A1

<p>Current assignees JENOPTIK*</p> <p>Inventors FENDT GÜNTER</p> <p>Priority data including date 2020DE-10006460 2020-10-20</p>	<p>IPC - International classification</p> <table border="0"> <tr> <td>B60W-030/12</td> <td>B60W-060/00</td> <td>G05D-001/00</td> </tr> <tr> <td>G07C-005/00</td> <td>G07C-005/08</td> <td>G08G-001/04</td> </tr> <tr> <td>G08G-001/097*</td> <td></td> <td></td> </tr> </table> <p>CPC - Cooperative classification</p> <table border="0"> <tr> <td>B60W-050/02/05</td> <td>B60W-2050/0215</td> <td>B60W-2552/53</td> </tr> <tr> <td>B60W-2556/45</td> <td>G07C-005/00/8</td> <td>G07C-005/08/08</td> </tr> <tr> <td>G08G-001/04</td> <td>G08G-001/097*</td> <td></td> </tr> </table>	B60W-030/12	B60W-060/00	G05D-001/00	G07C-005/00	G07C-005/08	G08G-001/04	G08G-001/097*			B60W-050/02/05	B60W-2050/0215	B60W-2552/53	B60W-2556/45	G07C-005/00/8	G07C-005/08/08	G08G-001/04	G08G-001/097*	
B60W-030/12	B60W-060/00	G05D-001/00																	
G07C-005/00	G07C-005/08	G08G-001/04																	
G08G-001/097*																			
B60W-050/02/05	B60W-2050/0215	B60W-2552/53																	
B60W-2556/45	G07C-005/00/8	G07C-005/08/08																	
G08G-001/04	G08G-001/097*																		

Family					
WO2022/084239	A1	2022-04-28	   	DE102020006460	A1 2022-04-21    

The aim of the invention can consist in preventing a formed adjustment error of a sensor system (104) and/or a creeping adjustment error of a sensor system (104) from leading to any damage or ensuring that the adjustment error is reliably detected when checked. In order to achieve a further optimization in the monitoring of a sensor device (104) of a vehicle (100) with the aid of an infrastructure system (112), a method is provided having at least the following steps which are carried out by the infrastructure system (112): a) ascertaining the position of the vehicle (100), relative to the lane (1a, 2a, 3a, 1b, 2b, 3b) of a multilane road (10) currently being traversed, with the aid of means (112.2, 112.3) of the infrastructure system (112); b) receiving position information of the vehicle (100) from the vehicle (100) or from a component of the vehicle (100), on the basis of the sensor system (104) of the vehicle (100), said position information describing the ascertained position of the vehicle (100) relative to the lane (1a, 2a, 3a, 1b, 2b, 3b) of a multilane road (10) currently being traversed, and c) determining a possible deviation (a) of the position of the vehicle (100), by carrying out a comparative analysis of the ascertained position of the vehicle (100) using means (112.2, 112.3) of the infrastructure system (112), relative to the ascertained position of the vehicle (100) using the sensor device (104) of the vehicle (100).



Title

Method for monitoring a sensor system of a vehicle with the aid of an infrastructure system

Current assignees

JENOPTIK

Inventors

FENDT GÜNTER

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

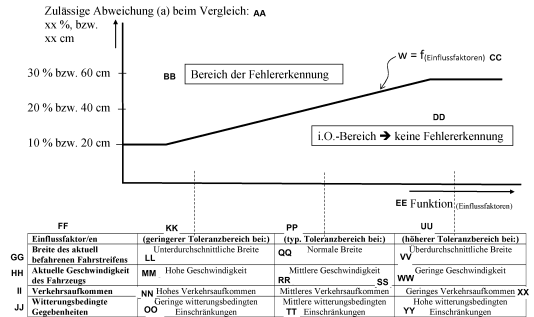
PENDING

Method for monitoring a sensor system of a vehicle and release of an autonomous drive operation for vehicles/routes
DE102020006459 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> FENDT GÜNTER</p> <p><u>Priority data including date</u> 2020DE-10006459 2020-10-20</p>	<p><u>IPC - International classification</u></p> <table border="0"> <tr> <td>B60W-030/12</td> <td>B60W-050/02</td> <td>B60W-060/00</td> </tr> <tr> <td>G05D-001/00</td> <td>G07C-005/00</td> <td>G07C-005/08</td> </tr> <tr> <td>G08G-001/04</td> <td>G08G-001/097*</td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table border="0"> <tr> <td>B60W-050/02/05</td> <td>B60W-050/029</td> <td>B60W-050/08/7</td> </tr> <tr> <td>B60W-060/00</td> <td>B60W-060/0059</td> <td>B60W-2050/0215</td> </tr> <tr> <td>B60W-2050/0295</td> <td>B60W-2556/45</td> <td>G01S-007/497/2</td> </tr> <tr> <td>G01S-017/931</td> <td>G07C-005/00/8</td> <td>G08G-001/04</td> </tr> <tr> <td>G08G-001/097*</td> <td></td> <td></td> </tr> </table>	B60W-030/12	B60W-050/02	B60W-060/00	G05D-001/00	G07C-005/00	G07C-005/08	G08G-001/04	G08G-001/097*		B60W-050/02/05	B60W-050/029	B60W-050/08/7	B60W-060/00	B60W-060/0059	B60W-2050/0215	B60W-2050/0295	B60W-2556/45	G01S-007/497/2	G01S-017/931	G07C-005/00/8	G08G-001/04	G08G-001/097*		
B60W-030/12	B60W-050/02	B60W-060/00																							
G05D-001/00	G07C-005/00	G07C-005/08																							
G08G-001/04	G08G-001/097*																								
B60W-050/02/05	B60W-050/029	B60W-050/08/7																							
B60W-060/00	B60W-060/0059	B60W-2050/0215																							
B60W-2050/0295	B60W-2556/45	G01S-007/497/2																							
G01S-017/931	G07C-005/00/8	G08G-001/04																							
G08G-001/097*																									

Family					
WO2022/084228	A1	2022-04-28	   	DE102020006459	A1 2022-04-21    

The aim of the invention can consist in preventing a formed adjustment error of a sensor system (104) and/or a creeping adjustment error of a sensor system (104) from leading to any damage or ensuring that the adjustment error is reliably detected when checked or that an autonomous drive operation is only released for a following route section if no vehicles (100) or only a few vehicles that could constitute a hazard are located on the aforementioned following route section. In order to achieve a further optimization in the monitoring of a sensor device (104) of a vehicle (100) and releasing an autonomous drive operation for vehicles for a following route section with the aid of an infrastructure system (112), a method is provided having at least the following steps which are carried out by the infrastructure system (112): a) ascertaining the position of the vehicle (100), relative to the lane (1a, 2a, 3a, 1b, 2b, 3b) of a multilane road (10) currently being traversed, with the aid of means (112.2, 112.3) of the infrastructure system (112); b) receiving position information of the vehicle (100) from the vehicle (100) or from a component of the vehicle (100), on the basis of the sensor system (104) of the vehicle (100), said position information describing the ascertained position of the vehicle (100) relative to the lane (1a, 2a, 3a, 1b, 2b, 3b) of a multilane road (10) currently being traversed, and c) determining a possible deviation (a) of the position of the vehicle (100), by carrying out a comparative analysis of the ascertained position of the vehicle (100) using means (112.2, 112.3) of the infrastructure system (112), relative to the ascertained position of the vehicle (100) using the sensor device (104) of the vehicle (100).



Figur 5

AA Permissible deviation (a) by comparison.
 BB Range of error detection
 CC $W = f(\text{influencing factors})$
 DD Normal range -- no error detection
 EE Function (influencing factors)
 FF influencing factors)
 GG Width of the lane currently being traversed
 HH current speed of the vehicle
 JJ Traffic volume
 JJ Conditions caused by weather
 KK (Smaller tolerance range for)
 LL below-average width
 MM High speed
 NN high traffic volume
 OO Low degree of limitations caused by weather
 PP (Typical tolerance range for)
 QQ Normal width
 RR Average speed
 SS average traffic volume
 TT Average degree of limitations caused by weather
 UU High tolerance range for)
 VW above-average width
 WW Low speed
 XX Low traffic volume
 YY High degree of limitations caused by weather
 bzw. or

Title

Method for monitoring a sensor system of a vehicle and release of an autonomous drive operation for vehicles/routes

Current assignees

JENOPTIK

Inventors

FENDT GÜNTER

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

PENDING

Method and controller for providing a control signal for controlling a display apparatus and system for displaying information for road users

DE102021108046 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> MAAG EINAR PRALLER ERIK</p> <p><u>Priority data including date</u> 2021DE-10108046 2021-03-30</p>	<p><u>IPC - International classification</u> G08G-001/052* G08G-001/09*</p> <p><u>CPC - Cooperative classification</u> G08G-001/01/16 G08G-001/01/41 G08G-001/052* G08G-001/095</p>
--	---

<u>Family</u>	
DE102021108046 A1 2022-10-06	WO2022/207616 A1 2022-10-06

The invention relates to a method for providing a control signal (139) for controlling a display apparatus (110) which is designed to display information for road users. A sensor signal (125), which represents monitoring data relating to a road user is read in by a traffic monitoring device (124) for detection of road users in the surroundings of the display apparatus (110). Behaviour data (135) which represent a behaviour of the road user are also determined using the sensor signal (125). The control signal (139) is then generated depending on a comparison of the behaviour data (135) with reference data (137) which represent a behaviour conforming to traffic regulations. The control signal (139) is designed to cause behaviour-related information (117) to be displayed for the road user in addition to or alternatively to behaviour-independent information (115). The control signal (139) causes the behaviour-related information (117) to be emphasised relative to the behaviour-independent information (115). Finally, the control signal (139) is output at an output interface (140) to the display apparatus (110) in order to provide the control signal (139).

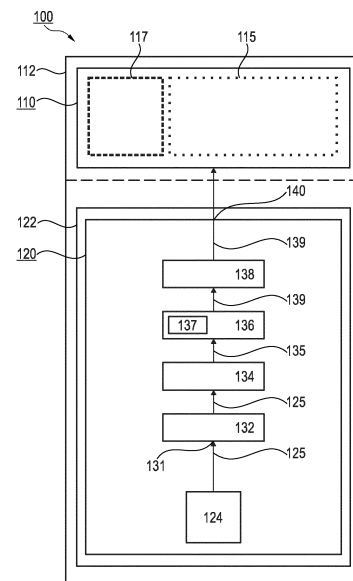


Fig. 1

Title

Method and controller for providing a control signal for controlling a display apparatus and system for displaying information for road users

Current assignees

JENOPTIK

Inventors

MAAG EINAR

PRALLER ERIK

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

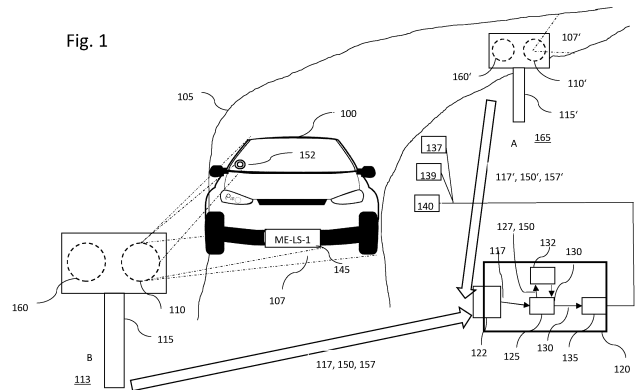
PENDING

Method and device for providing at least one emission value for a means of transport DE102021134170 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> KIENITZ STEFAN BEYER ANDREAS POTTHOFF TORBEN BLANKE OLIVER</p> <p><u>Priority data including date</u> 2021DE-10134170 2021-12-21</p>	<p><u>IPC - International classification</u> G06Q-010/00* G08G-001/01 G08G-001/017</p> <p><u>CPC - Cooperative classification</u> G06Q-010/00* G08G-001/015 G08G-001/017 G08G-001/017/5</p>
---	---

<u>Family</u>	
WO2023/118112 A1 2023-06-29	DE102021134170 A1 2023-06-22

The approach proposed here relates to a method (200) for providing at least one emission value (130) for a means of transport (100). The method (200) comprises a step of reading in (210) an identification parameter (117) that represents at least one type (127) of the means of transport (100) present in an observation area (107). The method (200) furthermore comprises a step of ascertaining (220) the at least one emission value (130) for the means of transport (100) from a memory (132) that stores an assignment of the at least one type (127) of the means of transport (100) to the emission value (130), wherein the emission value (130) represents a parameter of an emission coming from the means of transport (100) into an environment of the means of transport (100). The method (200) lastly comprises a step of outputting (230) the ascertained emission value (130) to an output interface (135) in order to provide the emission value (130).



Title

Method and device for providing at least one emission value for a means of transport

Current assignees

JENOPTIK

Inventors

KIENITZ STEFAN

BEYER ANDREAS

POTTHOFF TORBEN

BLANKE OLIVER

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

PENDING

Stationary traffic monitoring system for monitoring a detection region of a traffic area and designed to communicate with vehicles travelling on the traffic area, and motor vehicle

DE102021006106 A1

<p>Current assignees JENOPTIK*</p> <p>Inventors FENDT, Günter</p> <p>Priority data including date 2021DE-10006106 2021-12-11</p>	<p>IPC - International classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">G01C-011/02</td> <td style="width: 33%;">G01S-017/00</td> <td style="width: 33%;">G01S-017/04</td> </tr> <tr> <td>G08G-001/00</td> <td>G08G-001/04</td> <td>H04B-010/112*</td> </tr> <tr> <td>H04B-010/114</td> <td>H04B-010/40*</td> <td>H04J-014/06</td> </tr> <tr> <td>H04L-005/14</td> <td>H04W-004/44</td> <td></td> </tr> </table> <p>CPC - Cooperative classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">G01S-007/499</td> <td style="width: 33%;">G01S-017/10</td> <td style="width: 33%;">G01S-017/86</td> </tr> <tr> <td>G01S-017/88</td> <td>G01S-017/931</td> <td>G08G-001/04</td> </tr> <tr> <td>H04B-010/112/5</td> <td>H04B-010/112/9*</td> <td>H04B-010/114/3</td> </tr> </table>	G01C-011/02	G01S-017/00	G01S-017/04	G08G-001/00	G08G-001/04	H04B-010/112*	H04B-010/114	H04B-010/40*	H04J-014/06	H04L-005/14	H04W-004/44		G01S-007/499	G01S-017/10	G01S-017/86	G01S-017/88	G01S-017/931	G08G-001/04	H04B-010/112/5	H04B-010/112/9*	H04B-010/114/3
G01C-011/02	G01S-017/00	G01S-017/04																				
G08G-001/00	G08G-001/04	H04B-010/112*																				
H04B-010/114	H04B-010/40*	H04J-014/06																				
H04L-005/14	H04W-004/44																					
G01S-007/499	G01S-017/10	G01S-017/86																				
G01S-017/88	G01S-017/931	G08G-001/04																				
H04B-010/112/5	H04B-010/112/9*	H04B-010/114/3																				

Family

DE102021006106	A1 2023-06-15	
WO2023/105055	A1 2023-06-15	

The present invention relates to: a stationary traffic monitoring system (112) for monitoring a detection region (115) of a traffic area and designed to communicate with vehicles (100) travelling on the traffic area; a method for a system unit, that is designed as a stationary traffic monitoring system (112) and/or as a motor vehicle (100), for monitoring a detection region (115) of a traffic area and/or designed for communication; and a motor vehicle, wherein two or more optical interfaces (D1, D2, 114) are used, which is characterised in that a) a first data transmission interface (D1) is operated with a polarised transmitted light beam, and b) a laser scanner (114) is operated with a polarised transmitted light beam, and/or c) a second data transmission interface (D2) is operated with a polarised transmitted light beam, d) wherein the polarisation plane (E1) of the polarised transmitted light beam of the first data transmission interface (D1) is different from the polarisation plane (E2, E3) of the polarised transmitted light beam of the laser scanner (114) and/or of the polarised transmitted light beam of the second data transmission interface (D2).

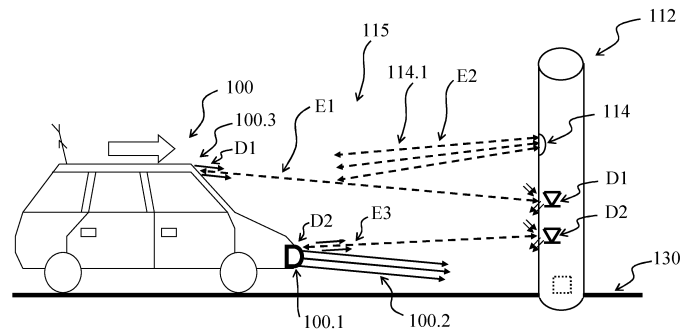


Fig. 2

Title

Stationary traffic monitoring system for monitoring a detection region of a traffic area and designed to communicate with vehicles travelling on the traffic area, and motor vehicle

Current assignees

JENOPTIK

Inventors

FENDT, Günter

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

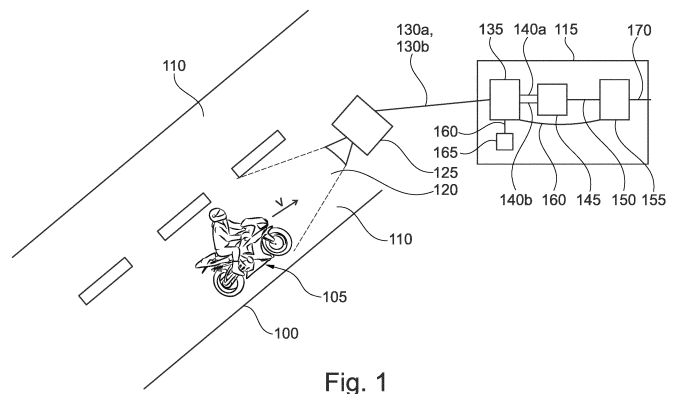
PENDING

Method and device for recognising the validity of a vehicle parameter DE102021130032 A1

<p>Current assignees JENOPTIK*</p> <p>Inventors PRÖFROCK, Dima TRUMMER, Michael</p> <p>Priority data including date 2021DE-10130032 2021-11-17</p>	<p>IPC - International classification G06V-020/54 G08G-001/01* G08G-001/01*5 G08G-001/01*7</p> <p>CPC - Cooperative classification G06V-020/54 G08G-001/01/16 G08G-001/01/33* G08G-001/015 G08G-001/017/5</p>
---	--

Family							
WO2023/088971	A1	2023-05-25		DE102021130032	A1	2023-05-17	

The invention relates to a method (500) for recognising the validity of a vehicle parameter. The method (500) comprises a step of reading (510) at least one first parameter (140a) and at least one second parameter (140b), wherein: the first parameter (140a) represents a first physical variable (130a) of the vehicle (105) or a variable derived from the first physical variable (130a), and the second parameter (140b) represents a second physical variable (130b) of the vehicle (105) or a variable derived from the second physical variable (130b); a distinguishing criterion (160, 245) for recognising the validity of the vehicle parameter of the vehicle (105) using a combination (150) of the first (140a) and the second parameter (140b) is also read. The method (500) also comprises a step of assigning (520) the vehicle parameter as a valid vehicle parameter if a combination (150) of the first (140a) and the second parameter (140b) meets the distinguishing criterion (160, 245).



Title

Method and device for recognising the validity of a vehicle parameter

Current assignees

JENOPTIK

Inventors

PRÖFROCK, Dima

TRUMMER, Michael

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

PENDING

Method for detecting speeding offences with restrictive data storage DE102013104425 B3

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING MICHAEL ACKERS JUDITH BLANKE OLIVER HEINER ANDREAS</p> <p><u>Priority data including date</u> 2013DE-10104425 2013-04-30</p>	<p><u>IPC - International classification</u> G01S-013/86 G01S-013/92* G08G-001/054 H04N-007/18</p> <p><u>CPC - Cooperative classification</u> G01S-013/86/7 G01S-013/92 G08G-001/054* H04N-007/18/3 H04N-007/18/8</p>
---	--

<u>Family</u>	
<p>ES2650719 T3 2018-01-22 </p> <p>EP2799903 B1 2017-09-06 </p> <p>EP2799903 A3 2015-03-25 </p>	<p>EP2799903 A2 2014-11-05 </p> <p>DE102013104425 B3 2014-05-28 </p>

Method for detecting speed infringements with restrictive data storage, in the case of the object tracking data by means of a radar (1) device and at the same time of vehicles (5) image tracking data by means of a camera (2) device can be detected. The image tracking data is only temporarily stored, and stored permanently when an initial suspicion is present, it is confirmed when the start of suspicion. The image data were not belong to the image tracking data and temporarily stored be unrecognizable, or made not permanently stored, and thus only a restrictive data storage taking place.

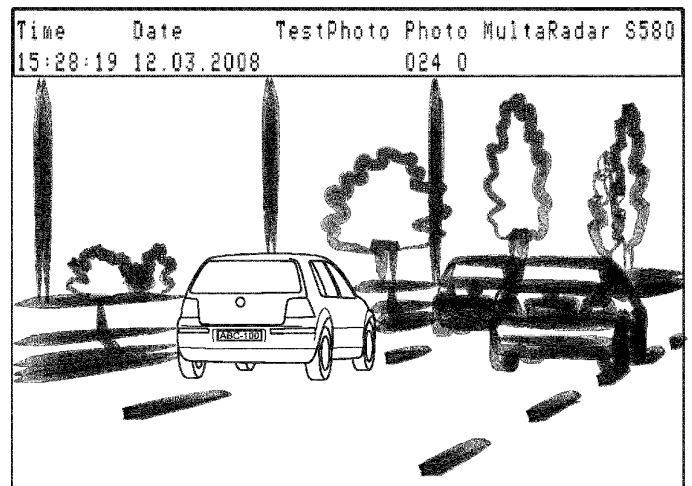


Fig. 3b

Title

Method for detecting speeding offences with restrictive data storage

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

ACKERS JUDITH

BLANKE OLIVER

HEINER ANDREAS

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

GRANTED

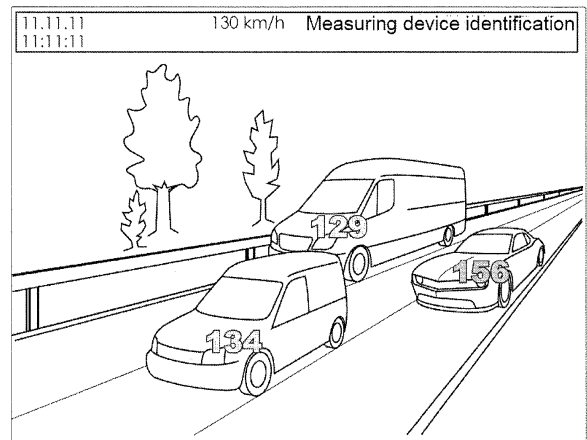
Method for detecting and documenting the speeds of multiple vehicles in an image document

DE102013104411 B3

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> SCHMITZ RALF</p> <p><u>Priority data including date</u> 2013DE-10104411 2013-04-30</p>	<p><u>IPC - International classification</u> G01S-013/86 G01S-013/92* G08G-001/054 H04N-007/18</p> <p><u>CPC - Cooperative classification</u> G01S-013/92 G08G-001/054* H04N-007/18/3* H04N-007/18/8</p> <p><u>PCL - US patent classification</u> PCLO: 348142000*</p>
---	---

<u>Family</u>	
EP2799904 A3 2015-03-18	US20140320645 A1 2014-10-30
AU2014202319 A1 2014-11-13	DE102013104411 B3 2014-07-31
EP2799904 A2 2014-11-05	

The invention relates to a method for detecting and documenting the speeds of a plurality of vehicles in an image document. At the same time the plurality of vehicles is passed through the measuring area pertaining to a radiation-based multi-target-enabled measuring device. Vehicle-specific measurement data are obtained from the measurement results, from which measurement time - and vehicle based measurement data sets are formed and stored. Caused by one of the vehicles, which travels at a speed above a threshold level, a camera is triggered. From the thus obtained image data and the last stored measurement data records an image of the document is generated, the fact that a respective speed is shown to the imaged assigned to vehicles.



Title

Method for detecting and documenting the speeds of multiple vehicles in an image document

Current assignees

JENOPTIK

Inventors

SCHMITZ RALF

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

LAPSED

GRANTED

LAPSED

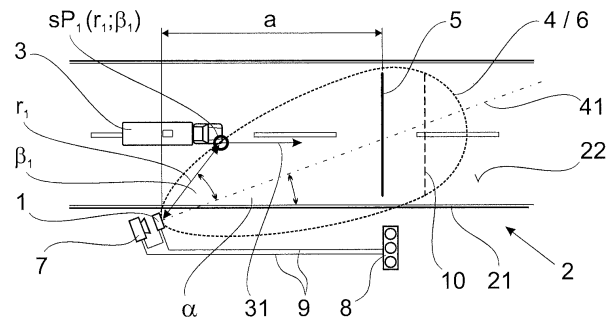
Method for detecting traffic offences in an area with traffic lights by measuring the rear of vehicles using a radar device

DE102013102683 A1

<p><u>Current assignees</u> JENOPTIK* JENOPTIK* ROBOT GMBH</p> <p><u>Inventors</u> BLANKE OLIVER</p> <p><u>Priority data including date</u> 2013DE-10102683 2013-03-15 2014EP-0157618 2014-03-04</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">G01S-013/06</td> <td style="width: 33%;">G01S-013/32</td> <td style="width: 33%;">G01S-013/34</td> </tr> <tr> <td>G01S-013/42</td> <td>G01S-013/58</td> <td>G01S-013/86*</td> </tr> <tr> <td>G01S-013/91</td> <td>G01S-013/92</td> <td>G01S-013/93</td> </tr> <tr> <td>G08G-001/01</td> <td>G08G-001/017</td> <td>G08G-001/052</td> </tr> <tr> <td>G08G-001/054</td> <td></td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">G01S-013/86/7*</td> <td style="width: 33%;">G01S-013/91*</td> <td style="width: 33%;">G08G-001/017/5</td> </tr> </table>	G01S-013/06	G01S-013/32	G01S-013/34	G01S-013/42	G01S-013/58	G01S-013/86*	G01S-013/91	G01S-013/92	G01S-013/93	G08G-001/01	G08G-001/017	G08G-001/052	G08G-001/054			G01S-013/86/7*	G01S-013/91*	G08G-001/017/5
G01S-013/06	G01S-013/32	G01S-013/34																	
G01S-013/42	G01S-013/58	G01S-013/86*																	
G01S-013/91	G01S-013/92	G01S-013/93																	
G08G-001/01	G08G-001/017	G08G-001/052																	
G08G-001/054																			
G01S-013/86/7*	G01S-013/91*	G08G-001/017/5																	

<u>Family</u>			
PL2778714	T3	2018-01-31	
LT2778714	T	2018-01-25	
EP2778714	B1	2017-07-12	
CN104050806	B	2017-05-03	
AU2014201587	B2	2017-02-23	
US9341711	B2	2016-05-17	
			AU2014201587 A1 2014-10-02
			DE102013102683 A1 2014-09-18
			US20140266858 A1 2014-09-18
			CN104050806 A 2014-09-17
			EP2778714 A1 2014-09-17

The invention relates to a method for detecting a traffic violation in a traffic light region by heckanmessung with a FMCW radar (1). To a first measurement time from the (t1) obtained measurement signal are a specific position (sp1), the front of a vehicle (3) is assigned and the radial velocity derived and with the aid of the time period between the first measurement time (t1) and the second measurement time (t2) a first expectation position (ep1) for the front of the vehicle at the second measuring time (t2) by means of the distance-time law is calculated. By repeatedly calculating an expectation position for further measurement points in time to the front of the vehicle is predicted to be an expected time point with the determined iteratively vehicle speed, a range-limiting stop (5) line crosses the front of the vehicle when the traffic light.



Title

Method for detecting traffic offences in an area with traffic lights by measuring the rear of vehicles using a radar device

Current assignees

JENOPTIK

JENOPTIK ROBOT GMBH

Inventors

BLANKE OLIVER

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

LAPSED

GRANTED

GRANTED

GRANTED

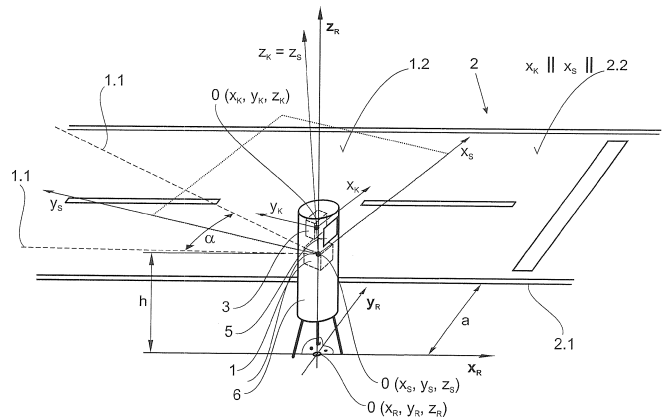
GRANTED

Method for aligning a laser scanner to a path DE102013114821 B3

<p>Current assignees JENOPTIK*</p> <p>Inventors LEHNING MICHAEL TRUMMER MICHAEL MICHAELSEN MARCOS ORTNER MARKO</p> <p>Priority data including date 2013DE-10114821 2013-12-23</p>	<p>IPC - International classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>G01C-003/08</td> <td>G01S-007/497*</td> <td>G01S-007/51</td> </tr> <tr> <td>G01S-017/42</td> <td>G01S-017/58</td> <td>G01S-017/86</td> </tr> <tr> <td>G01S-017/88</td> <td>G08G-001/04*</td> <td>G08G-001/054</td> </tr> <tr> <td>H04N-005/247</td> <td>H04N-017/00</td> <td></td> </tr> </table> <p>CPC - Cooperative classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>G01S-007/497/2*</td> <td>G01S-007/51</td> <td>G01S-017/02/3</td> </tr> <tr> <td>G01S-017/42</td> <td>G01S-017/58</td> <td>G01S-017/86</td> </tr> <tr> <td>G01S-017/88</td> <td></td> <td></td> </tr> </table>	G01C-003/08	G01S-007/497*	G01S-007/51	G01S-017/42	G01S-017/58	G01S-017/86	G01S-017/88	G08G-001/04*	G08G-001/054	H04N-005/247	H04N-017/00		G01S-007/497/2*	G01S-007/51	G01S-017/02/3	G01S-017/42	G01S-017/58	G01S-017/86	G01S-017/88		
G01C-003/08	G01S-007/497*	G01S-007/51																				
G01S-017/42	G01S-017/58	G01S-017/86																				
G01S-017/88	G08G-001/04*	G08G-001/054																				
H04N-005/247	H04N-017/00																					
G01S-007/497/2*	G01S-007/51	G01S-017/02/3																				
G01S-017/42	G01S-017/58	G01S-017/86																				
G01S-017/88																						

Family			
AU2014259557	B2	2018-01-18	📄 🔗 🏠 📄
US9696413	B2	2017-07-04	📄 🔗 🏠 📄
EP2889640	B1	2016-09-07	📄 🔗 🏠 📄
AU2014259557	A1	2015-07-09	📄 🔗 🏠 📄
EP2889640	A1	2015-07-01	📄 🔗 🏠 📄
US20150177370	A1	2015-06-25	📄 🔗 🏠 📄
DE102013114821	B3	2014-10-23	📄 🔗 🏠 📄

Method for aligning a next to a roadway with an unknown installation height erected measuring device, comprising a laser scanner, a camera and a display (5). A map (7) of the roadway is produced by the camera in the display (5) superimposed and displayed from a road model (4), formed from a variety of on an intersection (4.1) tapered straight line (4.2), superimposed. The measuring device is then rotated and tilted, a result of which the map (7) of the roadway is rotated and shifted on the display (5), and for this purpose to the images of the edges of the road edges extending in parallel at the point of intersection (4.1) are aligned.



Title

Method for aligning a laser scanner to a path

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

TRUMMER MICHAEL

MICHAELSEN MARCOS

ORTNER MARKO

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

LAPSED

GRANTED

Method for focusing an optical imaging system DE102013007039 A1

Current assignees

JENOPTIK*

Inventors

TRUMMER MICHAEL

Priority data including date

2013DE-10007039 2013-04-24

IPC - International classification

G03B-013/36

G08G-001/054

H04N-005/232*

CPC - Cooperative classification

H04N-023/676*

Family

[DE102013007039](#)

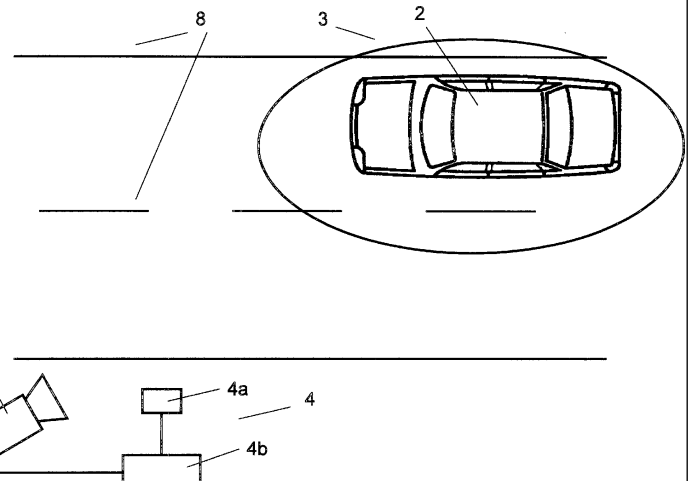
B4 2018-04-19

[DE102013007039](#)

A1 2014-10-30



Method for focusing an optical imaging system (1) of a traffic monitoring system (4) onto an object (2) to be photographed which is located at a predefinable distance from the optical imaging system on a carriageway surface (5) in a predefinable region (3), comprising the following features: a) defining the predefinable region as a predefined region (3); b) providing the optical imaging system (1); c) erecting the optical imaging system (1); d) recording a photographic image (6) by means of the optical imaging system; e) deriving the image (6) according to pixel brightness values and absolute value formation; f) determining a sharpness region (7 a) on the road surface (5) by means of the derived image (6) according to step e), wherein the sharpness region has an increased brightness compared to an adjacent blur region (7 b) by step e); g) focusing the imaging system such that the sharpness region moves into the predetermined region;



Title

Method for focusing an optical imaging system

Current assignees

JENOPTIK

Inventors

TRUMMER MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

Traffic monitoring system for speed measurement and allocation of moving vehicles in a multi-target receiving module

DE102013104443 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING MICHAEL PRÖFROCK DIMA</p> <p><u>Priority data including date</u> 2013DE-10104443 2013-04-30</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01S-007/41</td> <td>G01S-013/26*</td> <td>G01S-013/58</td> </tr> <tr> <td>G01S-013/66</td> <td>G01S-013/72</td> <td>G01S-013/86</td> </tr> <tr> <td>G01S-013/87</td> <td>G01S-013/89</td> <td>G01S-013/91</td> </tr> <tr> <td>G01S-013/92*</td> <td>G08G-001/017</td> <td>G08G-001/052</td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01S-013/26*</td> <td>G01S-013/58/4</td> <td>G01S-013/72/6</td> </tr> <tr> <td>G01S-013/86/7</td> <td>G01S-013/87/8</td> <td>G01S-013/91</td> </tr> <tr> <td>G01S-013/92</td> <td>G08G-001/052</td> <td></td> </tr> </table>	G01S-007/41	G01S-013/26*	G01S-013/58	G01S-013/66	G01S-013/72	G01S-013/86	G01S-013/87	G01S-013/89	G01S-013/91	G01S-013/92*	G08G-001/017	G08G-001/052	G01S-013/26*	G01S-013/58/4	G01S-013/72/6	G01S-013/86/7	G01S-013/87/8	G01S-013/91	G01S-013/92	G08G-001/052	
G01S-007/41	G01S-013/26*	G01S-013/58																				
G01S-013/66	G01S-013/72	G01S-013/86																				
G01S-013/87	G01S-013/89	G01S-013/91																				
G01S-013/92*	G08G-001/017	G08G-001/052																				
G01S-013/26*	G01S-013/58/4	G01S-013/72/6																				
G01S-013/86/7	G01S-013/87/8	G01S-013/91																				
G01S-013/92	G08G-001/052																					

<u>Family</u>																													
<table style="width: 100%; border: none;"> <tr> <td style="color: blue;">DE102013104443</td> <td>B4</td> <td>2022-03-17</td> <td style="text-align: center;">🔗🏛️📄</td> </tr> <tr> <td style="color: blue;">AU2014202300</td> <td>B2</td> <td>2016-01-21</td> <td style="text-align: center;">🔗🏛️📄</td> </tr> <tr> <td style="color: blue;">EP2799901</td> <td>A3</td> <td>2015-03-25</td> <td style="text-align: center;">🔗🏛️📄</td> </tr> <tr> <td style="color: blue;">AU2014202300</td> <td>A1</td> <td>2014-11-13</td> <td style="text-align: center;">🔗🏛️📄</td> </tr> </table>	DE102013104443	B4	2022-03-17	🔗🏛️📄	AU2014202300	B2	2016-01-21	🔗🏛️📄	EP2799901	A3	2015-03-25	🔗🏛️📄	AU2014202300	A1	2014-11-13	🔗🏛️📄	<table style="width: 100%; border: none;"> <tr> <td style="color: blue;">CN104134354</td> <td>A</td> <td>2014-11-05</td> <td style="text-align: center;">🔗🏛️📄</td> </tr> <tr> <td style="color: blue;">EP2799901</td> <td>A2</td> <td>2014-11-05</td> <td style="text-align: center;">🔗🏛️📄</td> </tr> <tr> <td style="color: blue;">DE102013104443</td> <td>A1</td> <td>2014-10-30</td> <td style="text-align: center;">🔗🏛️📄</td> </tr> </table>	CN104134354	A	2014-11-05	🔗🏛️📄	EP2799901	A2	2014-11-05	🔗🏛️📄	DE102013104443	A1	2014-10-30	🔗🏛️📄
DE102013104443	B4	2022-03-17	🔗🏛️📄																										
AU2014202300	B2	2016-01-21	🔗🏛️📄																										
EP2799901	A3	2015-03-25	🔗🏛️📄																										
AU2014202300	A1	2014-11-13	🔗🏛️📄																										
CN104134354	A	2014-11-05	🔗🏛️📄																										
EP2799901	A2	2014-11-05	🔗🏛️📄																										
DE102013104443	A1	2014-10-30	🔗🏛️📄																										

The invention relates to a traffic monitoring system for measuring speed and assignment of moving vehicles in a multi-target-receiving module.

The aim of the invention, a new possibility for a more accurate speed measurement and reliable allocation of vehicles (3) can be found, whereby the assignment problems of speeds to vehicles (3) at a greater distance and associated measurement uncertainties are reduced, is solved according to the invention, Tracking radar (11) sensor to a first azimuthal be measured by at least one further Tracking radar sensor (12; 13; 14), the a similar, but on a different frequency-operated antenna structure having, by a defined angle (ϕ) with respect to the antenna structure of the first Tracking radar (11) sensor is arranged in a rotated position, so that the further Tracking radar sensor (12; 13; 14) an antenna structure for measuring at least one signal component for the reconstruction of vertical distances, expansions and elevation angle positions of the moving vehicles (3) is formed and provides at its sensor output as measurement data, and means for fuzing the of the first and the at least one other Tracking radar sensor (11; 12; 13; 14) are present to 3D-radar image data measurement data generated, wherein a Tracking method based on a sequence of the fuzed 3D-radar image data is provided.

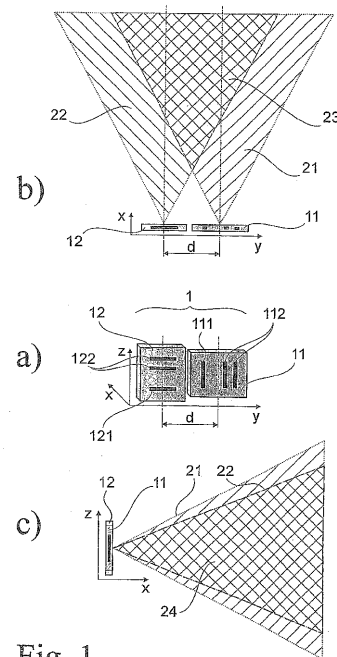


Fig. 1

Title

Traffic monitoring system for speed measurement and allocation of moving vehicles in a multi-target receiving module

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

PRÖFROCK DIMA

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

GRANTED

LAPSED

GRANTED

Method for measuring the speed of a motor vehicle moving along a road DE102013019801 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> ORTNER MARKO MICHAELSEN MARCOS DOHMANN BERNHARD</p> <p><u>Priority data including date</u> 2013DE-10019801 2013-11-27</p>	<p><u>IPC - International classification</u> G01S-013/58 G01S-013/92* G01S-017/58 G01S-017/88 G08G-001/054</p> <p><u>CPC - Cooperative classification</u> G01S-013/92 G01S-017/58 G01S-017/88* G08G-001/054</p>
--	--

<u>Family</u>			
EP2878971	B1	2021-12-29	
DE102013019801	B4	2018-01-11	
EP2878971	A1	2015-06-03	
DE102013019801	A1	2015-05-28	

The invention relates to a method for measuring the speed of a motor (2) vehicle moving on a roadway (1) comprising the following steps: a) providing a sensor (3) unit for emitting a measuring (4) radiation in a a maximum measuring range-determining work (5) area and receiving a beam reflected on the motor vehicle; b) providing a number of first measured values; c) detecting by the received measuring radiation in a first part of the measuring range (8) of the working area of initial measured values are obtained; d) detecting the breaking off of the first measured values according to step c to), when the predetermined number of measured values in accordance with step b) is achieved; e) deriving a travel speed of the moving motor vehicle by the received measuring radiation in the first part from the measuring area of the domain (8) of initial measured values are obtained; f) comparing the travel speed with a limiting speed; g) recording by means of a camera (6), receiving a evidence if the travel speed greater than the speed limit.

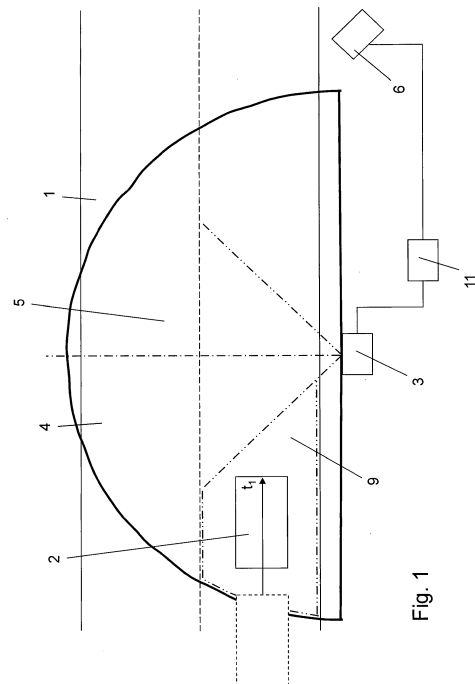


Fig. 1

Title

Method for measuring the speed of a motor vehicle moving along a road

Current assignees

JENOPTIK

Inventors

ORTNER MARKO

MICHAELSEN MARCOS

DOHMANN BERNHARD

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

A camera system EP3278010 A1

<p><u>Current assignees</u> JENOPTIK JENOPTIK TRAFFIC SOLUTIONS* VYSIONICS ITS</p> <p><u>Inventors</u> THOMAS WILLIAM VIVIAN RHODES KYLE SOUTHWOOD GRAEME</p> <p><u>Priority data including date</u> 2015GB-0005395 2015-03-30 2016EP-0716176 2016-03-29 2016WO-EP56830 2016-03-29</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">F21S-008/00*</td> <td style="width: 33%;">G01S-019/14</td> <td style="width: 33%;">G02B-027/00</td> </tr> <tr> <td>G06K-009/32</td> <td>G08G-001/01</td> <td>G08G-001/017</td> </tr> <tr> <td>G08G-001/04</td> <td>G08G-001/054</td> <td>H04N-005/225</td> </tr> <tr> <td>H04N-005/232</td> <td>H04N-005/235</td> <td>H04N-007/18</td> </tr> <tr> <td>H05B-033/00</td> <td></td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">G01S-019/14</td> <td style="width: 33%;">G06K-009/32/5</td> <td style="width: 33%;">G06V-020/62</td> </tr> <tr> <td>G08G-001/01</td> <td>G08G-001/017/5*</td> <td>G08G-001/04</td> </tr> <tr> <td>G08G-001/054</td> <td></td> <td></td> </tr> </table>	F21S-008/00*	G01S-019/14	G02B-027/00	G06K-009/32	G08G-001/01	G08G-001/017	G08G-001/04	G08G-001/054	H04N-005/225	H04N-005/232	H04N-005/235	H04N-007/18	H05B-033/00			G01S-019/14	G06K-009/32/5	G06V-020/62	G08G-001/01	G08G-001/017/5*	G08G-001/04	G08G-001/054		
F21S-008/00*	G01S-019/14	G02B-027/00																							
G06K-009/32	G08G-001/01	G08G-001/017																							
G08G-001/04	G08G-001/054	H04N-005/225																							
H04N-005/232	H04N-005/235	H04N-007/18																							
H05B-033/00																									
G01S-019/14	G06K-009/32/5	G06V-020/62																							
G08G-001/01	G08G-001/017/5*	G08G-001/04																							
G08G-001/054																									

<u>Family</u>			
ES2905549	T3	2022-04-11	📄 🔗 🏛️ 📄
PL3278010	T3	2022-02-14	📄 🔗 🏛️ 📄
LT3278010	T	2022-02-10	📄 🔗 🏛️ 📄
PT3278010	T	2022-02-08	📄 🔗 🏛️ 📄
EP3278010	B1	2021-11-10	📄 🔗 🏛️ 📄
CN107567708	B	2020-11-03	📄 🔗 🏛️ 📄
US10198945	B2	2019-02-05	📄 🔗 🏛️ 📄
AU2016239198	B2	2018-08-02	📄 🔗 🏛️ 📄
US20180082580	A1	2018-03-22	📄 🔗 🏛️ 📄
EP3278010	A1	2018-02-07	📄 🔗 🏛️ 📄
CN107567708	A	2018-01-09	📄 🔗 🏛️ 📄
AU2016239198	A1	2017-08-31	📄 🔗 🏛️ 📄
WO2016/156337	A1	2016-10-06	📄 🔗 🏛️ 📄
GB2522799	B	2015-12-30	📄 🔗 🏛️ 📄
GB2522799	A	2015-08-05	📄 🔗 🏛️ 📄
GB201505395	D0	2015-05-13	📄 🔗 🏛️ 📄

A traffic monitoring system is provided. The traffic monitoring system comprises: a camera system configured to capture images of vehicles, the camera system comprising a first wireless time receiver configured to receive a wirelessly transmitted time signal; and a light system configured to selectively illuminate the vehicles, the light system being spaced apart from the camera system, wherein the light system comprises a second wireless time receiver configured to receive the wirelessly transmitted time signal such that the image capture by the camera system and the illumination by the light system is synchronised.

Title

A camera system

Current assignees

JENOPTIK

JENOPTIK TRAFFIC SOLUTIONS

VYSIONICS ITS

Inventors

THOMAS WILLIAM VIVIAN

RHODES KYLE

SOUTHWOOD GRAEME

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

LAPSED

GRANTED

GRANTED

GRANTED

GRANTED

GRANTED

GRANTED

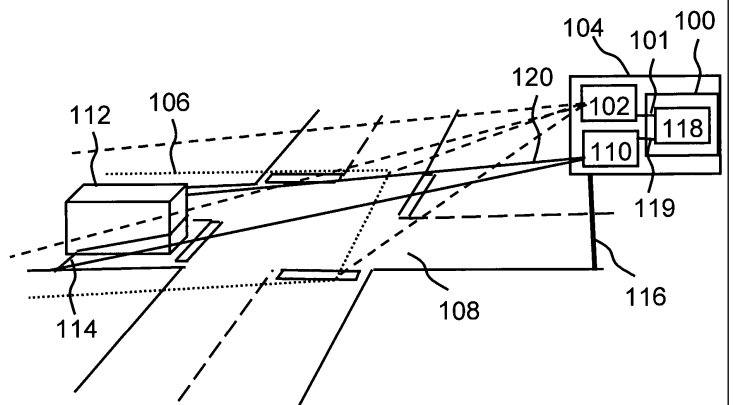
GRANTED

Traffic monitoring system for monitoring a coverage area of a traffic area DE102014008732 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING MICHAEL</p> <p><u>Priority data including date</u> 2014DE-10008732 2014-06-19</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">G01S-007/40*</td> <td style="border: none;">G01S-007/41</td> <td style="border: none;">G01S-007/497</td> </tr> <tr> <td style="border: none;">G01S-013/86</td> <td style="border: none;">G01S-013/91</td> <td style="border: none;">G01S-017/88</td> </tr> <tr> <td colspan="3" style="border: none;">G08G-001/052</td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">G01S-007/40*</td> <td style="border: none;">G01S-013/86/7</td> <td style="border: none;">G01S-013/92</td> </tr> <tr> <td style="border: none;">G01S-017/42</td> <td style="border: none;">G01S-017/88</td> <td style="border: none;">G08G-001/052</td> </tr> </table>	G01S-007/40*	G01S-007/41	G01S-007/497	G01S-013/86	G01S-013/91	G01S-017/88	G08G-001/052			G01S-007/40*	G01S-013/86/7	G01S-013/92	G01S-017/42	G01S-017/88	G08G-001/052
G01S-007/40*	G01S-007/41	G01S-007/497														
G01S-013/86	G01S-013/91	G01S-017/88														
G08G-001/052																
G01S-007/40*	G01S-013/86/7	G01S-013/92														
G01S-017/42	G01S-017/88	G08G-001/052														

Family							
DE102014008732	B4	2020-12-31		DE102014008732	A1	2015-12-24	

Traffic monitoring system (104) for monitoring a detection area (106) of a traffic area (108), wherein the monitoring system (104) has the following features: a radar system (102) for detecting the detection area (106), provide a radar measurement value (101) which comprises information about a vehicle (112) located in the detection region (106); a laser scanner (110) which is aligned with the detection region (106) and is configured to scan the radar measurement value (101), provide a laser measured value (119) comprising information about the vehicle (112) located in the detection region (106); and a device (118) for plausibilizing the radar measured value (101) using the laser measured value (119), wherein the radar measured value (101) represents a measured value of the radar system and the laser measured value (119) represents a measured value of the laser scanner, characterized in that the radar system (102) and/or the laser scanner (110) are arranged at a height (H.Inst) is located between two meters and six meters.



Title

Traffic monitoring system for monitoring a coverage area of a traffic area

Current assignees

JENOPTIK

Inventors









































LEHNING MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

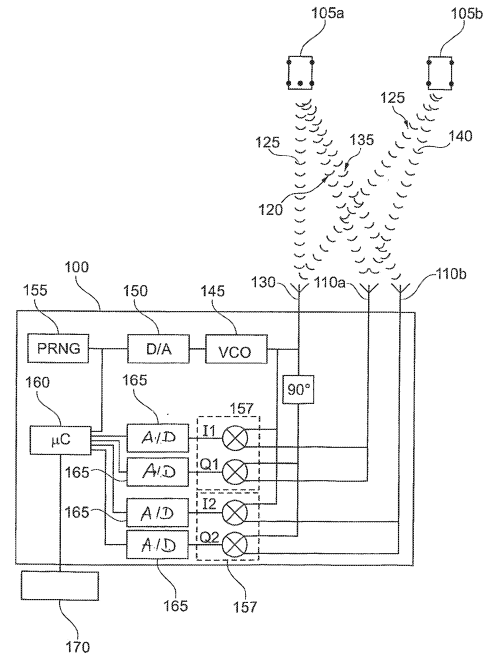
GRANTED

Method and apparatus for detecting a speed and a distance of at least one object with respect to a receiver of a reception signal
DE102014010990 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING MICHAEL PRÖFROCK DIMA</p> <p><u>Priority data including date</u> 2014DE-10010990 2014-07-29 2015WO-EP01542 2015-07-27</p>	<p><u>IPC - International classification</u> G01S-007/03 G01S-007/35 G01S-007/40 G01S-013/06 G01S-013/34* G01S-013/42* G01S-013/58 G01S-013/72 G01S-013/91 G01S-013/931</p> <p><u>CPC - Cooperative classification</u> G01S-007/35/2 G01S-007/358 G01S-013/34/6* G01S-013/58/4* G01S-013/72/6 G01S-013/93/1 G01S-2007/358</p>
---	--

<u>Family</u>	
<p>DE102014010990 B4 2021-06-17    </p> <p>CN106662644 B 2020-04-03    </p> <p>AU2015295795 B2 2020-01-16    </p> <p>US20170205503 A1 2017-07-20    </p> <p>EP3175258 A1 2017-06-07    </p>	<p>CN106662644 A 2017-05-10    </p> <p>AU2015295795 A1 2017-03-02    </p> <p>CA2956743 A1 2016-02-04    </p> <p>DE102014010990 A1 2016-02-04    </p> <p>WO2016/015853 A1 2016-02-04    </p>

The present invention discloses an apparatus (160) for detecting a speed and a distance of at least one object (105a) with respect to a receiver (110a) of a reception signal (120). The apparatus (160) comprises at least one interface (210) for reading in at least one in-phase component (I1) and one quadrature component (Q1) of a plurality of temporally successive reception signals (120) each representing a signal (125) which is reflected to the receiver (110a) at the object (105a) and was emitted at a predefined transmission frequency (f). The apparatus (160) also comprises a unit (220) for forming a first detection value (xvr) using the in-phase component (I1) and the quadrature component (Q1) of a first of the reception signals (120), wherein the first detection value (xvr) corresponds to a predetermined reference speed (v) and a predetermined reference distance (r) of the object (105a) from the receiver (110a). The apparatus (160) also comprises a unit (230) for determining a second detection value (xvr) using the in-phase component (I1) and the quadrature component (Q1) of a second of the reception signals (120), wherein the second detection value (xvr) corresponds to the predetermined reference speed (v) and the predetermined reference distance (r) of the object (105a) from the receiver (110a). Finally, the apparatus (160) comprises a unit (440) for determining a speed (v), corresponding to the reference speed (v), of the object (105a) with respect to the receiver (110a) and the reference distance (r) as the distance of the object (105a) with respect to the receiver (110a) using the first and second detection values (xvr).



Title

Method and apparatus for detecting a speed and a distance of at least one object with respect to a receiver of a reception signal

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

PRÖFROCK DIMA

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

REVOKED

LAPSED

LAPSED

GRANTED

LAPSED

GRANTED

GRANTED

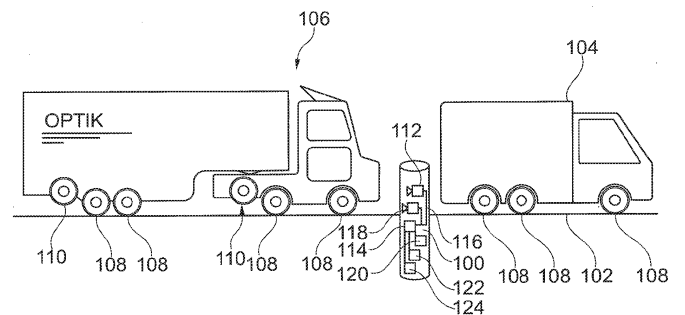
Method and axle-counting device for contact-free axle counting of a vehicle and axle-counting system for road traffic

DE102014012285 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> THOMMES JAN PRÖFROCK DIMA LEHNING MICHAEL TRUMMER MICHAEL</p> <p><u>Priority data including date</u> 2014DE-10012285 2014-08-22 2015WO-EP01688 2015-08-17</p>	<p><u>IPC - International classification</u> G06K-009/00* G06K-009/62 G06T-007/00 G06T-007/11 G06T-007/143 G06T-007/194 G06T-007/64 G06T-007/68 G06T-007/70 G06T-007/73 G07B-015/00 G08G-001/01* G08G-001/01*5 G08G-001/01*7 G08G-001/04 G08G-001/056</p> <p><u>CPC - Cooperative classification</u> G06K-009/00/651* G06K-009/00/798 G06K-009/00/818 G06K-009/00/825 G06T-007/11 G06T-007/143 G06T-007/194 G06T-007/60 G06T-007/64 G06T-007/68 G06T-007/73 G06T-2207/10021 G06T-2207/30236 G06T-2207/30242 G06V-020/182 G06V-020/56 G06V-020/582 G06V-020/584 G06V-020/588 G08G-001/015* G08G-001/017 G08G-001/017/5 G08G-001/04 G08G-001/056</p>
--	--

<u>Family</u>			
CA2958832	C	2023-03-21	
EP3183721	B1	2022-01-19	
CN106575473	B	2021-06-18	
AU2015306477	B2	2020-12-10	
US20170277952	A1	2017-09-28	
EP3183721	A1	2017-06-28	
CN106575473	A	2017-04-19	
AU2015306477	A1	2017-03-02	
CA2958832	A1	2016-02-25	
DE102014012285	A1	2016-02-25	
WO2016/026568	A1	2016-02-25	

A method (350) for contact-free axle counting of a vehicle (104, 106) on a road (102), comprising a step (352) of reading in first image data (116) and reading in second image data (216), wherein the first image data (116) and/or the second image data (216) represent image data (116, 216) provided to an interface by an image data recording sensor (112, 118) arranged on a side of the road (102), wherein the first image data (116) and/or the second image data (216) comprise an image of the vehicle (104, 106); a step (354) of processing the first image data (116) and/or the second image data (216) in order to obtain processed first image data (236) and/or processed second image data (238); wherein by using the first image data (116) and/or the second image data (216) in a substep (358) of detecting, at least one object is detected in the first image data (116) and/or the second image data (216), and wherein object information (240) is provided representing the object and assigned to the first image data (116) and/or the second image data (216); wherein in a substep (360) of tracking, the at least one object is tracked over time by using the object information (240) in the image data (116, 216, 236, 238); and wherein in a substep (362) of classifying, the at least one object is identified and/or classified by using the object information (240); and a step (356) of determining a number of axles (108, 110) of the vehicle (104, 106) and/or an assignment of axles (108, 110) to lift axles (110) of the vehicle (104, 106) and rolling axles (108) of the vehicle (104, 106) by using the processed first image data (236) and/or the processed second image data (238) and/or the object information (240) assigned to the processed image data (236, 238) in order to count the axles (108, 110) of the vehicle (104, 106) in a contact-free way.



Title

Method and axle-counting device for contact-free axle counting of a vehicle and axle-counting system for road traffic

Current assignees

JENOPTIK

Inventors

THOMMES JAN

PRÖFROCK DIMA

LEHNING MICHAEL

TRUMMER MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

LAPSED

PENDING

GRANTED

GRANTED

GRANTED

Device for documenting a traffic violation in a traffic space and traffic monitoring device for monitoring a traffic space

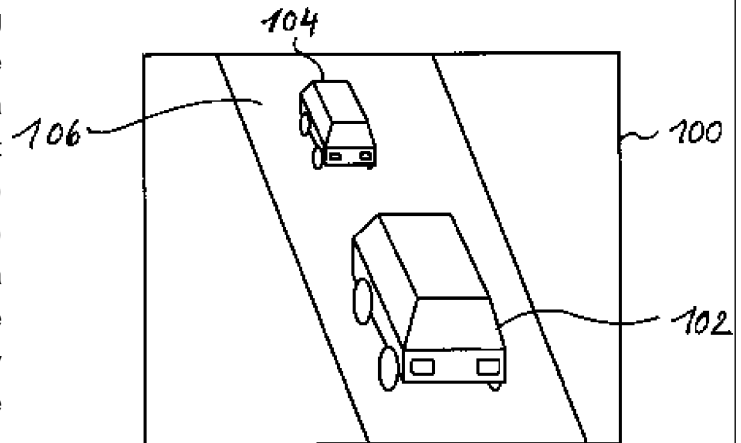
DE202016100889 U1

<p>Current assignees JENOPTIK*</p> <p>Priority data including date 2016DE-20100889 2016-02-19</p>	<p>IPC - International classification G08G-001/054*</p> <p>CPC - Cooperative classification G06V-020/54 G08G-001/054*</p>
---	--

<p>Family DE202016100889 U1 2016-04-07    </p>
--

<?claim?>

Apparatus (302) for documenting a traffic violation in a traffic space, wherein the apparatus (302) has the following features: a read-in device (400) for reading in an image (100) of a vehicle (102) executing the traffic violation; a determination device (404) for determining a marking point (506) in the image (100) as an intersection of a line (510) through a measurement point (504) of the vehicle (102) executing the traffic violation in the image (100) with a carriageway plane (508) of a carriageway (106) in the image (100) on which the vehicle (102) travels; and an entry device (406) for entering a marking (202) containing the marking point (506) into the image (100) in order to produce a modified image (200) suitable for documenting the traffic violation.



Title

Device for documenting a traffic violation in a traffic space and traffic monitoring device for monitoring a traffic space

Current assignees

JENOPTIK

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

Method and device for documenting a rule violation of a vehicle through a detection region of an object-tracking device

DE102015012873 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> KACHANT RALF DOHMANN BERNHARD LEHNING MICHAEL</p> <p><u>Priority data including date</u> 2015DE-10012873 2015-09-29</p>	<p><u>IPC - International classification</u> G01S-011/12 G01S-013/91 G08G-001/017* G08G-001/04 G08G-001/054*</p> <p><u>CPC - Cooperative classification</u> G01S-003/786/4 G01S-013/86/7 G01S-013/92 G06T-007/73 G06T-2207/10016 G06T-2207/30232 G06T-2207/30236 G06V-020/54 G08G-001/01/16 G08G-001/01/29 G08G-001/017/5 G08G-001/04 G08G-001/054*</p>
--	--

<u>Family</u>	
DE102015012873 B4 2017-06-22	DE102015012873 A1 2017-03-30
WO2017/055251 A1 2017-04-06	

The invention relates to a method for documenting a rule violation of a vehicle (105) in a detection region (106) of an object-tracking device (102). The method comprises a step of reading a front photo (124) of the vehicle (105) if the vehicle (105) is arranged in a first edge region (110) of the detection region (106) and if a signal (140) signals the rule violation of the vehicle (105); a step of reading tracking information (108) of the object-tracking device (102), wherein the first edge region (110), a central region (112) of the detection region (106) and a second edge region (114) of the detection region (106) are represented in the tracking information (108); a step of following the vehicle (105) using the tracking information (108), wherein the vehicle (105) is followed from the first edge region (110) through the central region (112) into the second edge region (114); a step of reading a rear photo (128) of the vehicle (105) if the vehicle (105) is arranged in the second edge region (114); and a step of providing the front photo (124) and the rear photo (128).

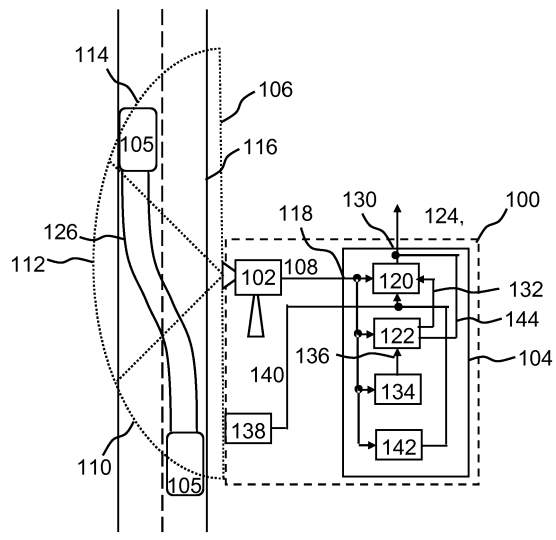


FIG 1

Title

Method and device for documenting a rule violation of a vehicle through a detection region of an object-tracking device

Current assignees

JENOPTIK

Inventors

KACHANT RALF

DOHMANN BERNHARD

LEHNING MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

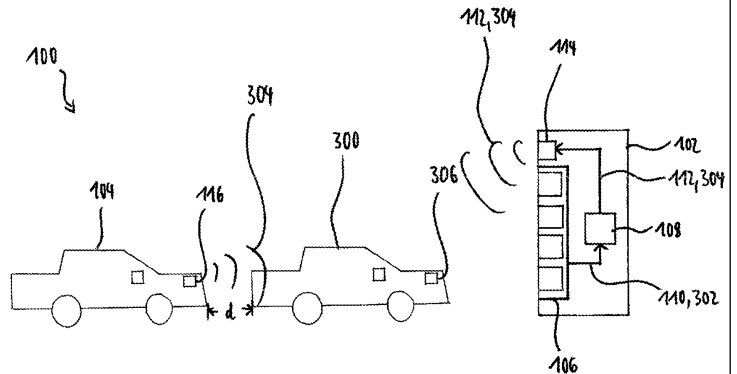
GRANTED

Method and device for operating a traffic monitoring device, traffic monitoring device and traffic monitoring system DE102016000532 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> KIENITZ STEFAN WIRZ KATRIN REIS SIEGRUN SCHRÖDER MARTIN KELLER LARS OLE</p> <p><u>Priority data including date</u> 2016DE-10000532 2016-01-21 2017WO-EP51226 2017-01-20</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G06K-009/32</td> <td>G08G-001/00</td> <td>G08G-001/01*</td> </tr> <tr> <td>G08G-001/01*5</td> <td>G08G-001/01*7</td> <td>G08G-001/054</td> </tr> <tr> <td>G08G-001/09</td> <td>G08G-001/0962</td> <td>G08G-001/0967</td> </tr> <tr> <td>G08G-001/16</td> <td>H04W-004/44</td> <td>H04W-004/46</td> </tr> <tr> <td>H04W-012/04</td> <td></td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G06K-009/32/58</td> <td>G06V-020/63</td> <td>G08G-001/01/12</td> </tr> <tr> <td>G08G-001/01/16*</td> <td>G08G-001/017/5</td> <td>G08G-001/054</td> </tr> <tr> <td>G08G-001/09/2</td> <td>G 0 8 G - G 0 8 G -</td> <td></td> </tr> <tr> <td></td> <td>0 0 1 / 0 9 6 7 / 0 8 0 0 1 / 0 9 6 7 / 4 1</td> <td></td> </tr> <tr> <td>G 0 8 G -</td> <td>H04W-004/44</td> <td>H04W-004/46</td> </tr> <tr> <td>0 0 1 / 0 9 6 7 / 8 3</td> <td></td> <td></td> </tr> </table>	G06K-009/32	G08G-001/00	G08G-001/01*	G08G-001/01*5	G08G-001/01*7	G08G-001/054	G08G-001/09	G08G-001/0962	G08G-001/0967	G08G-001/16	H04W-004/44	H04W-004/46	H04W-012/04			G06K-009/32/58	G06V-020/63	G08G-001/01/12	G08G-001/01/16*	G08G-001/017/5	G08G-001/054	G08G-001/09/2	G 0 8 G - G 0 8 G -			0 0 1 / 0 9 6 7 / 0 8 0 0 1 / 0 9 6 7 / 4 1		G 0 8 G -	H04W-004/44	H04W-004/46	0 0 1 / 0 9 6 7 / 8 3		
G06K-009/32	G08G-001/00	G08G-001/01*																																
G08G-001/01*5	G08G-001/01*7	G08G-001/054																																
G08G-001/09	G08G-001/0962	G08G-001/0967																																
G08G-001/16	H04W-004/44	H04W-004/46																																
H04W-012/04																																		
G06K-009/32/58	G06V-020/63	G08G-001/01/12																																
G08G-001/01/16*	G08G-001/017/5	G08G-001/054																																
G08G-001/09/2	G 0 8 G - G 0 8 G -																																	
	0 0 1 / 0 9 6 7 / 0 8 0 0 1 / 0 9 6 7 / 4 1																																	
G 0 8 G -	H04W-004/44	H04W-004/46																																
0 0 1 / 0 9 6 7 / 8 3																																		

<u>Family</u>																																					
<table style="width: 100%; border: none;"> <tr> <td style="width: 20%;">CN108701406</td> <td style="width: 10%;">B</td> <td style="width: 15%;">2021-10-22</td> <td style="width: 10%; text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>US10872524</td> <td>B2</td> <td>2020-12-22</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>DE102016000532</td> <td>B4</td> <td>2019-04-25</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>US20180350230</td> <td>A1</td> <td>2018-12-06</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>EP3405938</td> <td>A1</td> <td>2018-11-28</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> </table>	CN108701406	B	2021-10-22	📄 🔗 🏛️ 📄	US10872524	B2	2020-12-22	📄 🔗 🏛️ 📄	DE102016000532	B4	2019-04-25	📄 🔗 🏛️ 📄	US20180350230	A1	2018-12-06	📄 🔗 🏛️ 📄	EP3405938	A1	2018-11-28	📄 🔗 🏛️ 📄	<table style="width: 100%; border: none;"> <tr> <td style="width: 20%;">CN108701406</td> <td style="width: 10%;">A</td> <td style="width: 15%;">2018-10-23</td> <td style="width: 10%; text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>AU2017208630</td> <td>A1</td> <td>2018-08-30</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>DE102016000532</td> <td>A1</td> <td>2017-07-27</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>WO2017/125571</td> <td>A1</td> <td>2017-07-27</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> </table>	CN108701406	A	2018-10-23	📄 🔗 🏛️ 📄	AU2017208630	A1	2018-08-30	📄 🔗 🏛️ 📄	DE102016000532	A1	2017-07-27	📄 🔗 🏛️ 📄	WO2017/125571	A1	2017-07-27	📄 🔗 🏛️ 📄
CN108701406	B	2021-10-22	📄 🔗 🏛️ 📄																																		
US10872524	B2	2020-12-22	📄 🔗 🏛️ 📄																																		
DE102016000532	B4	2019-04-25	📄 🔗 🏛️ 📄																																		
US20180350230	A1	2018-12-06	📄 🔗 🏛️ 📄																																		
EP3405938	A1	2018-11-28	📄 🔗 🏛️ 📄																																		
CN108701406	A	2018-10-23	📄 🔗 🏛️ 📄																																		
AU2017208630	A1	2018-08-30	📄 🔗 🏛️ 📄																																		
DE102016000532	A1	2017-07-27	📄 🔗 🏛️ 📄																																		
WO2017/125571	A1	2017-07-27	📄 🔗 🏛️ 📄																																		

The invention relates to a method for operating a traffic monitoring device (102). According to the invention, a sensor signal (110) provided by a sensor system (106) of the traffic monitoring device (102) is first read. Information (112) is then generated using the sensor signal (110). Finally, the information (112) is output to an interface (114) at to at least one vehicle (104).



Title

Method and device for operating a traffic monitoring device, traffic monitoring device and traffic monitoring system

Current assignees

JENOPTIK

Inventors

KIENITZ STEFAN

WIRZ KATRIN

REIS SIEGRUN

SCHRÖDER MARTIN

KELLER LARS OLE

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

GRANTED

LAPSED

GRANTED

LAPSED

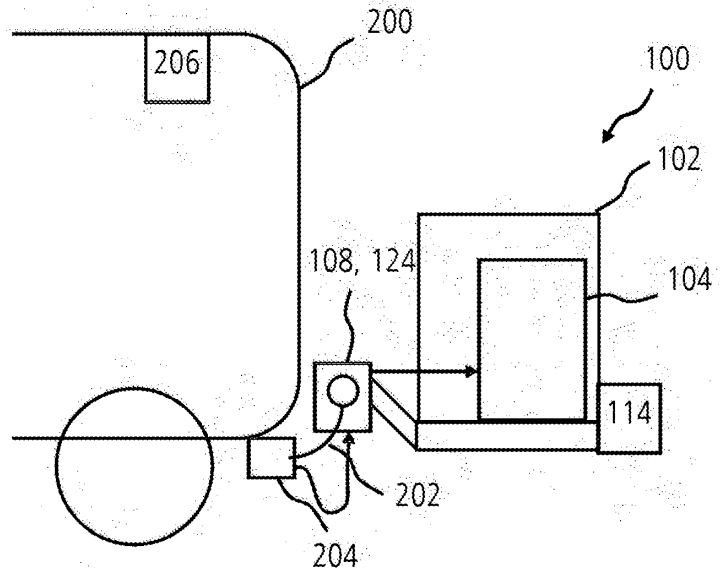
GRANTED

Housing for a mobile traffic monitoring device and traffic monitoring system DE102016113367 A1

<p>Current assignees JENOPTIK*</p> <p>Inventors LEHNING MICHAEL MAAG EINAR</p> <p>Priority data including date 2016DE-10113367 2016-07-20 2017WO-EP68225 2017-07-19</p>	<p>IPC - International classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">B60D-001/145*</td> <td style="width: 33%;">B60D-001/58</td> <td style="width: 33%;">B60Q-001/26</td> </tr> <tr> <td>B60R-009/04</td> <td>B60R-009/06</td> <td>B60R-011/04</td> </tr> <tr> <td>G08G-001/00</td> <td>G08G-001/017</td> <td>G08G-001/054</td> </tr> </table> <p>CPC - Cooperative classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">B60D-001/145*</td> <td style="width: 33%;">B60D-001/58</td> <td style="width: 33%;">B60R-009/06</td> </tr> <tr> <td>B60R-011/04</td> <td>B60R-2011/004</td> <td>B60R-2300/101</td> </tr> <tr> <td>B60R-2300/80</td> <td>G08G-001/017/5</td> <td>G08G-001/054</td> </tr> </table>	B60D-001/145*	B60D-001/58	B60Q-001/26	B60R-009/04	B60R-009/06	B60R-011/04	G08G-001/00	G08G-001/017	G08G-001/054	B60D-001/145*	B60D-001/58	B60R-009/06	B60R-011/04	B60R-2011/004	B60R-2300/101	B60R-2300/80	G08G-001/017/5	G08G-001/054
B60D-001/145*	B60D-001/58	B60Q-001/26																	
B60R-009/04	B60R-009/06	B60R-011/04																	
G08G-001/00	G08G-001/017	G08G-001/054																	
B60D-001/145*	B60D-001/58	B60R-009/06																	
B60R-011/04	B60R-2011/004	B60R-2300/101																	
B60R-2300/80	G08G-001/017/5	G08G-001/054																	

Family	
EP3487717 B1 2022-03-16	CN109476194 A 2019-03-15
US20200406691 A1 2020-12-31	AU2017299161 A1 2019-01-31
AU2017299161 B2 2020-04-16	DE102016113367 A1 2018-01-25
EP3487717 A1 2019-05-29	WO2018/015432 A1 2018-01-25

The invention relates to a housing (102) for a mobile traffic monitoring device (104), wherein the housing (102) can be coupled to a carrier vehicle (200) via a fastening interface (108), and wherein the housing (102) is designed as a luggage transport rack.



Title

Housing for a mobile traffic monitoring device and traffic monitoring system

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

MAAG EINAR

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

LAPSED

PENDING

LAPSED

GRANTED

Traffic monitoring assembly EP3372731 A1

<p><u>Current assignees</u> JENOPTIK* TOLL COLLECT</p> <p><u>Inventors</u> HESSE GÜNTER BÜKRÜ TUNCAY GUILHERME JOSÉ</p> <p><u>Priority data including date</u> 2017EP-0000394 2017-03-08 2018WO-EP55642 2018-03-07</p>	<p><u>IPC - International classification</u> E01F-009/627 E01F-009/635* G08G-001/01</p> <p><u>CPC - Cooperative classification</u> E01F-009/627 E01F-009/635* G08G-001/01</p>
---	---

<u>Family</u>	
<p>CN110382779 B 2022-03-18 </p> <p>AU2018232798 B2 2021-07-29 </p> <p>US20200385942 A1 2020-12-10 </p> <p>EP3372731 B1 2020-07-22 </p> <p>CN110382779 A 2019-10-25 </p>	<p>AU2018232798 A1 2019-10-17 </p> <p>WO2018/162575 A3 2018-11-15 </p> <p>WO2018/162575 A2 2018-09-13 </p> <p>EP3372731 A1 2018-09-12 </p>

A traffic monitoring device (10) comprising a housing (20), having a housing (22) and at least one second housing (21) by an opening, includes a flexible stop (40) means, by the first housing (21) member and the second housing (22) together. In addition the traffic monitoring system comprises at least one (10) predetermined breaking point (222, 29) to, the related to the second housing (22) member provided local connection portion. (221), to which the flexible attachment (40) means is attached, on the first housing (21) member side of the traffic monitoring device (10) is located.

Title

Traffic monitoring assembly

Current assignees

JENOPTIK

TOLL COLLECT

Inventors

HESSE GÜNTER

BÜKRÜ TUNCAY

GUILHERME JOSÉ

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

PENDING

LAPSED

GRANTED

GRANTED

Method for monitoring a vehicle by means of at least one unmanned aerial vehicle, control device and unmanned aerial vehicle

DE102017208333 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING MICHAEL REISS MAIK SCHIFFER LUKAS LEIJSEN MARCO KIENITZ STEFAN</p> <p><u>Priority data including date</u> 2017DE-10208333 2017-05-17</p>	<p><u>IPC - International classification</u> G08G-001/01* G08G-001/01*7 G08G-001/04 G08G-001/052 G08G-005/00</p> <p><u>CPC - Cooperative classification</u> G08G-001/01/12 G08G-001/04* G08G-001/054 G08G-005/00/13 G08G-005/00/69 G08G-005/00/78</p>
---	--

<u>Family</u>							
EP3407324	B1	2022-02-09	📄 🔗 🏛️ 📄	DE102017208333	A1	2018-11-22	📄 🔗 🏛️ 📄
EP3407324	A1	2018-11-28	📄 🔗 🏛️ 📄				

The invention relates to a method for monitoring of a (108) vehicle by means of at least of an unmanned aerial vehicle (100, 102), wherein the aircraft (100) has a sensor (106) device for detecting of the (108) vehicle. In the method is a measuring position (A) using data, representing a previous detection of the (108) motor vehicle, is determined. In a further method step is a control (114) signal for controlling of the (100) aircraft into the measuring position (A) via a communication (112) device for wireless communication with the at least one aircraft (100) provided, the vehicle from (108) the measuring position (A) to detect from. A measuring signal (118) is received in a further method step, the detection of the vehicle (108) by the sensor (106) device from the measuring position (A) from represents, and/or of a further measurement (120) signal, the detection of the vehicle (108) by the sensor (106) device and/or the further sensor (110) device of the further measuring position (B) from represents, wherein in a step of evaluating the measurement signal and the (118) further measurement (120) signal can be evaluated, in order to monitor the vehicle (108), wherein in the step of (310) receiving the measurement (118) signal and/or the further measurement signal (120) by reading out a On-board unit of the (108) vehicle is determined by whether the signal represents.

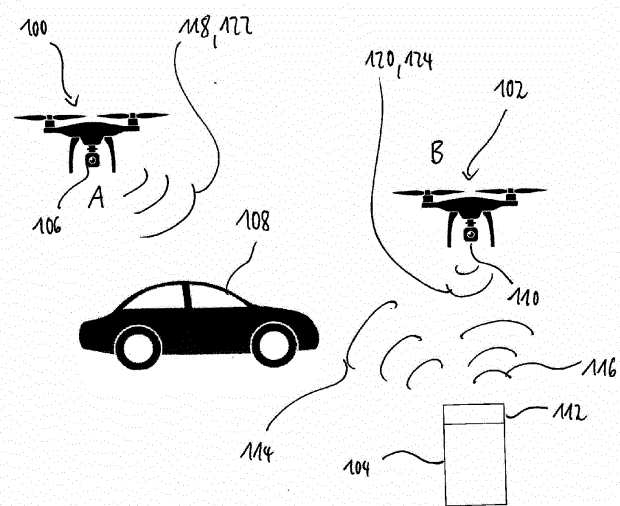


Fig. 1

Title

Method for monitoring a vehicle by means of at least one unmanned aerial vehicle, control device and unmanned aerial vehicle

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

REISS MAIK

SCHIFFER LUKAS

LEIJSEN MARCO

KIENITZ STEFAN
























Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

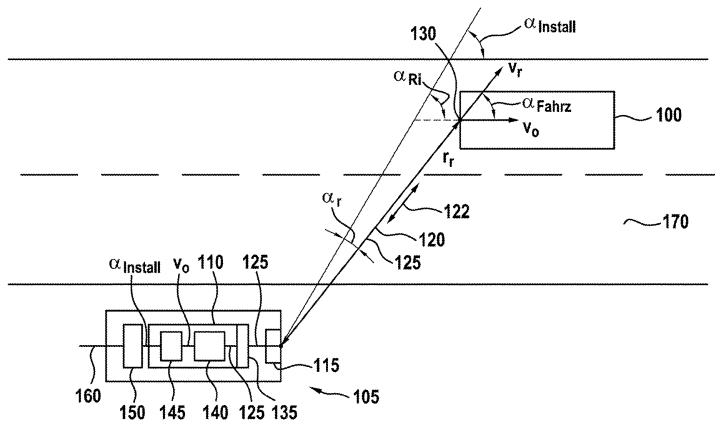
PENDING

Method and device for ascertaining an installation angle between a roadway on which a vehicle travels and a detection direction of a measurement or radar sensor
DE102017221034 B3

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> PRÖFROCK DIMA LEHNING MICHAEL PAPPENDORF ANDRE</p> <p><u>Priority data including date</u> 2017DE-10221034 2017-11-24 2018WO-EP82023 2018-11-21</p>	<p><u>IPC - International classification</u></p> <table border="0"> <tr> <td>G01S-007/40</td> <td>G01S-007/41*</td> <td>G01S-013/58</td> </tr> <tr> <td>G01S-013/62</td> <td>G01S-013/91</td> <td>G01S-013/92</td> </tr> <tr> <td>G01S-013/931</td> <td>G08G-001/052</td> <td>G08G-001/056</td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table border="0"> <tr> <td>G01S-007/41</td> <td>G01S-013/92*</td> <td>G01S-013/93/1</td> </tr> <tr> <td>G01S-2013/9321</td> <td>G01S-2013/9327</td> <td>G01S-2013/9329</td> </tr> <tr> <td>G08G-001/052</td> <td>G08G-001/056</td> <td></td> </tr> </table>	G01S-007/40	G01S-007/41*	G01S-013/58	G01S-013/62	G01S-013/91	G01S-013/92	G01S-013/931	G08G-001/052	G08G-001/056	G01S-007/41	G01S-013/92*	G01S-013/93/1	G01S-2013/9321	G01S-2013/9327	G01S-2013/9329	G08G-001/052	G08G-001/056	
G01S-007/40	G01S-007/41*	G01S-013/58																	
G01S-013/62	G01S-013/91	G01S-013/92																	
G01S-013/931	G08G-001/052	G08G-001/056																	
G01S-007/41	G01S-013/92*	G01S-013/93/1																	
G01S-2013/9321	G01S-2013/9327	G01S-2013/9329																	
G08G-001/052	G08G-001/056																		

<u>Family</u>													
AU2018373751	B2	2021-06-24					AU2018373751	A1	2020-05-21				
US20210124041	A1	2021-04-29					WO2019/101774	A1	2019-05-31				
EP3714286	A1	2020-09-30					DE102017221034	B3	2019-01-24				
CN111492258	A	2020-08-04											

The invention relates to a method (500) for ascertaining an installation angle ($\alpha_{Install}$) between a roadway (170) on which a vehicle (100) travels and a detection direction (122) of a measurement or radar sensor (105). The method (500) has a step (510) of reading a plurality of reflection signals (125), each of which represents a measurement or radar beam (120) which has been emitted by a transmission unit (115) of the measurement or radar sensor (105) and each of which has been reflected on a different reflective section (130) of the vehicle (100). The reflection signals (125) have movement information on a movement direction of the vehicle (100) reflective section (130) on which the measurement or radar beam (120) has been reflected, and/or the reflection signals (125) have position information that represents the position (420) of the vehicle (100) reflective section (130) on which the measurement or radar beam (120) has been reflected. The method (500) additionally has a step (520) of detecting a movement direction component (v_0) of the vehicle (100) reflective section (130) movement directions represented by the movement information from the plurality of reflection signals (125), wherein for said component all of the vehicle (100) reflective sections (130) are carrying out the same movement, and/or detecting a movement direction component (v_0) for which the vehicle (100) reflective section (130) positions (420) represented by the position information are mapped at the same point in time while assuming the movement according to the movement direction component (v_0) and form a shape at said point in time in a two-dimensional display, said shape having the greatest similarity to an L-shape (410). The method (500) lastly has a step (530) of determining the installation angle ($\alpha_{Install}$) using the detected movement direction component (v_0).



Title

Method and device for ascertaining an installation angle between a roadway on which a vehicle travels and a detection direction of a measurement or radar sensor

Current assignees

JENOPTIK

Inventors

PRÖFROCK DIMA

LEHNING MICHAEL

PAPPENDORF ANDRE

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

LAPSED

LAPSED

GRANTED

PENDING

GRANTED

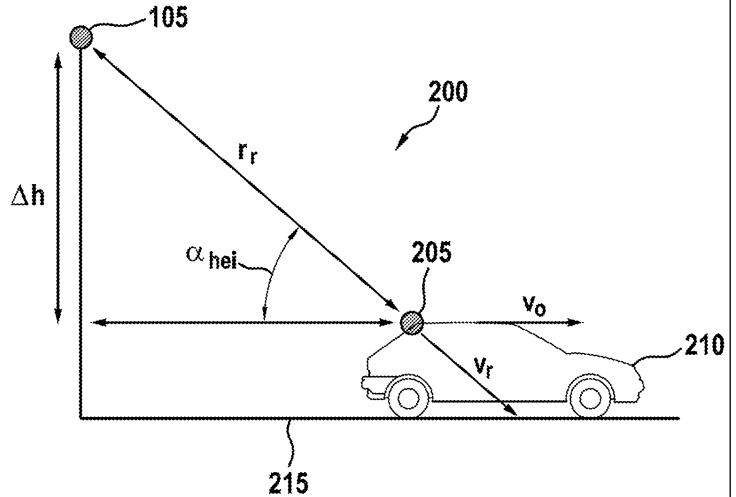
Method and device for estimating the height of a reflector of a vehicle

DE102018104808 A1

<p>Current assignees</p> <p>JENOPTIK*</p> <p>Inventors</p> <p>PRÖFROCK DIMA TRUMMER MICHAEL</p> <p>Priority data including date</p> <p>2018DE-10104808 2018-03-02 2019WO-EP55114 2019-03-01</p>	<p>IPC - International classification</p> <p>G01S-007/41 G01S-013/46 G01S-013/50 G01S-013/58 G01S-013/88 G01S-013/91 G01S-013/92 G01S-013/931*</p> <p>CPC - Cooperative classification</p> <p>G01S-007/41/1 G01S-007/41/5 G01S-013/46* G01S-013/50 G01S-013/58/9 G01S-013/91 G01S-013/92 G01S-013/93/1* G01S-2013/93272</p>
--	--

Family	
<p>AU2019226384 B2 2021-07-01    </p> <p>EP3759517 A1 2021-01-06    </p> <p>US20200393561 A1 2020-12-17    </p> <p>CN111742237 A 2020-10-02    </p>	<p>AU2019226384 A1 2020-08-13    </p> <p>WO2019/166614 A1 2019-09-06    </p> <p>DE102018104808 A1 2019-09-05    </p>

The invention relates to a method for estimating the height of a reflector of a vehicle, the method comprising a step of reading, in which at least one reflection signal (130) from the reflector of the vehicle is entered at a time and the at least one reflection signal (130) represents at least one item of information about a relative speed of the vehicle. The method also comprises a step of predetermining, in which an estimated speed value (170) of the vehicle is predetermined. Finally, the method comprises a step of determining, in which an estimated height value (180) of the reflector using the relative speed of the vehicle and the estimated speed value (170) of the vehicle is determined.



Title

Method and device for estimating the height of a reflector of a vehicle

Current assignees

JENOPTIK

Inventors

PRÖFROCK DIMA

TRUMMER MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

PENDING

LAPSED

PENDING

PENDING

GRANTED

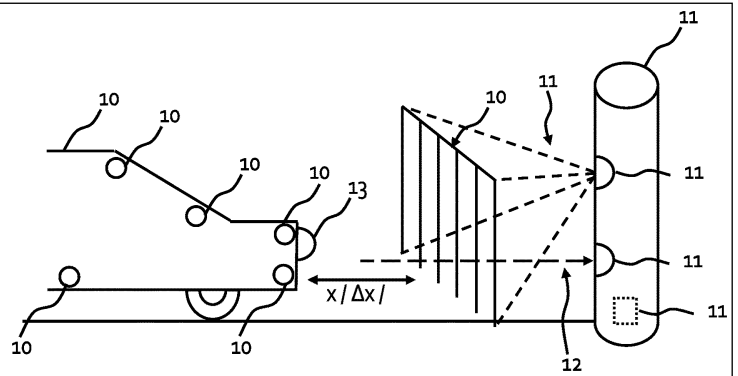
Method and device for monitoring and/or detecting a sensor system of a vehicle

DE102018106594 A1

<p>Current assignees JENOPTIK*</p> <p>Inventors MAAG EINAR KIENITZ STEFAN</p> <p>Priority data including date 2018DE-10106594 2018-03-21 2019WO-EP56832 2019-03-19</p>	<p>IPC - International classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">B60W-040/04</td> <td style="width: 33%;">B60W-050/02*</td> <td style="width: 33%;">B60W-050/04</td> </tr> <tr> <td>B60W-050/06</td> <td>B60W-060/00</td> <td>B64F-005/60</td> </tr> <tr> <td>G01M-011/06</td> <td>G01S-007/40</td> <td>G01S-007/497</td> </tr> <tr> <td>G01S-007/52</td> <td>G01S-013/58</td> <td>G01S-013/931</td> </tr> <tr> <td>G01S-015/931</td> <td>G01S-017/58</td> <td>G01S-017/931</td> </tr> </table> <p>CPC - Cooperative classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">B60W-040/04</td> <td style="width: 33%;">B60W-050/02/05</td> <td style="width: 33%;">B60W-050/04/5*</td> </tr> <tr> <td>B60W-050/06</td> <td>B60W-060/001</td> <td>B60W-2050/0215</td> </tr> <tr> <td>B60W-2554/404</td> <td>B64F-005/60</td> <td>G01S-007/40</td> </tr> <tr> <td>G01S-007/497*</td> <td>G01S-007/52/004</td> <td>G01S-013/58</td> </tr> <tr> <td>G01S-013/93/1</td> <td>G01S-015/93/1</td> <td>G01S-017/58</td> </tr> <tr> <td>G01S-017/931</td> <td></td> <td></td> </tr> </table>	B60W-040/04	B60W-050/02*	B60W-050/04	B60W-050/06	B60W-060/00	B64F-005/60	G01M-011/06	G01S-007/40	G01S-007/497	G01S-007/52	G01S-013/58	G01S-013/931	G01S-015/931	G01S-017/58	G01S-017/931	B60W-040/04	B60W-050/02/05	B60W-050/04/5*	B60W-050/06	B60W-060/001	B60W-2050/0215	B60W-2554/404	B64F-005/60	G01S-007/40	G01S-007/497*	G01S-007/52/004	G01S-013/58	G01S-013/93/1	G01S-015/93/1	G01S-017/58	G01S-017/931		
B60W-040/04	B60W-050/02*	B60W-050/04																																
B60W-050/06	B60W-060/00	B64F-005/60																																
G01M-011/06	G01S-007/40	G01S-007/497																																
G01S-007/52	G01S-013/58	G01S-013/931																																
G01S-015/931	G01S-017/58	G01S-017/931																																
B60W-040/04	B60W-050/02/05	B60W-050/04/5*																																
B60W-050/06	B60W-060/001	B60W-2050/0215																																
B60W-2554/404	B64F-005/60	G01S-007/40																																
G01S-007/497*	G01S-007/52/004	G01S-013/58																																
G01S-013/93/1	G01S-015/93/1	G01S-017/58																																
G01S-017/931																																		

Family																													
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">AU2019239572</td> <td style="width: 10%;">B2</td> <td style="width: 15%;">2021-12-02</td> <td style="width: 10%; text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>EP3769112</td> <td>A1</td> <td>2021-01-27</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>US20210009147</td> <td>A1</td> <td>2021-01-14</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>CN111868558</td> <td>A</td> <td>2020-10-30</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> </table>	AU2019239572	B2	2021-12-02	📄 🔗 🏛️ 📄	EP3769112	A1	2021-01-27	📄 🔗 🏛️ 📄	US20210009147	A1	2021-01-14	📄 🔗 🏛️ 📄	CN111868558	A	2020-10-30	📄 🔗 🏛️ 📄	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">AU2019239572</td> <td style="width: 10%;">A1</td> <td style="width: 15%;">2020-09-17</td> <td style="width: 10%; text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>DE102018106594</td> <td>A1</td> <td>2019-09-26</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>WO2019/180014</td> <td>A1</td> <td>2019-09-26</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> </table>	AU2019239572	A1	2020-09-17	📄 🔗 🏛️ 📄	DE102018106594	A1	2019-09-26	📄 🔗 🏛️ 📄	WO2019/180014	A1	2019-09-26	📄 🔗 🏛️ 📄
AU2019239572	B2	2021-12-02	📄 🔗 🏛️ 📄																										
EP3769112	A1	2021-01-27	📄 🔗 🏛️ 📄																										
US20210009147	A1	2021-01-14	📄 🔗 🏛️ 📄																										
CN111868558	A	2020-10-30	📄 🔗 🏛️ 📄																										
AU2019239572	A1	2020-09-17	📄 🔗 🏛️ 📄																										
DE102018106594	A1	2019-09-26	📄 🔗 🏛️ 📄																										
WO2019/180014	A1	2019-09-26	📄 🔗 🏛️ 📄																										

A method for monitoring and/or detecting a sensor system (104) of a vehicle (100) comprises a step of identifying a parameter value using a response signal, and a step of determining a monitoring signal that can be allocated to the sensor system (104), said determination being carried out using the parameter value and a predetermined reaction value.



Title

Method and device for monitoring and/or detecting a sensor system of a vehicle

Current assignees

JENOPTIK

Inventors

MAAG EINAR

KIENITZ STEFAN

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

PENDING

LAPSED

















































PENDING

PENDING

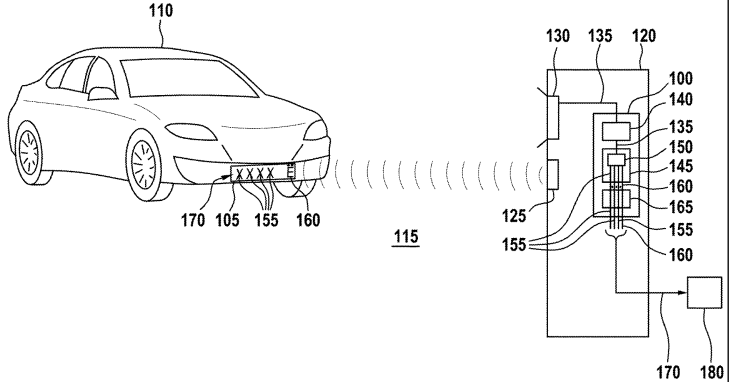
GRANTED

Method and apparatus for recognizing a license plate of a vehicle EP3599572 A1

<p><u>Current assignees</u> JENOPTIK TRAFFIC SOLUTIONS*</p> <p><u>Inventors</u> SNELL VIOLET</p> <p><u>Priority data including date</u> 2018EP-0185953 2018-07-27</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">G06K-009/00</td> <td style="width: 33%;">G06K-009/32</td> <td style="width: 33%;">G06K-009/34</td> </tr> <tr> <td>G06K-009/46*</td> <td>G06K-009/62</td> <td>G06N-003/02</td> </tr> <tr> <td>G06N-003/04</td> <td>G06N-003/08</td> <td>G06N-005/04</td> </tr> <tr> <td>G06N-007/00</td> <td></td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">G06F-018/241</td> <td style="width: 33%;">G06K-009/32/58*</td> <td style="width: 33%;">G06K-2209/15</td> </tr> <tr> <td>G06N-003/04/54</td> <td>G06N-003/045</td> <td>G06N-003/08</td> </tr> <tr> <td>G06N-005/04/6</td> <td>G06V-010/454</td> <td>G06V-010/82</td> </tr> <tr> <td>G06V-020/62*</td> <td>G06V-020/62*5</td> <td>G06V-020/63</td> </tr> <tr> <td>G06V-030/10</td> <td>G06V-030/153</td> <td></td> </tr> </table>	G06K-009/00	G06K-009/32	G06K-009/34	G06K-009/46*	G06K-009/62	G06N-003/02	G06N-003/04	G06N-003/08	G06N-005/04	G06N-007/00			G06F-018/241	G06K-009/32/58*	G06K-2209/15	G06N-003/04/54	G06N-003/045	G06N-003/08	G06N-005/04/6	G06V-010/454	G06V-010/82	G06V-020/62*	G06V-020/62*5	G06V-020/63	G06V-030/10	G06V-030/153	
G06K-009/00	G06K-009/32	G06K-009/34																										
G06K-009/46*	G06K-009/62	G06N-003/02																										
G06N-003/04	G06N-003/08	G06N-005/04																										
G06N-007/00																												
G06F-018/241	G06K-009/32/58*	G06K-2209/15																										
G06N-003/04/54	G06N-003/045	G06N-003/08																										
G06N-005/04/6	G06V-010/454	G06V-010/82																										
G06V-020/62*	G06V-020/62*5	G06V-020/63																										
G06V-030/10	G06V-030/153																											

<u>Family</u>													
ES2900162	T3	2022-03-16					AU2019204641	B2	2020-10-29				
PL3599572	T3	2022-01-17					AU2019204641	A1	2020-02-13				
LT3599572	T	2021-12-27					CN110781880	A	2020-02-11				
PT3599572	T	2021-12-07					US20200034647	A1	2020-01-30				
EP3599572	B1	2021-09-01					EP3599572	A1	2020-01-29				
US10963722	B2	2021-03-30											

The present invention provides an apparatus (100) for recognizing a license plate (105) of a vehicle (110), the apparatus (100) comprising an interface (140) for reading-in an image (135) of a surrounding of an optical sensor (130), the image (135) originating from the optical sensor (130) picturing at least said vehicle (110) having a detectable license plate (105). The apparatus (100) further comprises a unit (145) for analyzing the image (135) using a convolutional neural network (150), the convolutional neural network (150) having at least two separated symbol identification branches (220a, 220b), each of the separated symbol identification branches (220a, 200b) being configured for identifying one of several symbols (155) of the license plate (105) and/or the convolutional neural network (150) having a country identification branch (225) being separated from the symbol identification branches (220a, 220b), the country identification branch (225) being configured for identifying the country (160) having issued the license plate (105). Finally the apparatus (100) comprises a unit (165) for outputting (330) the at least two identified symbols (155) and/or the identified country (160) in order to recognize the license plate (105) of the vehicle (110).



Title

Method and apparatus for recognizing a license plate of a vehicle

Current assignees

JENOPTIK TRAFFIC SOLUTIONS

Inventors

SNELL VIOLET

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

PENDING

GRANTED

GRANTED

GRANTED

GRANTED

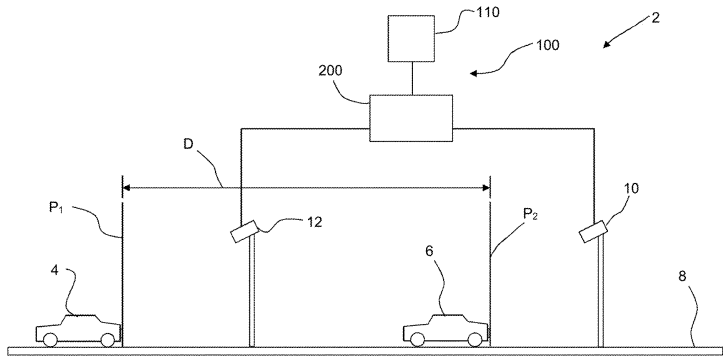
GRANTED

Methods for artificial neural networks EP3798897 A1

<p><u>Current assignees</u> JENOPTIK TRAFFIC SOLUTIONS*</p> <p><u>Inventors</u> SNELL VIOLET</p> <p><u>Priority data including date</u> 2019EP-0200355 2019-09-30</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">B60W-040/105</td> <td style="border: none;">G06N-003/08</td> <td style="border: none;">G06N-005/04</td> </tr> <tr> <td style="border: none;">G06N-020/00</td> <td style="border: none;">G06T-007/00</td> <td style="border: none;">G06V-010/764*</td> </tr> <tr> <td style="border: none;">G08G-001/017</td> <td colspan="2" style="border: none;"></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">B60W-040/105</td> <td style="border: none;">B60W-2720/103</td> <td style="border: none;">G06F-018/214</td> </tr> <tr> <td style="border: none;">G06F-018/22</td> <td style="border: none;">G06F-018/2415</td> <td style="border: none;">G06K-009/00/785</td> </tr> <tr> <td style="border: none;">G06K-009/32/58</td> <td style="border: none;">G06K-009/62/01</td> <td style="border: none;">G06K-009/62/56</td> </tr> <tr> <td style="border: none;">G06K-009/62/77</td> <td style="border: none;">G06N-003/08/4*</td> <td style="border: none;">G06N-005/04/6</td> </tr> <tr> <td style="border: none;">G06V-010/764*</td> <td style="border: none;">G06V-010/82</td> <td style="border: none;">G06V-020/54</td> </tr> <tr> <td style="border: none;">G06V-020/56</td> <td style="border: none;">G06V-020/62</td> <td style="border: none;">G06V-020/63</td> </tr> </table>	B60W-040/105	G06N-003/08	G06N-005/04	G06N-020/00	G06T-007/00	G06V-010/764*	G08G-001/017			B60W-040/105	B60W-2720/103	G06F-018/214	G06F-018/22	G06F-018/2415	G06K-009/00/785	G06K-009/32/58	G06K-009/62/01	G06K-009/62/56	G06K-009/62/77	G06N-003/08/4*	G06N-005/04/6	G06V-010/764*	G06V-010/82	G06V-020/54	G06V-020/56	G06V-020/62	G06V-020/63
B60W-040/105	G06N-003/08	G06N-005/04																										
G06N-020/00	G06T-007/00	G06V-010/764*																										
G08G-001/017																												
B60W-040/105	B60W-2720/103	G06F-018/214																										
G06F-018/22	G06F-018/2415	G06K-009/00/785																										
G06K-009/32/58	G06K-009/62/01	G06K-009/62/56																										
G06K-009/62/77	G06N-003/08/4*	G06N-005/04/6																										
G06V-010/764*	G06V-010/82	G06V-020/54																										
G06V-020/56	G06V-020/62	G06V-020/63																										

<u>Family</u>							
AU2020233747	B2	2021-07-22		US20210097398	A1	2021-04-01	
AU2020233747	A1	2021-04-15		EP3798897	A1	2021-03-31	

A method for an artificial neural network is provided. The method comprises providing the artificial neural network, wherein the artificial neural network is trained to reduce the confidence of the artificial neural network in classifying inputs outside a desirable input distribution is provided by training the artificial neural network (230) using a first set of inputs and associated labels, the labels correctly classifying the corresponding inputs, wherein the inputs within the first set are within the desirable input distribution of the artificial neural network; training the artificial neural network using a second set of inputs and associated labels, wherein the inputs within the second set are outside of the desirable input distribution of the artificial neural network, and wherein the labels within the second set comprise randomly assigned classifications; and feeding one or more inputs through the artificial neural network to determine classifications, classifying the inputs, and confidence values associated with the classifications.



Title

Methods for artificial neural networks

Current assignees

JENOPTIK TRAFFIC SOLUTIONS

Inventors

SNELL VIOLET

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

PENDING

GRANTED

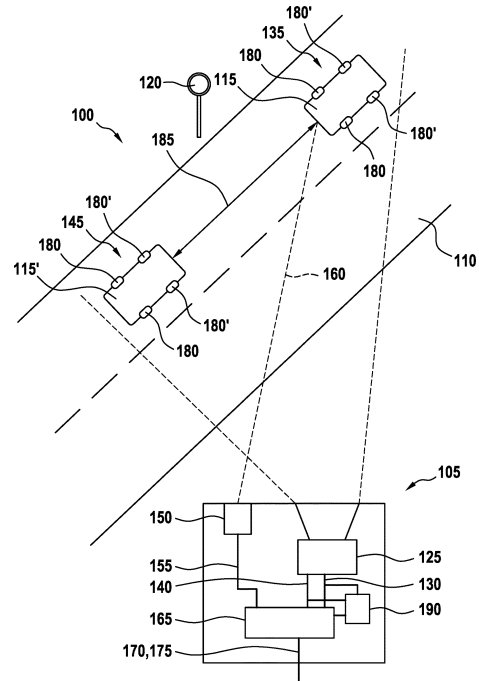
Method and device for recording a traffic situation when a vehicle passes a recording apparatus

DE102019126562 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> TRUMMER MICHAEL</p> <p><u>Priority data including date</u> 2019DE-10126562 2019-10-02</p>	<p><u>IPC - International classification</u> G01P-003/38 G01P-003/68 G06K-009/00 G08G-001/01* G08G-001/01*7 G08G-001/052* G08G-001/054 H04N-005/232 H04N-005/272</p> <p><u>CPC - Cooperative classification</u> G06K-009/00/785 G06V-020/54 G08G-001/052 G08G-001/054* H04N-005/23299 H04N-005/272 H04N-023/695</p>
--	---

<u>Family</u>	
AU2020244468 B2 2022-04-21    	US20210104156 A1 2021-04-08    
AU2020244468 A1 2021-04-22    	EP3800622 A1 2021-04-07    
DE102019126562 A1 2021-04-08    	

The invention relates to a method (300) for recording a traffic situation (100) when a vehicle (115) travels past a recording device (105), the method (300) comprising a step of reading (310) at least one first image (130), which images the vehicle (115) at a first time at a first position (135) in an environment around the recording device (105), and a second image (140), which images the vehicle (115) at a second time at a second position (145) in the environment around the recording device (105). Furthermore, the method (300) comprises a step of detecting (320) a speed of the vehicle (115) at the first and/or second time and/or in a time interval between the first and/or second time. Finally, the method (300) comprises a step of storing (330) the first image (130) and the second image (140), the first and the second time and/or a time span between the first and the second time, as well as the speed of the vehicle (115) as a traffic situation data record (170), in order to record the traffic situation (100), wherein the first and second points in time and/or the period of time between the first and second points in time are then added to the traffic situation data record (170) if the second image (140) has not been recorded at a second point in time, wherein in the storing step (330) the first (130) and second (140) images are stored superimposed in such a way that a single superimposed image (175) is generated in the traffic situation data record (170), in which the vehicle (115) is mapped at the first position (135) at the first time and at the second position (145) at the second time and a model type of the vehicle (115) is determined and stored in the traffic situation data record (170), wherein the model type is determined using a vehicle database (190).



Title

Method and device for recording a traffic situation when a vehicle passes a recording apparatus

Current assignees

JENOPTIK

Inventors

TRUMMER MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

LAPSED

PENDING

GRANTED

Method and device for assigning identification information and identification data to a vehicle

DE102020134212 B3

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> KIENITZ STEFAN TRUMMER MICHAEL STEDING MARIUS SCHAARE THOMAS</p> <p><u>Priority data including date</u> 2020DE-10134212 2020-12-18</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">G06V-020/54</td> <td style="width: 33%;">G07B-015/00</td> <td style="width: 33%;">G07B-015/06</td> </tr> <tr> <td>G08G-001/01</td> <td>G08G-001/017</td> <td>G08G-001/04</td> </tr> <tr> <td>G08G-001/054</td> <td>H04W-004/44*</td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">G07B-015/06/3</td> <td style="width: 50%;">H04W-004/44*</td> </tr> </table>	G06V-020/54	G07B-015/00	G07B-015/06	G08G-001/01	G08G-001/017	G08G-001/04	G08G-001/054	H04W-004/44*		G07B-015/06/3	H04W-004/44*
G06V-020/54	G07B-015/00	G07B-015/06										
G08G-001/01	G08G-001/017	G08G-001/04										
G08G-001/054	H04W-004/44*											
G07B-015/06/3	H04W-004/44*											

<u>Family</u>	<table style="width: 100%; border: none;"> <tr> <td style="width: 20%;">WO2022/129638</td> <td style="width: 10%;">A1</td> <td style="width: 15%;">2022-06-23</td> <td style="width: 10%; text-align: center;"> </td> <td style="width: 20%; text-align: center;">DE102020134212</td> <td style="width: 10%;">B3</td> <td style="width: 15%;">2022-03-10</td> <td style="width: 10%; text-align: center;"> </td> </tr> </table>	WO2022/129638	A1	2022-06-23		DE102020134212	B3	2022-03-10	
WO2022/129638	A1	2022-06-23		DE102020134212	B3	2022-03-10			

The approach set forth here relates to a method (200) for assigning identification information (105) of at least one vehicle (110) in a monitoring region (115) of a monitoring device (117) and identification data (120) to the vehicle, wherein the identification data (120) have been received from a transmission unit (135) of the vehicle (110). The method (200) comprises a step of reading in (210) the identification information (105) and the identification data (120), wherein the identification information (105) have been obtained from image data (131) of an image (129), captured by the monitoring device (117), of the vehicle (110) traveling in the monitoring region (115) and the identification data (120) have been received from a transmission unit (135) of the vehicle (110), wherein the identification information (105) is assigned an information timestamp (155) representing the time of reading-in (210) of the identification information (105) and the identification data (120) are assigned a data timestamp (163) representing the time of reception of the identification data (120), wherein, in the reading-in step (210), an identifier (172) uniquely representing the vehicle is furthermore read into the identification information (105) and a characterizing feature (174) uniquely representing the vehicle (110) is read into the identification data (120). The method (200) furthermore comprises a step of assigning (220) the identification information (105) and the identification data (120) to the vehicle (110) when a time difference between the information timestamp (155) and the data timestamp (163) is not greater than a threshold value time difference and when the identifier (172) and the characterizing feature (174) match to within a tolerance range. The method (200) furthermore comprises a step of storing the identification information (105) and the identification data (120) for assignment of the identification information (105) and the identification data (120) to the vehicle (110) at a later time when a time difference between the information timestamp (155) and the data timestamp (163) is greater than a threshold value time difference or a step of storing the identification information (105) and the identification data (120) for assignment of the identification information (105) and the identification data (120) to the vehicle (110) at a later time when the identifier (172) and the characterizing feature (174) do not match to within a tolerance range.

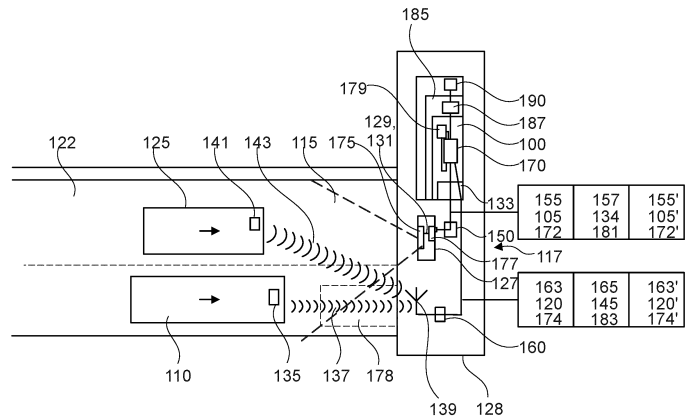


Fig. 1

Title

Method and device for assigning identification information and identification data to a vehicle

Current assignees

JENOPTIK

Inventors

KIENITZ STEFAN

TRUMMER MICHAEL

STEDING MARIUS

SCHAARE THOMAS

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

GRANTED

Method for parallel alignment of a laser scanner to a roadway DE102008016188 A1

<p><u>Current assignees</u> JENOPTIK JENOPTIK ROBOT 40789 MONHEIM ROBOT VISUAL SYSTEMS</p> <p><u>Inventors</u> DR LEHNING MICHAEL</p> <p><u>Priority data including date</u> 2008DE-10016188 2008-03-26</p>	<p><u>IPC - International classification</u> G01B-011/25 G01S-007/48 G01S-007/497* G01S-017/88</p> <p><u>CPC - Cooperative classification</u> G01S-007/497/2* G01S-017/42 G01S-017/88</p>
---	--

<u>Family</u>			
EP2105761	B1	2012-10-03	
EP2105761	A3	2011-07-06	
			DE102008016188 A1 2009-10-01
			EP2105761 A2 2009-09-30

Method for parallel alignment of scanning level of laser scanner to road surface, involves determining lateral inclination angle from displacement values and tilting angle by trigonometric calculation for reversely tilting scanner

The method involves fixing a scanning mirror in a scanning angular position and deriving a displacement value from a reflection signal. A laser scanner (1) is inclined at a scanner longitudinal axis (x') at a predetermined tilting angle, and another displacement value is derived from another reflection signal. A lateral inclination angle is determined from the values and the tilting angle by a trigonometric calculation for reversely tilting the scanner at the tilting angle and tilting the inclination angle, where a scanning plane is aligned parallel to a road plane.

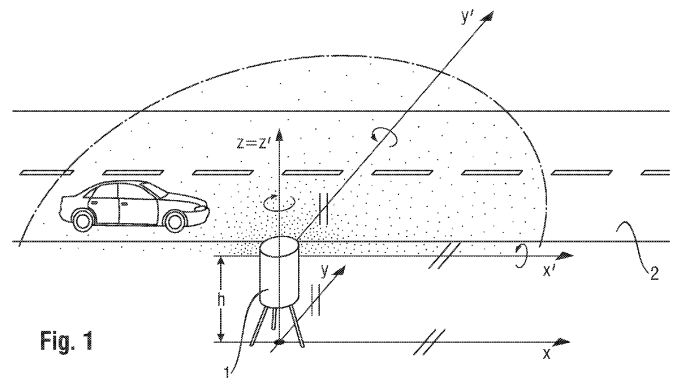


Fig. 1

Title

Method for parallel alignment of a laser scanner to a roadway

Current assignees

JENOPTIK

JENOPTIK ROBOT 40789 MONHEIM

ROBOT VISUAL SYSTEMS

Inventors

DR LEHNING MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

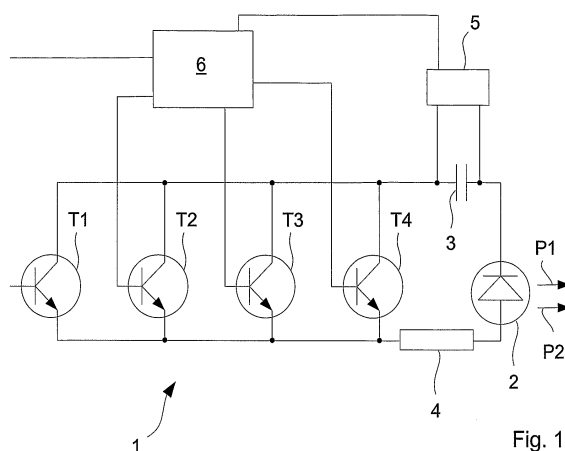
LAPSED

Laser and method for producing pulsed laser radiation DE102008021588 A1

<p><u>Current assignees</u> ESW JENOPTIK JENOPTIK LASER JENOPTIK* LASER OPTIK SYSTEM</p> <p><u>Inventors</u> JUENEMANN OTTO GROSSE ANDRE</p> <p><u>Priority data including date</u> 2008DE-10021588 2008-04-30 2009WO-DE00590 2009-04-30</p>	<p><u>IPC - International classification</u> G01S-017/10 G01S-017/93 H01S-005/024 H01S-005/042* H01S-005/062* H03K-017/00</p> <p><u>CPC - Cooperative classification</u> H01S-005/042/8 H01S-005/062/16*</p>
---	--

<u>Family</u>	
<p>DE102008021588 B4 2011-05-19 </p> <p>EP2269277 A1 2011-01-05 </p>	<p>DE102008021588 A1 2009-12-10 </p> <p>WO2009/132631 A1 2009-11-05 </p>

A laser is provided for producing pulsed laser radiation, comprising a laser diode (2), a capacitor (3) connected to the laser diode (2), a charging module (5) for charging the capacitor (3), a plurality of transistors (T1-T4) connected in parallel with one another between the laser diode (2) and the capacitor (3), and a control unit (6) for repeatedly carrying out a pulse production cycle by triggering the charging module (5) to charge the capacitor (3) and thereafter triggering precisely one of the transistors (T1-T4) to discharge the capacitor (3) through the laser diode (2) for producing a laser pulse, wherein the control unit (6) does not select the same transistor (T1-T4) in at least two temporally sequential pulse production cycles for triggering.



Title

Laser and method for producing pulsed laser radiation

Current assignees

ESW

JENOPTIK

JENOPTIK LASER

JENOPTIK LASER OPTIK SYSTEM

Inventors

JUENEMANN OTTO

GROSSE ANDRE

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

LAPSED

GRANTED

Method and device for photographing a vehicle EP2157558 A1

<p><u>Current assignees</u> JENOPTIK ROBOT VISUAL SYSTEMS*</p> <p><u>Inventors</u> PREKER MICHAEL SEIDEL WOLFGANG DOHMANN BERNHARD</p> <p><u>Priority data including date</u> 2008EP-0105079 2008-08-19</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">G01S-013/42*</td> <td style="border: none;">G01S-013/92</td> <td style="border: none;">G01S-017/42</td> </tr> <tr> <td style="border: none;">G01S-017/86</td> <td style="border: none;">G03B-015/02</td> <td style="border: none;">G03B-015/16</td> </tr> <tr> <td style="border: none;">G08G-001/017</td> <td style="border: none;">G08G-001/054</td> <td style="border: none;"></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">G01S-013/42</td> <td style="border: none;">G01S-013/92</td> <td style="border: none;">G01S-017/42</td> </tr> <tr> <td style="border: none;">G01S-017/86</td> <td style="border: none;">G03B-015/02</td> <td style="border: none;">G03B-015/16</td> </tr> <tr> <td style="border: none;">G08G-001/017/5</td> <td style="border: none;">G08G-001/054*</td> <td style="border: none;"></td> </tr> </table>	G01S-013/42*	G01S-013/92	G01S-017/42	G01S-017/86	G03B-015/02	G03B-015/16	G08G-001/017	G08G-001/054		G01S-013/42	G01S-013/92	G01S-017/42	G01S-017/86	G03B-015/02	G03B-015/16	G08G-001/017/5	G08G-001/054*	
G01S-013/42*	G01S-013/92	G01S-017/42																	
G01S-017/86	G03B-015/02	G03B-015/16																	
G08G-001/017	G08G-001/054																		
G01S-013/42	G01S-013/92	G01S-017/42																	
G01S-017/86	G03B-015/02	G03B-015/16																	
G08G-001/017/5	G08G-001/054*																		

<p><u>Family</u></p> <p>EP2157558 B1 2015-05-06 </p>	<p>EP2157558 A1 2010-02-24 </p>
--	--

Method for photographic mapping of vehicle, involves detecting location of vehicle by location detecting unit, where light intensity of radiation, coming from illumination unit, is controlled for detecting location

The method involves detecting location of a vehicle (2a,2b,2C) by a location detecting unit. The light intensity of the radiation, coming from an illumination unit (6), is controlled for detecting the location, to illuminate the vehicle with a sufficient light intensity, where the vehicle is detected. An independent claim is included for an arrangement for photographic mapping of vehicle.

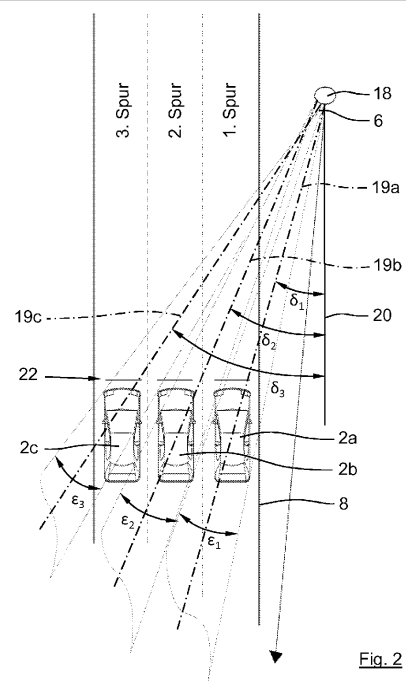


Fig. 2

Title

Method and device for photographing a vehicle

Current assignees

JENOPTIK

ROBOT VISUAL SYSTEMS

Inventors

PREKER MICHAEL

SEIDEL WOLFGANG

DOHMANN BERNHARD

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

Method for measuring the speed of a vehicle and visual allocation in documentation DE102009007055 A1

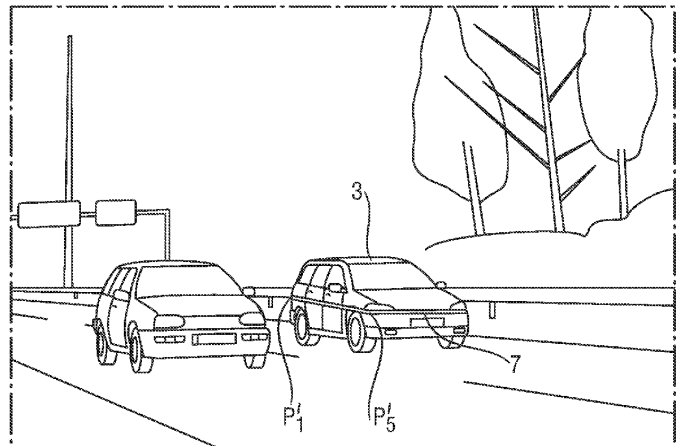
<p><u>Current assignees</u> JENOPTIK* JENOPTIK* ROBOT 40789 MONHEIM ROBOT VISUAL SYSTEMS</p> <p><u>Inventors</u> DR GEBAUER CHRISTOPH DR LEHNING MICHAEL</p> <p><u>Priority data including date</u> 2009DE-10007055 2009-02-02</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">G01S-017/42</td> <td style="border: none;">G01S-017/58*</td> <td style="border: none;">G01S-017/86</td> </tr> <tr> <td style="border: none;">G01S-017/88</td> <td style="border: none;">G08G-001/04</td> <td style="border: none;">G08G-001/052</td> </tr> <tr> <td style="border: none;">G08G-001/054</td> <td colspan="2" style="border: none;"></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">G01S-017/42</td> <td style="border: none;">G01S-017/58*</td> <td style="border: none;">G01S-017/86</td> </tr> <tr> <td style="border: none;">G01S-017/88</td> <td style="border: none;">G08G-001/054</td> <td style="border: none;"></td> </tr> </table>	G01S-017/42	G01S-017/58*	G01S-017/86	G01S-017/88	G08G-001/04	G08G-001/052	G08G-001/054			G01S-017/42	G01S-017/58*	G01S-017/86	G01S-017/88	G08G-001/054	
G01S-017/42	G01S-017/58*	G01S-017/86														
G01S-017/88	G08G-001/04	G08G-001/052														
G08G-001/054																
G01S-017/42	G01S-017/58*	G01S-017/86														
G01S-017/88	G08G-001/054															

<u>Family</u>							
EP2221640	B1	2015-10-21		EP2221640	A2	2010-08-25	
EP2221640	A3	2011-12-07		DE102009007055	A1	2010-08-05	

Vehicle i.e. car, speed measuring method, involves generating marking from group, and superimposing digitalized image and digital marking in order to visualize image and marking on display or to print evidence photo

The method involves storing an electronic image of a vehicle (3) as a digitalized image. A measurement value pair of a real-time scan is stored at an activation time point of a camera (5). The pair characterizing an object angle is associated with a group that contains a photo range (eFoto) as a measurement value. A marking is generated from the group and stored as a digital marking. The image and the marking are superimposed in order to visualize the image and the marking on a display or to print an evidence photo.

Fig. 2



Title

Method for measuring the speed of a vehicle and visual allocation in documentation

Current assignees

JENOPTIK

JENOPTIK ROBOT 40789 MONHEIM

ROBOT VISUAL SYSTEMS

Inventors

DR GEBAUER CHRISTOPH

DR LEHNING MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

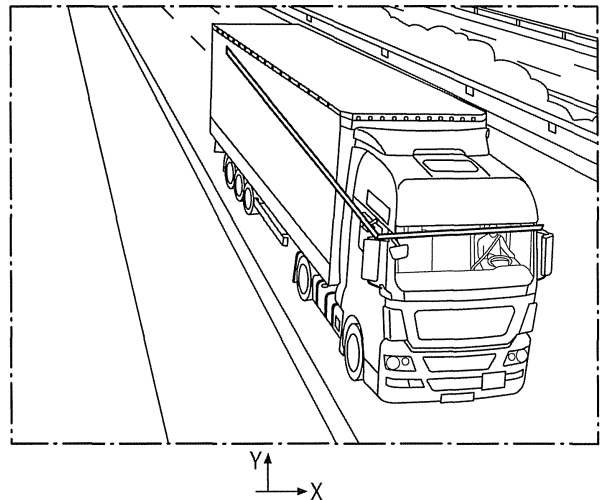
Method for producing a known fixed spatial relationship between a laser scanner and a digital camera for traffic monitoring

DE102009013667 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING MICHAEL DR</p> <p><u>Priority data including date</u> 2009DE-10013667 2009-03-24</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01P-003/36</td> <td>G01S-007/40</td> <td>G01S-007/497</td> </tr> <tr> <td>G01S-013/86</td> <td>G01S-013/91*</td> <td>G01S-017/86</td> </tr> <tr> <td>G01S-017/88</td> <td>G01S-017/89</td> <td>G06K-009/00</td> </tr> <tr> <td>G06K-009/62</td> <td>G06T-003/20</td> <td>G08G-001/017</td> </tr> <tr> <td>G08G-001/052</td> <td>G08G-001/054</td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01S-007/497/2</td> <td>G01S-017/86</td> <td>G01S-017/89</td> </tr> <tr> <td>G08G-001/017/5*</td> <td>G08G-001/054</td> <td></td> </tr> </table> <p><u>PCL - US patent classification</u></p> <p>PCLO: 382106000*</p> <p>PCLX: 356027000</p>	G01P-003/36	G01S-007/40	G01S-007/497	G01S-013/86	G01S-013/91*	G01S-017/86	G01S-017/88	G01S-017/89	G06K-009/00	G06K-009/62	G06T-003/20	G08G-001/017	G08G-001/052	G08G-001/054		G01S-007/497/2	G01S-017/86	G01S-017/89	G08G-001/017/5*	G08G-001/054	
G01P-003/36	G01S-007/40	G01S-007/497																				
G01S-013/86	G01S-013/91*	G01S-017/86																				
G01S-017/88	G01S-017/89	G06K-009/00																				
G06K-009/62	G06T-003/20	G08G-001/017																				
G08G-001/052	G08G-001/054																					
G01S-007/497/2	G01S-017/86	G01S-017/89																				
G08G-001/017/5*	G08G-001/054																					

<u>Family</u>	
<p>EP2234081 B1 2016-12-14 </p> <p>AU2010201110 B2 2014-05-08 </p> <p>EP2234081 A3 2013-04-17 </p> <p>US8340356 B2 2012-12-25 </p>	<p>AU2010201110 A1 2010-10-14 </p> <p>DE102009013667 A1 2010-09-30 </p> <p>US20100246897 A1 2010-09-30 </p> <p>EP2234081 A2 2010-09-29 </p>

Method for producing a known fixed spatial relationship between a laser scanner and a digital camera for traffic monitoring, wherein the laser scanner axis and the optical axis of the digital camera are only roughly aligned with each other and the spatial relationship between a by the position of the laser scanner and alignment of the laser scanner axis defined by the position of the scanner coordinate system (1) and a digital camera and orientation of the optical beam path is determined computationally defined camera coordinate system (3), based on the measured values and the image of the surveillance area by traveling in front of the vehicle.



Title

Method for producing a known fixed spatial relationship between a laser scanner and a digital camera for traffic monitoring

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL DR

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

LAPSED

GRANTED

Method for immediate penalisation of a traffic offense DE102009043742 A1

<p>Current assignees JENOPTIK*</p> <p>Inventors KARNAS SINISA</p> <p>Priority data including date 2009DE-10043742 2009-09-30 2010WO-DE50075 2010-09-30</p>	<p>IPC - International classification G01S-011/12 G06V-010/25 G08G-001/017* G08G-001/02 G08G-001/054*</p> <p>CPC - Cooperative classification G01S-013/92 G06V-010/25 G06V-020/54 G06V-020/625 G06V-2201/08 G08G-001/017/5* G08G-001/02 G08G-001/04 G08G-001/054</p>
---	---

Family	
<p>DE102009043742 B4 2019-04-18 </p> <p>EP2483882 B1 2018-01-10 </p> <p>AU2010302705 B2 2014-05-08 </p> <p>EP2483882 A1 2012-08-08 </p>	<p>AU2010302705 A1 2012-04-26 </p> <p>WO2011/038729 A9 2012-04-05 </p> <p>DE102009043742 A1 2011-04-14 </p> <p>WO2011/038729 A1 2011-04-07 </p>

The invention relates to a method for penalizing for traffic violations, wherein on a roadway (1) having several lanes (2.1, 2.2), a traffic violation is detected by measurement using a measuring device and the acquisition of an image (7) of the violator vehicle (4) is carried out by means of a camera (5) as soon as the front of the vehicle in the event of oncoming traffic or the rear of the vehicle in the event of departing traffic passes a specified photo line (FL). In the image acquisition (7), an image section (8) in which the vehicle license plate of the violator vehicle (4) is depicted is selected, enlarged to a specified size, and displayed, wherein a photo point (FP) is detected depending on the location at which the violator vehicle (4) passed the photo line (FL) and the image section (8) is selected in regard to position and size relative to said photo point (FP). The image section (8) can also be used as evidence that the vehicle depicted there is the violator vehicle.

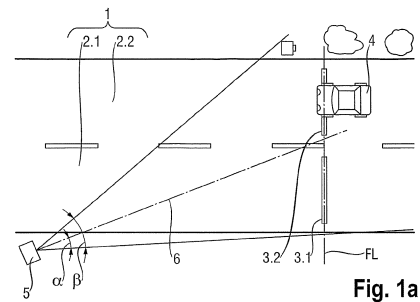


Fig. 1a

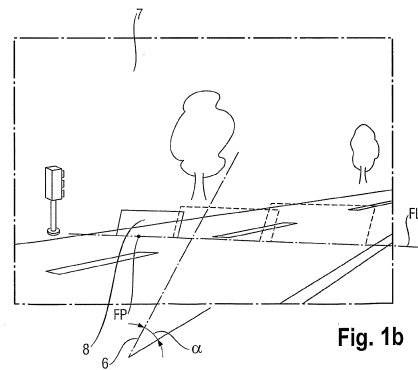


Fig. 1b

Title

Method for immediate penalisation of a traffic offense

Current assignees

JENOPTIK

Inventors

KARNAS SINISA

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

LAPSED

GRANTED

Method and assembly for detecting traffic violations in an area with traffic lights DE102009060499 A1

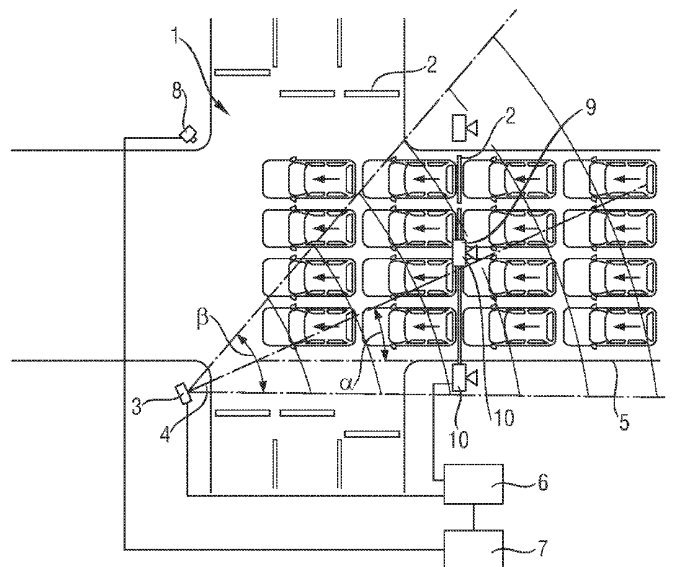
<p>Current assignees JENOPTIK*</p> <p>Inventors EPP VIKTOR PESSARA MARKUS</p> <p>Priority data including date 2009DE-10060499 2009-12-22</p>	<p>IPC - International classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>G01S-013/42</td> <td>G01S-013/58</td> <td>G01S-013/86*</td> </tr> <tr> <td>G01S-013/91</td> <td>G01S-013/92</td> <td>G01S-017/04</td> </tr> <tr> <td>G08G-001/017</td> <td>G08G-001/04</td> <td>G08G-001/052</td> </tr> <tr> <td>G08G-001/054</td> <td></td> <td></td> </tr> </table> <p>CPC - Cooperative classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>G01S-013/42</td> <td>G01S-013/58</td> <td>G01S-013/86/5</td> </tr> <tr> <td>G01S-013/86/7</td> <td>G01S-013/91*</td> <td>G01S-017/04</td> </tr> <tr> <td>G08G-001/017/5</td> <td>G08G-001/054</td> <td></td> </tr> </table>	G01S-013/42	G01S-013/58	G01S-013/86*	G01S-013/91	G01S-013/92	G01S-017/04	G08G-001/017	G08G-001/04	G08G-001/052	G08G-001/054			G01S-013/42	G01S-013/58	G01S-013/86/5	G01S-013/86/7	G01S-013/91*	G01S-017/04	G08G-001/017/5	G08G-001/054	
G01S-013/42	G01S-013/58	G01S-013/86*																				
G01S-013/91	G01S-013/92	G01S-017/04																				
G08G-001/017	G08G-001/04	G08G-001/052																				
G08G-001/054																						
G01S-013/42	G01S-013/58	G01S-013/86/5																				
G01S-013/86/7	G01S-013/91*	G01S-017/04																				
G08G-001/017/5	G08G-001/054																					

Family	
<p>EP2341367 B1 2017-02-15 </p> <p>AU2010257278 B2 2014-07-17 </p> <p>EP2341367 A3 2012-02-29 </p>	<p>AU2010257278 A1 2011-07-07 </p> <p>EP2341367 A2 2011-07-06 </p> <p>DE102009060499 A1 2011-06-30 </p>

Method for detection of red light-velocity irregularity in traffic signal area in driving path of car, involves forming data, which identifies concerned vehicle within image via position of vehicle and indicates traffic irregularity

The method involves scanning a holding line (2) via a laser ray from a laser scanner (9), when a switching phase that is assigned to the holding line is provided as a red light phase. The ray is reflected to a vehicle, which crosses the holding line. A measuring value is stored and a camera (8) is triggered in order to create an image of the vehicle, when no correlated another measuring value is found. Data is formed from the former value, where the data identifies a concerned vehicle in a group of vehicles within the image via a position of the vehicle and indicates traffic irregularity. An independent claim is also included for an arrangement for implementing the method for detection of traffic irregularity in a traffic signal area in a driving path.

Fig. 1



Title

Method and assembly for detecting traffic violations in an area with traffic lights

Current assignees

JENOPTIK

Inventors

EPP VIKTOR

PESSARA MARKUS

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

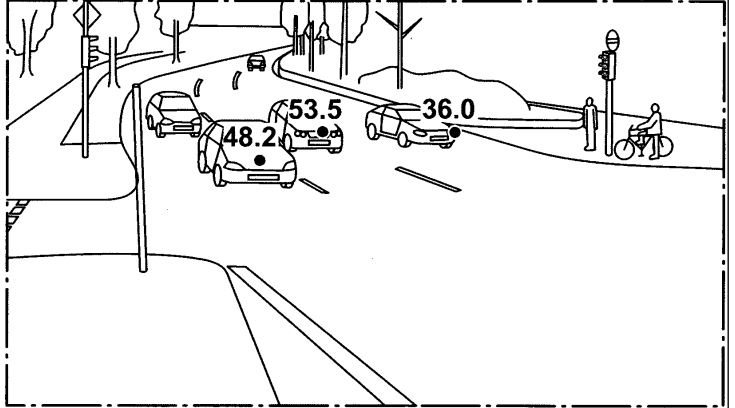
GRANTED

**Method for measuring speeds and assigning the measured speeds to appropriate vehicles by detecting and combining object tracking data and image tracking data
DE102010012811 A1**

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING MICHAEL DR</p> <p><u>Priority data including date</u> 2010DE-10012811 2010-03-23</p>	<p><u>IPC - International classification</u> G01P-003/38 G08G-001/052*</p> <p><u>CPC - Cooperative classification</u> G01P-003/38 G01S-013/86/7 G01S-013/92 G01S-017/42 G01S-017/58 G01S-017/86 G08G-001/052*</p>
---	--

<u>Family</u>					
DE102010012811	B4	2013-08-08	   	DE102010012811	A1 2011-09-29    

Method for measuring speeds and assigning measured speeds to appropriate vehicles by capturing and combining object tracking data and image tracking data, in which vehicles travel through a first sensor region of a first object-tracking sensor and, at a plurality of predetermined measurement times, measurement data relating to the speed and to the position of the vehicles, in relation to a sensor coordinate system defined by the first object-tracking sensor, with a reference axis determined by a first sensor axis, characterized in that an image tracking sensor, namely a video camera (3) with a matrix sensor which defines a camera coordinate system, the z-axis of which is determined by the camera axis (3.1), recordings of the object field of the video camera (3) are generated at a plurality of predetermined recording times, wherein the first sensor and the video camera (3) are oriented with respect to one another in such a way that, characterized in that the first sensor region and the object region at least partially overlap in order to form a common monitoring region (5), wherein the relative position between the first sensor coordinate system and the camera coordinate system is known, and a second image-tracking sensor is present so that the two image-tracking sensors supply a three-dimensional depth image via known methods of stereoscopy and measurement data of the position of the imaged vehicles are determined from the recordings, which are checked for correlation with the measurement data of the first sensor, and, if appropriate, while the vehicle passes through the common monitoring region (5), a partially covering marking, which represents at least the measurement data of the speed measured by the relevant vehicle, is inserted into the recordings in each case on an imaged vehicle.



Title

Method for measuring speeds and assigning the measured speeds to appropriate vehicles by detecting and combining object tracking data and image tracking data

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL DR

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

Method for generating an image document in which a vehicle measured by a radar device can be identified and image document generated with this method

DE102010056405 A1

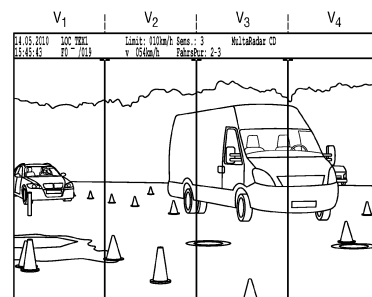
<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> KÜSTER HANS-HOLGER GEBAUER CHRISTOPH LEHNING MICHAEL GUSE WOLFGANG MEYER CHRISTOPH</p> <p><u>Priority data including date</u> 2010DE-10056405 2010-12-23 2011WO-DE75311 2011-12-16</p>	<p><u>IPC - International classification</u> G01S-013/70 G01S-013/86* G01S-013/92 G08G-001/017 G08G-001/042 G08G-001/054</p> <p><u>CPC - Cooperative classification</u> G01S-013/86/7 G01S-013/92 G08G-001/017/5 G08G-001/042 G08G-001/054*</p>
---	--

<u>Family</u>			
EP2656105	B1	2016-08-24	
EP2656105	A1	2013-10-30	
			WO2012/089206 A1 2012-07-05
			DE102010056405 A1 2012-06-28

An image document and method for generating same, in which a vehicle (6) which is measured by a radar device (5) and is travelling on a carriageway (7) can be identified, comprising an imaging recording (1) and at least one representation (3') of a mark (3) which is superimposed on the image recording (1) and which is composed of at least one marking line (3.1, 3.2) which projects an arc, with a radius (ri, ra), onto the carriageway (7), the centre point (3.3) of said arc being positioned in the radar device (5), and the measured vehicle (6) is identified on the basis of its relative position with respect to the representation (3') of the mark (3).



Stand der Technik **Fig. 1a**



Stand der Technik **Fig. 1b**

Title

Method for generating an image document in which a vehicle measured by a radar device can be identified and image document generated with this method

Current assignees

JENOPTIK

Inventors

KÜSTER HANS-HOLGER

GEBAUER CHRISTOPH

LEHNING MICHAEL

GUSE WOLFGANG

MEYER CHRISTOPH

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

LAPSED

Methods for aligning and controlling the alignment of a traffic monitoring device relative to the edge of a roadway

DE102011050660 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> GEBAUER CHRISTOPH</p> <p><u>Priority data including date</u> 2011DE-10050660 2011-05-26</p>	<p><u>IPC - International classification</u> G01S-013/92* G06K-009/00 G08G-001/054* H04N-005/247</p> <p><u>CPC - Cooperative classification</u> G01S-013/92* G06K-009/00/624 G06T-007/00/18 G06T-007/00/22 G06T-007/00/42 G06T-007/73 G06T-007/80 G06T-2207/20061 G06T-2207/30236 G08G-001/054</p>
--	--

<u>Family</u>	
<p>DE102011050660 B4 2013-01-03 </p> <p>DE102011050660 A1 2012-11-29 </p>	<p>EP2527872 A1 2012-11-28 </p>

The invention relates to a method for alignment of a traffic monitoring device (VÜG) using a radar (2) sensor and a camera (4) and a roadway edge (1). The camera axis (5) and the radar axis (3) are at an angle with respect to one another during the assembly of the VÜGs advantageously adjusted, it can be switched to an operating position with respect to each other, wherein the camera axis (5) a desired camera angle (Φ_K -Soll) and the radar axis (3) a target radar angle (Φ_R -Soll) with the edge of the road (1) include. The VÜG is set up in an initial position, in the eye with the target camera angle (Φ_K -Soll) is set approximately. The invention relates to a mapping as digital image created from the computationally the actual vanishing point (PF-Ist) for over the road markings projected straight line determined and compared with a predetermined desired vanishing point (PF-Soll) is compared. The VÜG is created as long as it to rotate horizontally and more images are meanwhile, the instantaneous actual vanishing point from each of which (PF-Ist) is determined and with the preset desired vanishing point (PF-Soll) is compared, until its deviation from the nominal-vanishing point (PF-Soll) is within a predefined tolerance limit.

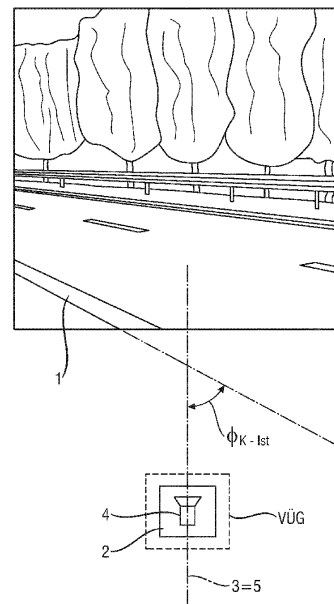


Fig. 2

Title

Methods for aligning and controlling the alignment of a traffic monitoring device relative to the edge of a roadway

Current assignees

JENOPTIK

Inventors

GEBAUER CHRISTOPH

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

GRANTED

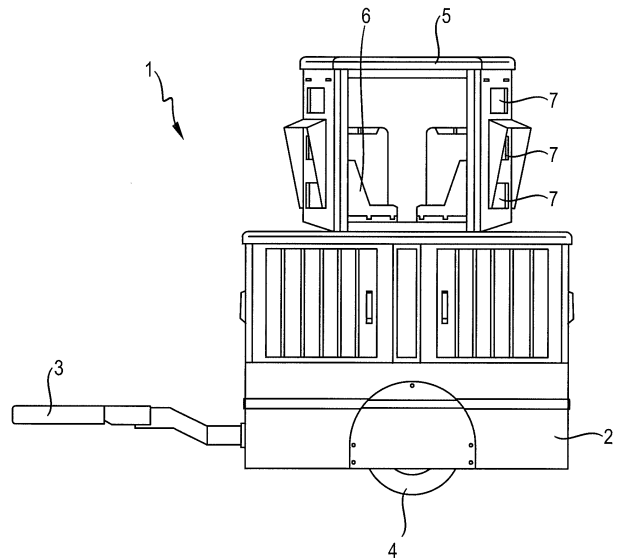
Trailer for monitoring traffic DE102011052218 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> SCHAUFELBERGER MARTIN KELLENBERGER ANDRES</p> <p><u>Priority data including date</u> 2011DE-10052218 2011-07-27</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>B60P-003/00</td> <td>B62B-007/12</td> <td>B62D-061/12*</td> </tr> <tr> <td>B62D-063/06</td> <td>G01S-013/92</td> <td>G08G-001/017</td> </tr> <tr> <td>G08G-001/052</td> <td>G08G-001/054</td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>B62D-061/12</td> <td>B62D-063/06/1</td> <td>G01S-013/92</td> </tr> <tr> <td>G08G-001/017/5*</td> <td>G08G-001/054</td> <td></td> </tr> </table> <p><u>PCL - US patent classification</u></p> <p>PCLO: 280030000*</p> <p>PCLX: 340905000 340936000</p>	B60P-003/00	B62B-007/12	B62D-061/12*	B62D-063/06	G01S-013/92	G08G-001/017	G08G-001/052	G08G-001/054		B62D-061/12	B62D-063/06/1	G01S-013/92	G08G-001/017/5*	G08G-001/054	
B60P-003/00	B62B-007/12	B62D-061/12*														
B62D-063/06	G01S-013/92	G08G-001/017														
G08G-001/052	G08G-001/054															
B62D-061/12	B62D-063/06/1	G01S-013/92														
G08G-001/017/5*	G08G-001/054															

<u>Family</u>																													
<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">EP2551175</td> <td style="width: 15%;">B1</td> <td style="width: 15%;">2017-10-04</td> <td style="width: 15%; text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>US8757640</td> <td>B2</td> <td>2014-06-24</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>EP2551175</td> <td>A3</td> <td>2014-03-26</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>DE102011052218</td> <td>A1</td> <td>2013-01-31</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> </table>	EP2551175	B1	2017-10-04	📄 🔗 🏛️ 📄	US8757640	B2	2014-06-24	📄 🔗 🏛️ 📄	EP2551175	A3	2014-03-26	📄 🔗 🏛️ 📄	DE102011052218	A1	2013-01-31	📄 🔗 🏛️ 📄	<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">US20130026724</td> <td style="width: 15%;">A1</td> <td style="width: 15%;">2013-01-31</td> <td style="width: 15%; text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>CN102903252</td> <td>A</td> <td>2013-01-30</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> <tr> <td>EP2551175</td> <td>A2</td> <td>2013-01-30</td> <td style="text-align: center;">📄 🔗 🏛️ 📄</td> </tr> </table>	US20130026724	A1	2013-01-31	📄 🔗 🏛️ 📄	CN102903252	A	2013-01-30	📄 🔗 🏛️ 📄	EP2551175	A2	2013-01-30	📄 🔗 🏛️ 📄
EP2551175	B1	2017-10-04	📄 🔗 🏛️ 📄																										
US8757640	B2	2014-06-24	📄 🔗 🏛️ 📄																										
EP2551175	A3	2014-03-26	📄 🔗 🏛️ 📄																										
DE102011052218	A1	2013-01-31	📄 🔗 🏛️ 📄																										
US20130026724	A1	2013-01-31	📄 🔗 🏛️ 📄																										
CN102903252	A	2013-01-30	📄 🔗 🏛️ 📄																										
EP2551175	A2	2013-01-30	📄 🔗 🏛️ 📄																										

The invention relates to a trailer for traffic monitoring, the method for detecting and documenting red light - and/or speed violations are feasible.

The object of the invention is, to create an arrangement, the simple at any location can be established, - so that a detecting and documenting red and/or speed violations can be performed, wherein the assembly is not in a car placed in specified. Disclosed is a trailer (1) for traffic monitoring the fact, that there are means, with which the wheels (4) lifting - and lowered and in the structure (2) at least one system for detecting and documenting red light - and/or speed violations integration is formed.



Title

Trailer for monitoring traffic

Current assignees

JENOPTIK

Inventors

SCHAUFELBERGER MARTIN

KELLENBERGER ANDRES

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

LAPSED

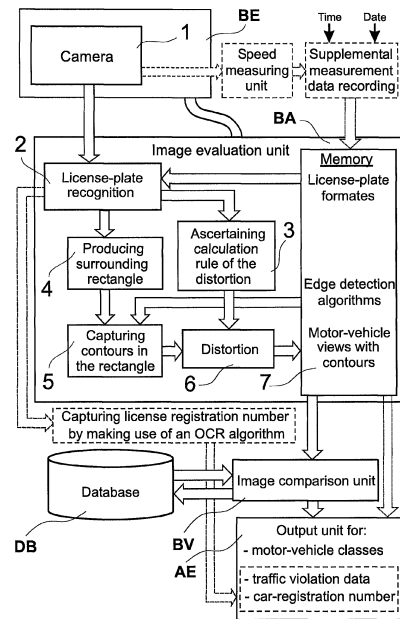
REVOKED

Method and apparatus for identifying motor vehicles for monitoring traffic DE102011053052 B3

<p>Current assignees JENOPTIK*</p> <p>Inventors LEHNING MICHAEL</p> <p>Priority data including date 2011DE-10053052 2011-08-26</p>	<p>IPC - International classification</p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">G06K-009/00*</td> <td style="border: none;">G06K-009/46</td> <td style="border: none;">G06K-009/64</td> </tr> <tr> <td style="border: none;">G08G-001/017</td> <td style="border: none;">G08G-001/054</td> <td style="border: none;">G08G-001/123</td> </tr> </table> <p>CPC - Cooperative classification</p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">G06K-009/00/785*</td> <td style="border: none;">G06V-020/54*</td> <td style="border: none;">G06V-020/625</td> </tr> </table>	G06K-009/00*	G06K-009/46	G06K-009/64	G08G-001/017	G08G-001/054	G08G-001/123	G06K-009/00/785*	G06V-020/54*	G06V-020/625
G06K-009/00*	G06K-009/46	G06K-009/64								
G08G-001/017	G08G-001/054	G08G-001/123								
G06K-009/00/785*	G06V-020/54*	G06V-020/625								

Family	
<p>EP2573709 A3 2017-05-17 </p> <p>CN102956106 B 2016-06-22 </p> <p>US9177211 B2 2015-11-03 </p> <p>AU2012216320 B2 2014-01-30 </p> <p>EP2573709 A2 2013-03-27 </p>	<p>AU2012216320 A1 2013-03-14 </p> <p>CN102956106 A 2013-03-06 </p> <p>DE102011053052 B3 2013-02-28 </p> <p>US20130050492 A1 2013-02-28 </p>

The invention relates to a method and a device for identification of motor vehicles for monitoring traffic. The object, a detection of motor (13) vehicle for identifying a suitable characteristics with minimal material expense and a motor vehicle identification regardless of the exact alignment of the device to make it possible, is achieved according to the invention, the image evaluation unit by (BA) means for detecting the proportions of a license plate contour in the (21) image (20) on the basis of stored standard license plate with the perspective distortion means for determining the size of the perspective distortion of the license plate based on the contour (21) associated with the standardized format license plate, means for generating a computing formula for perspective distortion of the license plate on the basis of the determined equalization contour (21) with respect to the associated license plate format as well as means for equalizing the extracted license plate occupied motor vehicle has view (14).



Title

Method and apparatus for identifying motor vehicles for monitoring traffic

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

GRANTED

GRANTED

GRANTED

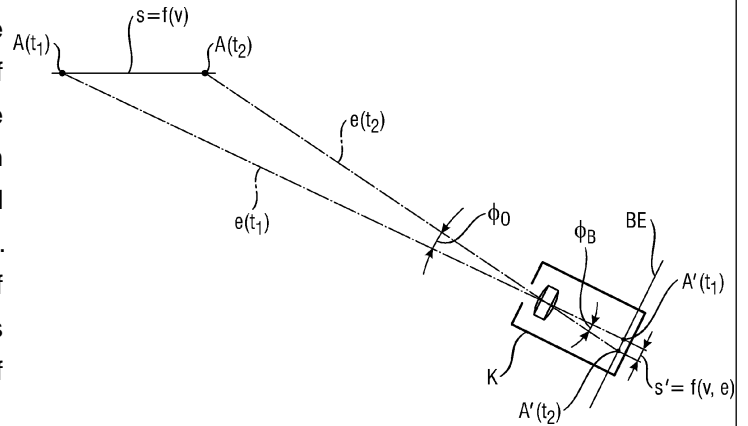
GRANTED

Method for verifying the speed of an appropriate vehicle by means of a camera DE102011053284 B3

<p>Current assignees JENOPTIK*</p> <p>Inventors LEHNING MICHAEL DR</p> <p>Priority data including date 2011DE-10053284 2011-09-05</p>	<p>IPC - International classification G01P-003/38* G08G-001/052</p> <p>CPC - Cooperative classification G01P-003/68 G08G-001/02 G08G-001/052* G08G-001/054</p>
--	---

Family	
<p>CN102981010 B 2017-11-28</p> <p>CN102981010 A 2013-03-20</p>	<p>DE102011053284 B8 2012-09-06</p> <p>DE102011053284 B3 2012-06-21</p>

The method involves creating several images of vehicle that pass through object region of camera (K) in roadway at the preset subsequent times. The location and orientation of vehicle with respect to roadway are detected. The distance traveled by vehicle between preset subsequent times in relative to camera is calculated as a function of speed based on travel direction so as to calculate object angle. The image angle is determined based on displacement of vehicle in images and intrinsic parameters of camera, and is compared with object angle for determining velocity of vehicle.



(From DE102011053284 B3)

Title

Method for verifying the speed of an appropriate vehicle by means of a camera

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL DR

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

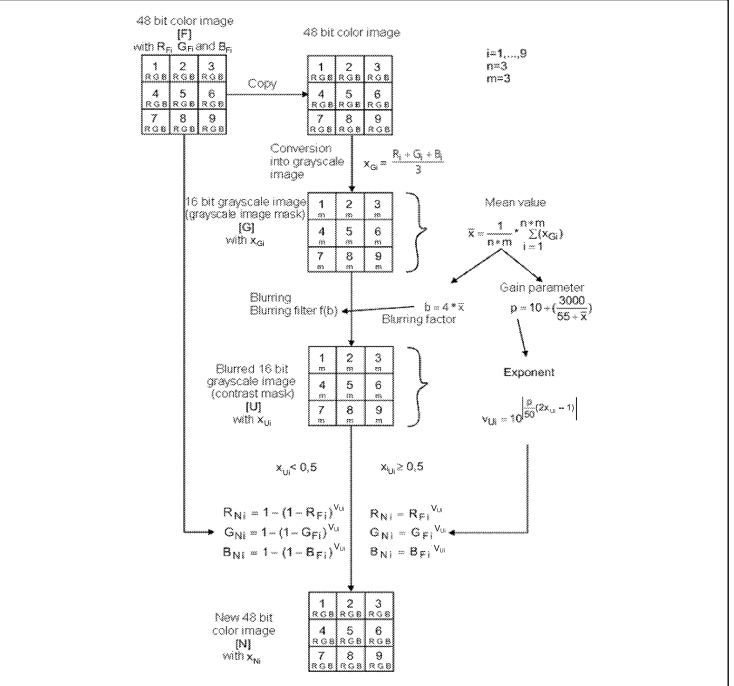
Method for carrying out a dynamic range compression in traffic photography

DE102011055269 A1

<p>Current assignees</p> <p>JENOPTIK*</p> <p>JENOPTIK* ROBOT GMBH</p> <p>Inventors</p> <p>KACHANT RALF</p> <p>Priority data including date</p> <p>2011DE-10055269 2011-11-11</p> <p>2012WO-DE100345 2012-11-10</p>	<p>IPC - International classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>G06T-005/00*</td> <td>G06T-005/20</td> <td>G06T-005/40</td> </tr> <tr> <td>G06T-009/00</td> <td>H04N-001/407</td> <td>H04N-001/56</td> </tr> <tr> <td>H04N-007/26</td> <td>H04N-009/64</td> <td>H04N-019/00</td> </tr> <tr> <td>H04N-019/117</td> <td>H04N-019/136</td> <td>H04N-019/182</td> </tr> <tr> <td>H04N-019/186</td> <td>H04N-019/98*</td> <td></td> </tr> </table> <p>CPC - Cooperative classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td>G06T-009/00*</td> <td>H04N-009/64/6</td> <td>H04N-019/117*</td> </tr> <tr> <td>H04N-019/136</td> <td>H04N-019/182</td> <td>H04N-019/186</td> </tr> <tr> <td>H04N-019/98</td> <td></td> <td></td> </tr> </table> <p>PCL - US patent classification</p> <p>PCLO: 382166000*</p>	G06T-005/00*	G06T-005/20	G06T-005/40	G06T-009/00	H04N-001/407	H04N-001/56	H04N-007/26	H04N-009/64	H04N-019/00	H04N-019/117	H04N-019/136	H04N-019/182	H04N-019/186	H04N-019/98*		G06T-009/00*	H04N-009/64/6	H04N-019/117*	H04N-019/136	H04N-019/182	H04N-019/186	H04N-019/98		
G06T-005/00*	G06T-005/20	G06T-005/40																							
G06T-009/00	H04N-001/407	H04N-001/56																							
H04N-007/26	H04N-009/64	H04N-019/00																							
H04N-019/117	H04N-019/136	H04N-019/182																							
H04N-019/186	H04N-019/98*																								
G06T-009/00*	H04N-009/64/6	H04N-019/117*																							
H04N-019/136	H04N-019/182	H04N-019/186																							
H04N-019/98																									

Family	
<p>CN103931198 B 2017-09-22</p> <p>AU2012334490 B9 2016-01-28</p> <p>US9153038 B2 2015-10-06</p> <p>AU2012334490 B2 2015-09-10</p> <p>US20140355875 A1 2014-12-04</p> <p>EP2777271 A2 2014-09-17</p>	<p>DE112012004684 A5 2014-08-21</p> <p>CN103931198 A 2014-07-16</p> <p>AU2012334490 A1 2014-05-22</p> <p>WO2013/068006 A3 2013-10-31</p> <p>DE102011055269 A1 2013-05-16</p> <p>WO2013/068006 A2 2013-05-16</p>

The invention relates to a method for carrying out a dynamic range compression in traffic photography for representation having greater detail fidelity in images created in connection with traffic monitoring installations. The problem addressed by the invention is that of finding a possibility for achieving, in the case of digitally obtained images in traffic photography, whilst precluding the different subjective influences on the part of the processing personnel, a representation of the dark regions with greater detail fidelity, without the information of the brighter regions being lost in the process. According to the invention, this problem is solved by means of a method for carrying out a specific dynamic range compression in traffic photography.



Title

Method for carrying out a dynamic range compression in traffic photography

Current assignees

JENOPTIK

JENOPTIK ROBOT GMBH

Inventors

KACHANT RALF

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

GRANTED

LAPSED

LAPSED

LAPSED

GRANTED

GRANTED

Method for verifying the alignment of a traffic monitoring device DE102012102600 B3

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> TRUMMER DR MICHAEL LEHNING DR MICHAEL SEIDEL WOLFGANG</p> <p><u>Priority data including date</u> 2012DE-10102600 2012-03-26</p>	<p><u>IPC - International classification</u> G01B-011/00 G06T-007/00* G08G-001/054* G08G-001/097</p> <p><u>CPC - Cooperative classification</u> G06T-007/00/18 G06T-007/80* G06T-2207/30236 G08G-001/054 G08G-001/097</p>
--	--

<u>Family</u>							
AU2013201818	B2	2014-01-16		EP2645331	A1	2013-10-02	
AU2013201818	A1	2013-10-10		DE102012102600	B3	2013-08-14	

Method for verifying a measuring position for a traffic monitoring device (1), in the case of which a measuring position aligned with a camera of a (2) traffic monitoring device (1) in a calibration reference image of a traffic scene is received and used to verify the measuring position with a camera (2), which camera (2) or a traffic monitoring device (1) together with the exchanged these other camera (2) can be, at intervals of a time calibration test images are captured, the calibration reference image are compared with, wherein the images of identical static test features and their positional deviations are determined and selected tolerance limits are compared with predetermined image with respect to one another, in order to be able to confirm or cancel the measurements made to be valid.

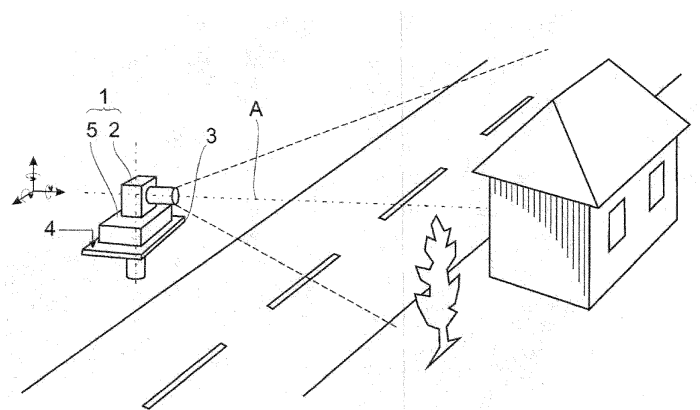


Fig. 1

Title

Method for verifying the alignment of a traffic monitoring device

Current assignees

JENOPTIK

Inventors

TRUMMER DR MICHAEL

LEHNING DR MICHAEL

SEIDEL WOLFGANG

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

GRANTED

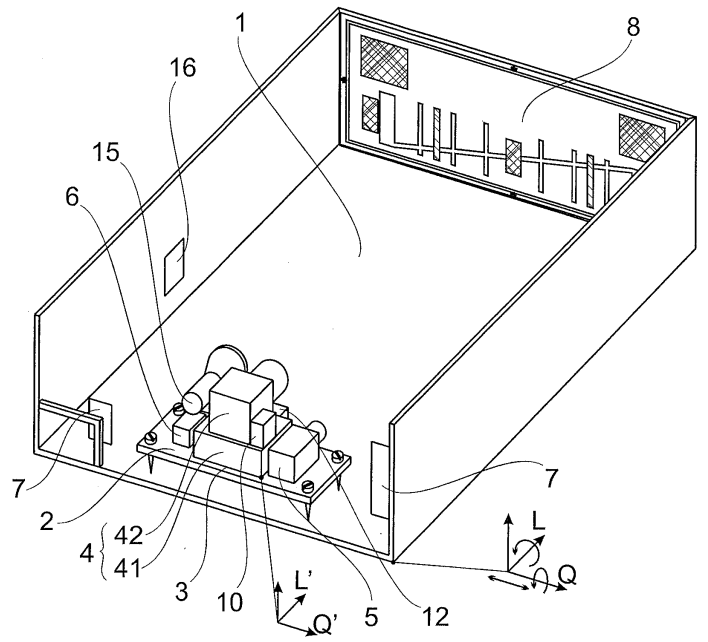
GRANTED

Testing device and testing method for a traffic monitoring device with a laser scanner DE102012102651 B3

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING MICHAEL DR GEBAUER CHRISTOPH DR TRUMMER MICHAEL DR</p> <p><u>Priority data including date</u> 2012DE-10102651 2012-03-27</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">G01B-011/26</td> <td style="border: none;">G01B-011/27</td> <td style="border: none;">G01M-011/00</td> </tr> <tr> <td style="border: none;">G01M-011/02</td> <td style="border: none;">G01S-007/497*</td> <td style="border: none;">G01S-017/00</td> </tr> <tr> <td style="border: none;">G08G-001/00*</td> <td style="border: none;">H04N-017/00</td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u> G01B-011/26 G01S-007/497/2*</p> <p><u>PCL - US patent classification</u> PCLO: 356401000*</p>	G01B-011/26	G01B-011/27	G01M-011/00	G01M-011/02	G01S-007/497*	G01S-017/00	G08G-001/00*	H04N-017/00	
G01B-011/26	G01B-011/27	G01M-011/00								
G01M-011/02	G01S-007/497*	G01S-017/00								
G08G-001/00*	H04N-017/00									

<u>Family</u>							
AU2013201856	B2	2015-04-09	📄 🔗 🏛️ 📄	US20130258340	A1	2013-10-03	📄 🔗 🏛️ 📄
CN103364178	A	2013-10-23	📄 🔗 🏛️ 📄	EP2645121	A1	2013-10-02	📄 🔗 🏛️ 📄
AU2013201856	A1	2013-10-17	📄 🔗 🏛️ 📄	DE102012102651	B3	2013-07-18	📄 🔗 🏛️ 📄

The invention relates to a testing device and a test method for a traffic monitoring device (4) with a laser (41) scanner. The test device has an adjustment plate (2) having a receiving space (3) for receiving a defined traffic monitoring device (4) and a measuring board (8) to be tested on. On the measuring board (8), a matte black surface has, along an imaginary straight line is a line pattern (G), the in the height of the target scan plane is, provided. On the straight line (G) are vertically lines (92.1) and a diagonal line (92.2) arranged, wherein the diagonal line (92.2) with the straight line (G) an angle (α) includes, is selected to have, that laser pulses emitted by the laser (41) scanner at least three laser spots with a desired laser spot width (SB) and a desired laser spot length (SL) on the diagonal line (92.2) form. The test method makes particular use of the of the diagonal line (92.2) reflected laser pulses, in order from the amplitude (A) received signals derived from it in a quality-curve of the amplitude (A) over the scan angle (Φ) and evaluate these to form.



Title

Testing device and testing method for a traffic monitoring device with a laser scanner

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL DR

GEBAUER CHRISTOPH DR

TRUMMER MICHAEL DR

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

LAPSED

GRANTED






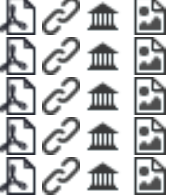




LAPSED

GRANTED

Device and method for identifying and documenting at least one object passing through an irradiation field

DE102012106860 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING DR MICHAEL</p> <p><u>Priority data including date</u> 2012DE-10106860 2012-07-27 2013EP-0176747 2013-07-16</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01S-003/782</td> <td>G01S-005/00</td> <td>G01S-013/86</td> </tr> <tr> <td>G01S-013/91</td> <td>G01S-013/92*</td> <td>G01S-017/42</td> </tr> <tr> <td>G01S-017/86</td> <td>G01S-017/88</td> <td>G08G-001/017</td> </tr> <tr> <td>G08G-001/054</td> <td>H04N-013/02</td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01S-013/86/7*</td> <td>G01S-013/92</td> <td>G01S-017/42</td> </tr> <tr> <td>G01S-017/86</td> <td>G08G-001/017/5</td> <td>H04N-013/25</td> </tr> <tr> <td>H04N-013/254</td> <td></td> <td></td> </tr> </table>	G01S-003/782	G01S-005/00	G01S-013/86	G01S-013/91	G01S-013/92*	G01S-017/42	G01S-017/86	G01S-017/88	G08G-001/017	G08G-001/054	H04N-013/02		G01S-013/86/7*	G01S-013/92	G01S-017/42	G01S-017/86	G08G-001/017/5	H04N-013/25	H04N-013/254		
G01S-003/782	G01S-005/00	G01S-013/86																				
G01S-013/91	G01S-013/92*	G01S-017/42																				
G01S-017/86	G01S-017/88	G08G-001/017																				
G08G-001/054	H04N-013/02																					
G01S-013/86/7*	G01S-013/92	G01S-017/42																				
G01S-017/86	G08G-001/017/5	H04N-013/25																				
H04N-013/254																						

<u>Family</u>			
PL2690459	T3	2017-10-31	
ES2628895	T3	2017-08-04	
LT2690459	T	2017-07-25	
DK2690459	T3	2017-07-17	
EP2690459	B1	2017-03-29	
EP2690459	A3	2014-10-22	
AU2013209360	A1	2014-02-13	
DE102012106860	A1	2014-02-13	
CN103578278	A	2014-02-12	
EP2690459	A2	2014-01-29	

The invention relates to a device and a method for identifying and documenting of at least one, passing through a field of view (5), object (8). In this case, the apparatus includes a radiation-measuring sensor (1) as well as two cameras (2) (3) are arranged such, that the sensor-radiation field (1.4) and the two object fields (2.3), (3.3) form a common overlapping area, which the measurement field can be (5) determined. In carrying out the method according to the invention by means of the sensor (1) data is extracted and sensor position measurement time points (1) to triggering times with the cameras (2), (3) image recordings are made of the image data of which camera position data can be calculated. The sensor position data and the camera position data are compared with each other and checked for plausibility. Prior to lie plausibility, as the object is considered to (8) reliably identified.

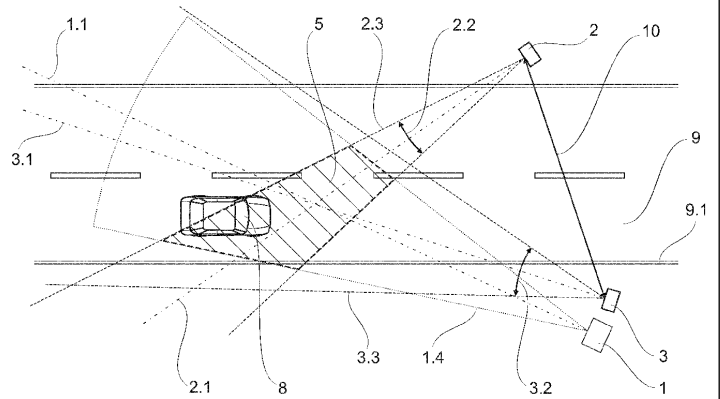


Fig. 3

Title

Device and method for identifying and documenting at least one object passing through an irradiation field

Current assignees

JENOPTIK

Inventors

LEHNING DR MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

LAPSED

LAPSED

GRANTED

GRANTED

GRANTED

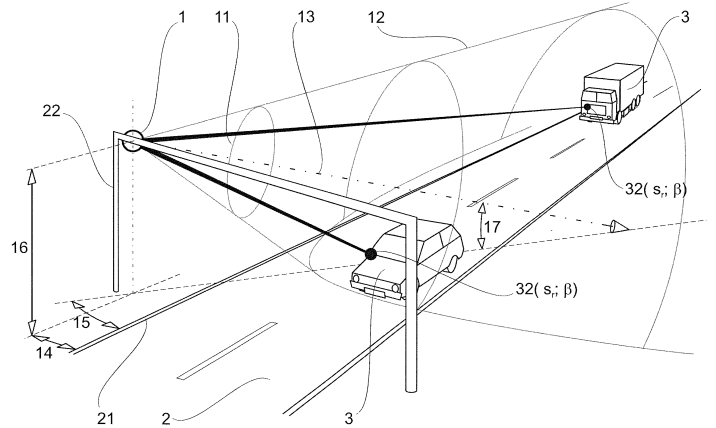
GRANTED

Method for classifying moving vehicles by tracking a position size of the vehicle DE102012107444 B3

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING MICHAEL</p> <p><u>Priority data including date</u> 2012DE-10107444 2012-08-14</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01S-007/41*</td> <td>G01S-013/42</td> <td>G01S-013/58</td> </tr> <tr> <td>G01S-013/66</td> <td>G01S-013/91</td> <td>G08G-001/01</td> </tr> <tr> <td>G08G-001/015*</td> <td>G08G-001/017</td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01S-007/41</td> <td>G01S-013/58/4</td> <td>G01S-013/58/9*</td> </tr> <tr> <td>G01S-013/91</td> <td>G08G-001/01/16*</td> <td>G08G-001/015</td> </tr> </table>	G01S-007/41*	G01S-013/42	G01S-013/58	G01S-013/66	G01S-013/91	G08G-001/01	G08G-001/015*	G08G-001/017		G01S-007/41	G01S-013/58/4	G01S-013/58/9*	G01S-013/91	G08G-001/01/16*	G08G-001/015
G01S-007/41*	G01S-013/42	G01S-013/58														
G01S-013/66	G01S-013/91	G08G-001/01														
G08G-001/015*	G08G-001/017															
G01S-007/41	G01S-013/58/4	G01S-013/58/9*														
G01S-013/91	G08G-001/01/16*	G08G-001/015														

<u>Family</u>			
CN103593979	B	2017-07-07	📄 🔗 🏛️ 📄
AU2013216597	B2	2017-03-23	📄 🔗 🏛️ 📄
US9304197	B2	2016-04-05	📄 🔗 🏛️ 📄
RU2013137830	A	2015-02-20	📄 🔗 🏛️ 📄
AU2013216597	A1	2014-03-06	📄 🔗 🏛️ 📄
US20140049419	A1	2014-02-20	📄 🔗 🏛️ 📄
CN103593979	A	2014-02-19	📄 🔗 🏛️ 📄
EP2698646	A1	2014-02-19	📄 🔗 🏛️ 📄
DE102012107444	B3	2013-03-07	📄 🔗 🏛️ 📄

Method in the case of vehicles (3) when it travels through a radar cone (12) and the measuring time points are measured several times (tn) assigned specific position sizes (32) may be formed. This can be a specific radial distance (sr) or a specific object angle (β) be. The temporal change thereof is applied to a portion of a discontinuity (U) analyzed. The length of this portion is dependent on the length of the (3) vehicle and allows a classification.



Title

Method for classifying moving vehicles by tracking a position size of the vehicle

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

GRANTED

GRANTED

LAPSED

GRANTED

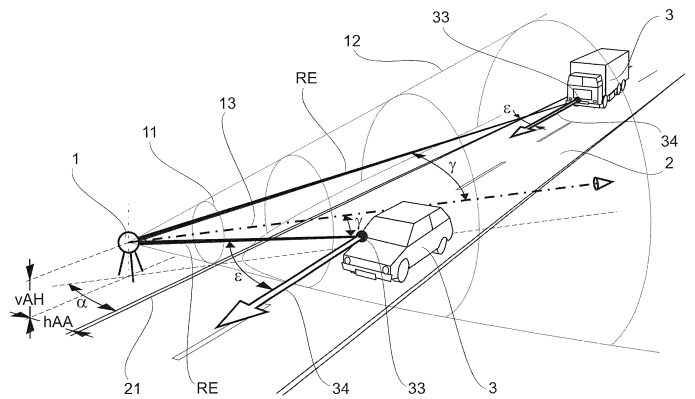
GRANTED

Method for classifying vehicles in motion DE102012107445 A1

<p>Current assignees JENOPTIK*</p> <p>Inventors LEHNING MICHAEL PRÖFROCK DIMA</p> <p>Priority data including date 2012DE-10107445 2012-08-14 2013EP-0179175 2013-08-02</p>	<p>IPC - International classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">G01S-007/41</td> <td style="width: 33%;">G01S-013/00</td> <td style="width: 33%;">G01S-013/08</td> </tr> <tr> <td>G01S-013/42</td> <td>G01S-013/50</td> <td>G01S-013/52</td> </tr> <tr> <td>G01S-013/58</td> <td>G01S-013/66</td> <td>G01S-013/91*</td> </tr> <tr> <td>G08G-001/015</td> <td>G08G-001/017</td> <td></td> </tr> </table> <p>CPC - Cooperative classification</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">G01S-007/41*</td> <td style="width: 33%;">G01S-013/00*</td> <td style="width: 33%;">G01S-013/52</td> </tr> <tr> <td>G01S-013/91</td> <td>G08G-001/015</td> <td></td> </tr> </table>	G01S-007/41	G01S-013/00	G01S-013/08	G01S-013/42	G01S-013/50	G01S-013/52	G01S-013/58	G01S-013/66	G01S-013/91*	G08G-001/015	G08G-001/017		G01S-007/41*	G01S-013/00*	G01S-013/52	G01S-013/91	G08G-001/015	
G01S-007/41	G01S-013/00	G01S-013/08																	
G01S-013/42	G01S-013/50	G01S-013/52																	
G01S-013/58	G01S-013/66	G01S-013/91*																	
G08G-001/015	G08G-001/017																		
G01S-007/41*	G01S-013/00*	G01S-013/52																	
G01S-013/91	G08G-001/015																		

Family			
ES2764775	T3	2020-06-04	
PL2698648	T3	2020-05-18	
LT2698648	T	2020-02-10	
EP2698648	B1	2019-10-30	
CN103593980	B	2017-05-17	
AU2013216598	B2	2017-03-09	
RU2608590	C2	2017-01-23	
US9341707	B2	2016-05-17	
DE102012107445	B8	2016-04-28	
DE102012107445	B4	2016-03-03	
RU2013137825	A	2015-02-20	
DE102012107445	A1	2014-05-15	
AU2013216598	A1	2014-03-06	
US20140049420	A1	2014-02-20	
CN103593980	A	2014-02-19	
EP2698648	A1	2014-02-19	

The invention relates to a method for classifying vehicles (3), to an angular resolution radar (1) device, in the case of the measurement (4) signals with frequencies corresponding to the doppler shift (f_D), caused by appropriate vehicles (3) provides, from which radial distances (RE), object angle (γ) and radial velocities may be derived. The invention relates to the frequencies of the detected measuring signals (4) as functions over the measuring time (t) stored and a spectrogram formed from these per vehicle (3). Subsequently the spectrograms on evaluation areas (BB) with maximum bandwidth of the frequency checked. This evaluation areas (BB) with evaluation areas are stored for different vehicle classes spectrograms compared and associated with the most similar, whereby the appropriate vehicles (3) are classified.



Title

Method for classifying vehicles in motion

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

PRÖFROCK DIMA

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

GRANTED

GRANTED

GRANTED

GRANTED

GRANTED

GRANTED

GRANTED

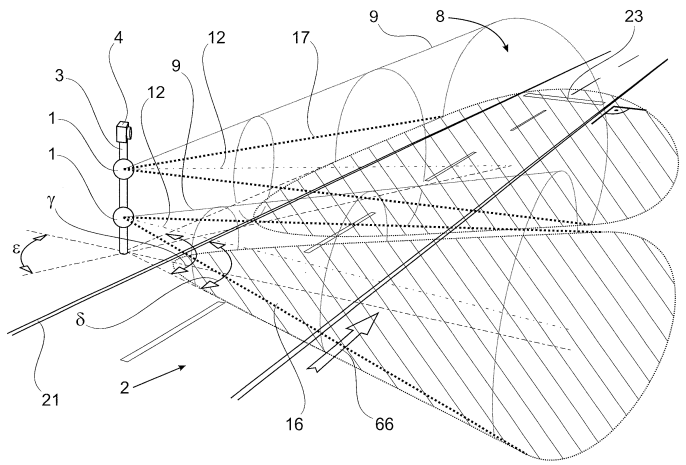
Method and assembly for detecting traffic offences in an area with traffic lights by measuring the rear of vehicles using a radar device DE102012112754 A1

<p><u>Current assignees</u> JENOPTIK* JENOPTIK* ROBOT GMBH</p> <p><u>Inventors</u> LEHNING MICHAEL</p> <p><u>Priority data including date</u> 2012DE-10112754 2012-12-20</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01S-007/03</td> <td>G01S-007/41</td> <td>G01S-013/34</td> </tr> <tr> <td>G01S-013/42*</td> <td>G01S-013/58*</td> <td>G01S-013/86</td> </tr> <tr> <td>G01S-013/91</td> <td>G01S-013/92</td> <td>G08G-001/017</td> </tr> <tr> <td>G08G-001/04</td> <td>G08G-001/052</td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01S-013/42*</td> <td>G01S-013/58</td> <td>G01S-013/86/7*</td> </tr> <tr> <td>G01S-013/91</td> <td>G08G-001/04</td> <td></td> </tr> </table>	G01S-007/03	G01S-007/41	G01S-013/34	G01S-013/42*	G01S-013/58*	G01S-013/86	G01S-013/91	G01S-013/92	G08G-001/017	G08G-001/04	G08G-001/052		G01S-013/42*	G01S-013/58	G01S-013/86/7*	G01S-013/91	G08G-001/04	
G01S-007/03	G01S-007/41	G01S-013/34																	
G01S-013/42*	G01S-013/58*	G01S-013/86																	
G01S-013/91	G01S-013/92	G08G-001/017																	
G08G-001/04	G08G-001/052																		
G01S-013/42*	G01S-013/58	G01S-013/86/7*																	
G01S-013/91	G08G-001/04																		

<u>Family</u>			
TR201819655	T4	2019-01-21	📄 🔗 🏠 📄
EP2746803	B1	2018-09-19	📄 🔗 🏠 📄
AU2013273641	B2	2017-05-18	📄 🔗 🏠 📄
US9417319	B2	2016-08-16	📄 🔗 🏠 📄
AU2013273641	A1	2014-07-10	📄 🔗 🏠 📄
DE102012112754	A1	2014-06-26	📄 🔗 🏠 📄
US20140176360	A1	2014-06-26	📄 🔗 🏠 📄
EP2746803	A1	2014-06-25	📄 🔗 🏠 📄

The invention relates to a method and a device for detecting a traffic violation heckanmessung in a traffic light with a FMCW radar (1) range.

In this case during the passage of a (6) vehicle through a radar radiation (11) of a FMCW radar device (1), whose first outer edge beam (16) horizontally an obtuse angle (δ) includes with the edge of the roadway (21), both its front of the vehicle (63), a vehicle flank (64) and the rear of the vehicle (65) appropriately. From the obtained measurement signals is the length of the vehicle (l) is determined and to the specific radial distance (rn) of the (6) vehicle, the near a stop (23) line by the rear of the vehicle (66) is determined, and adds the travel of the front of the vehicle (63) with the aid of the predicted vehicle speed over the stop (23) line.



Title

Method and assembly for detecting traffic offences in an area with traffic lights by measuring the rear of vehicles using a radar device

Current assignees

JENOPTIK

JENOPTIK ROBOT GMBH

Inventors

LEHNING MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

LAPSED

GRANTED

GRANTED

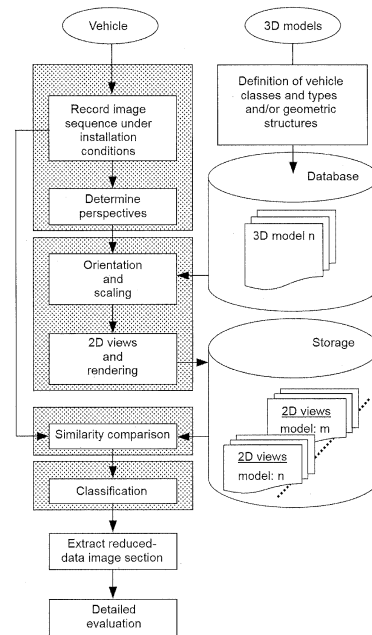
Method for the automatic classification of moving vehicles DE102012113009 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING DR MICHAEL</p> <p><u>Priority data including date</u> 2012DE-10113009 2012-12-21</p>	<p><u>IPC - International classification</u> G06K-009/00* G06K-009/62 G06K-009/68 G06T-007/269 G08G-001/015* G08G-001/017 H04N-013/02</p> <p><u>CPC - Cooperative classification</u> G06V-020/54 G06V-020/625 G06V-020/647 H04N-013/02/75* H04N-013/275*</p> <p><u>PCL - US patent classification</u> PCLO: 348046000*</p>
---	--

<u>Family</u>	
<p>CN103886757 B 2019-04-19 </p> <p>EP2746990 A3 2016-11-02 </p> <p>AU2013273715 A1 2014-07-10 </p> <p>DE102012113009 A1 2014-06-26 </p>	<p>US20140176679 A1 2014-06-26 </p> <p>CN103886757 A 2014-06-25 </p> <p>EP2746990 A2 2014-06-25 </p>

The invention relates to a method for classifying a moving vehicle.

The aim of the invention, a novel possibility for classifying traffic in the moving vehicles can be found, the two-dimensional image data on the basis of a reliable automatic classification allows, is solved according to the invention, by taking an image of the vehicle by means of a camera perspective and orientation of the vehicle captured and subsequently processed to position can be determined, rendered 2D-views from stored in a database in positions along an expected path 3D-vehicle models of the vehicle and generates with the captured image of the vehicle are compared and from the discovered 2D-view with the best match the classification of the vehicle by assignment of the associated 3D-vehicle model is carried out.



Title

Method for the automatic classification of moving vehicles

Current assignees

JENOPTIK

Inventors

LEHNING DR MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

LAPSED

LAPSED

LAPSED

LAPSED

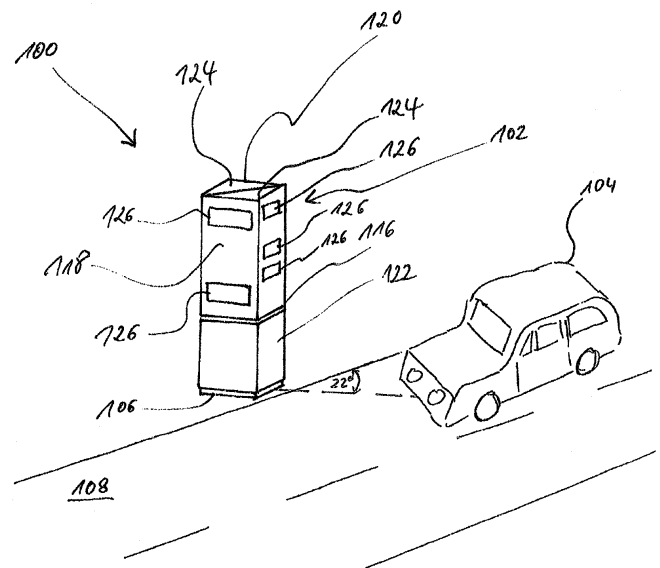
GRANTED

Device for a system for monitoring vehicles in traffic DE102013006942 B3

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> PÄTZOLDT VOLKER BÜNGER THOMAS MASERSKI STEPHAN FRIESSNER JÖRG</p> <p><u>Priority data including date</u> 2013DE-10006942 2013-04-23</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">F16M-011/04</td> <td style="width: 33%;">F16M-011/08</td> <td style="width: 33%;">G01D-011/24</td> </tr> <tr> <td>G08G-001/00</td> <td>G08G-001/01</td> <td>G08G-001/017</td> </tr> <tr> <td>G08G-001/054*</td> <td>H02B-001/30</td> <td>H05K-005/00</td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">F16M-011/08</td> <td style="width: 33%;">G08G-001/017/5</td> <td style="width: 33%;">G08G-001/054*</td> </tr> <tr> <td colspan="3">H05K-005/00*</td> </tr> </table>	F16M-011/04	F16M-011/08	G01D-011/24	G08G-001/00	G08G-001/01	G08G-001/017	G08G-001/054*	H02B-001/30	H05K-005/00	F16M-011/08	G08G-001/017/5	G08G-001/054*	H05K-005/00*		
F16M-011/04	F16M-011/08	G01D-011/24														
G08G-001/00	G08G-001/01	G08G-001/017														
G08G-001/054*	H02B-001/30	H05K-005/00														
F16M-011/08	G08G-001/017/5	G08G-001/054*														
H05K-005/00*																

<u>Family</u>			
EP2797064	B1	2019-06-19	
CN104123839	B	2018-09-18	AU2014202148
US9462706	B2	2016-10-04	A1 2014-11-06
EP2797064	A3	2015-04-01	A 2014-10-29
AU2014202148	B2	2014-12-18	A2 2014-10-29
			A1 2014-10-23
			B3 2014-04-30

The invention relates to a (100) device for a system (102) for traffic monitoring of vehicles (104) in traffic, wherein the device (100) has a first holding (110) frame and a second holding (112) frame, can be secured relative the with internal fixing (332) elements are, wherein at least the first holding (110) frame a cylindrical, in particular parallelepipedal, shape, wherein in the first holding (110) frame at least one device for (113) detecting a traffic situation can be or is arranged, wherein at least the first retaining (110) frame from four sides is accessible.



Title

Device for a system for monitoring vehicles in traffic

Current assignees

JENOPTIK

Inventors

PÄTZOLDT VOLKER

BÜNGER THOMAS

MASERSKI STEPHAN

FRIESSNER JÖRG

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

GRANTED

GRANTED

LAPSED

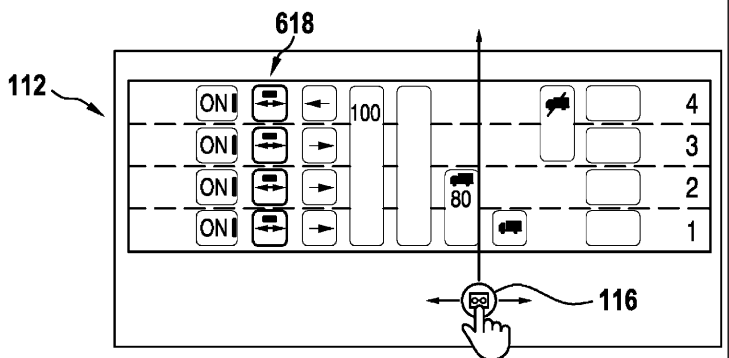
Method and controller for setting up traffic monitoring for a monitoring location, and system for carrying out traffic monitoring for a monitoring location

DE102018133178 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> GIERSIEPEN BEATE SCHWARZ MATTHIAS DORAU RAINER KIENITZ STEFAN</p> <p><u>Priority data including date</u> 2018DE-10133178 2018-12-20 2019WO-EP84713 2019-12-11</p>	<p><u>IPC - International classification</u> G06F-003/0484* G06F-003/0486 G06F-003/0488 G08G-001/00 G08G-001/01 G08G-001/015 G08G-001/052</p> <p><u>CPC - Cooperative classification</u> G06F-003/0484/7* G06F-003/0486 G06F-003/0488/3* G06F-2203/04808 G08G-001/01/04 G08G-001/015 G08G-001/052</p>
--	---

<u>Family</u>	
<p>AU2019411655 B2 2022-10-27 </p> <p>US20220050587 A1 2022-02-17 </p> <p>EP3899706 A1 2021-10-27 </p> <p>CN113272771 A 2021-08-17 </p>	<p>AU2019411655 A1 2021-07-08 </p> <p>DE102018133178 A1 2020-06-25 </p> <p>WO2020/126761 A1 2020-06-25 </p>

The invention relates to a method for setting up traffic monitoring for a monitoring location. The method has a step of outputting a display signal (140) to a user interface (110). The display signal (140) is suitable for effecting the display of at least one image symbol (114, 116), relating to at least one configurable parameter of the traffic monitoring, in a combined overview (112) for the monitoring location by means of the user interface (110). The at least one image symbol (114, 116) can be influenced by gestural interaction with a user in order to configure the at least one configurable parameter. The method also has a step of reading in a user input signal (150) from the user interface (110). The user input signal (150) represents an input by the user, made by gestural interaction with the at least one image symbol (114, 116) and recognised by gesture recognition, to configure the at least one parameter. The method further has a step of configuring the at least one configurable parameter depending on the user input signal (150) in order to set up traffic monitoring.



Title

Method and controller for setting up traffic monitoring for a monitoring location, and system for carrying out traffic monitoring for a monitoring location

Current assignees

JENOPTIK

Inventors

GIERSIEPEN BEATE

SCHWARZ MATTHIAS

DORAU RAINER

KIENITZ STEFAN

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

LAPSED

LAPSED

PENDING

PENDING

GRANTED

Method and device for monitoring road traffic DE102004044887 A1

<p>Current assignees RADARLUX RADAR SYSTEMS* RADARLUX RADAR SYSTEMS* 51371 LEVERKUSEN</p> <p>Inventors WIENAND HANS THEODOR</p> <p>Priority data including date 2004DE-10044887 2004-09-14</p>	<p>IPC - International classification G03B-015/02 G03C-005/04 G08G-001/017*</p> <p>CPC - Cooperative classification G08G-001/017/5*</p>
---	---

Family	
<p>DE502005002387 D1 2008-02-14 </p> <p>AT382924 T 2008-01-15 </p> <p>EP1650724 B1 2008-01-02 </p>	<p>EP1650724 A1 2006-04-26 </p> <p>DE102004044887 A1 2006-03-30 </p>

Road traffic monitoring method for use in crossings, involves arranging light-diminishing filter in path of rays of flashgun for diminishing light of flashgun, where light impinges on strongly reflecting number plate of vehicle

The method involves arranging a light-diminishing filter (9) in a path of rays of a flashgun (5) that illuminates a vehicle. The light of the flashgun is diminished by the filter, where the light impinges on a strongly reflecting number plate of the vehicle. Light permeability of a translucent component e.g. liquid crystal display (LCD) surface, is electronically steered in an area that illuminates the number plate. An independent claim is also included for a device for monitoring of road traffic.

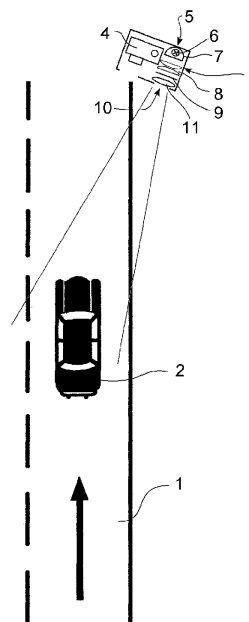


Fig. 1

Title

Method and device for monitoring road traffic

Current assignees

RADARLUX RADAR SYSTEMS

RADARLUX RADAR SYSTEMS 51371 LEVERKUSEN

Inventors

WIENAND HANS THEODOR

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

GRANTED

LAPSED

Method for the high-precision three-dimensional measurement and/or reconstruction of objects with the aid of digital image recordings, for example for the image evaluation of traffic routes

DE102005043070 A1

<p><u>Current assignees</u> FRIEDRICH SCHILLER UNIVERSITAT JENA JENOPTIK*</p> <p><u>Inventors</u> TRUMMER MICHAEL</p> <p><u>Priority data including date</u> 2005DE-10043070 2005-09-07</p>	<p><u>IPC - International classification</u> G01B-011/24*</p> <p><u>CPC - Cooperative classification</u> G01B-011/24* G06T-007/55 G06T-007/80</p>
--	---

Family

[DE102005043070](#)

B4 2017-01-26

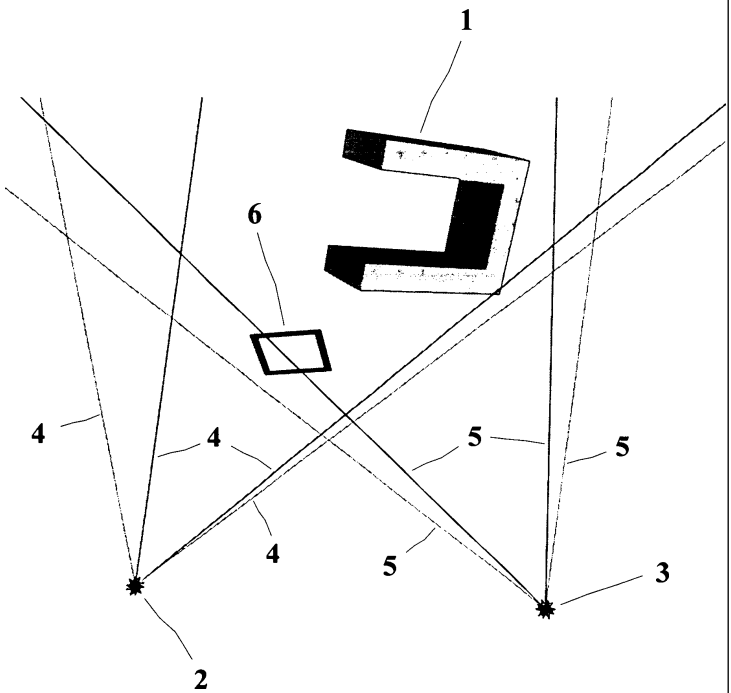


[DE102005043070](#)

A1 2007-03-08



Method for high-precision three-dimensional measurement and/or reconstruction of objects with the aid of digital image recordings, for example for image evaluation of traffic routes, in which at least two digital images of the object are recorded from different camera positions with a camera to be calibrated once with respect to the parameters before the first application, with simultaneous imaging of a reference element of known geometry inserted into the object view, in which the evaluation of the recorded images of the object is carried out for the three-dimensional measurement or measurement thereof. Reconstruction in each case the reference element is determined, in which in the recorded images in each case the pixel or pixels of the spatial point or points to be evaluated and subsequently taking into account the determined three-dimensional camera positions of the recorded images of the spatial point or points to be evaluated themselves are determined and in which in the case of reconstruction of the object the 3 d coordinates of the spatial point or points to be evaluated or in the case of the measurement, the determined distance or distances between the spatial points to be evaluated are calculated, characterized-in that a planar quadrilateral is inserted into the object view as a reference element in order to record the at least two digital images of the object,-in that the image coordinates of the corner points of the respectively imaged planar quadrilateral are determined during the evaluation of the recorded digital images, -the positions of the corner points of the planar quadrilateral of each recorded digital image are determined in each case from the camera viewpoint of the image-recording-specific 3 d coordinate representation, and-in that the three-dimensional camera positions of the image recordings are determined from these in each case from the camera viewpoint of the image recordings of specific 3 d coordinates of the corner points of the planar quadrilateral, in that an optimized transformation is calculated with these 3 d coordinates of the corner points for in each case two images, which transformation converts 3 d point correspondences between the cameras into one another only by Translation and rotation, wherein a representation of the transformation with dual unit quaternions is used so that by...



Title

Method for the high-precision three-dimensional measurement and/or reconstruction of objects with the aid of digital image recordings, for example for the image evaluation of traffic routes

Current assignees

FRIEDRICH SCHILLER UNIVERSITAT JENA

JENOPTIK

Inventors

TRUMMER MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

Traffic monitoring device with a device housing with vertical drawer

DE202007004950 U1

Current assignees

JENOPTIK
ROBOT VISUAL SYSTEMS*

Inventors

FLIEGEN MARKUS

Priority data including date

2007DE-20004950 2007-03-29

IPC - International classification

G01S-007/481* G08G-001/00

CPC - Cooperative classification

G01S-007/481/3* G01S-007/497/2 G08G-001/04

Family

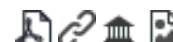
[EP1975642](#)

B1 2015-12-02



[DE202007004950](#)

U1 2007-06-14



[EP1975642](#)

A1 2008-10-01

Traffic monitoring device e.g. vehicle detector arrangement, for use at parapet of roadway, has device modules such as camera, arranged in insertion of housing by adjustable fasteners, where insertion is vertically movable in housing trough

The device has a housing, in which a set of device modules such as camera, is arranged, where beam axes of the modules align to one another and to environment characteristics after assembling the traffic monitoring device at a location. The housing has an outer housing trough (1), an insertion vertically movable in the trough, and a housing roof (3) connected with the insertion. The modules are arranged in the insertion by adjustable fasteners.

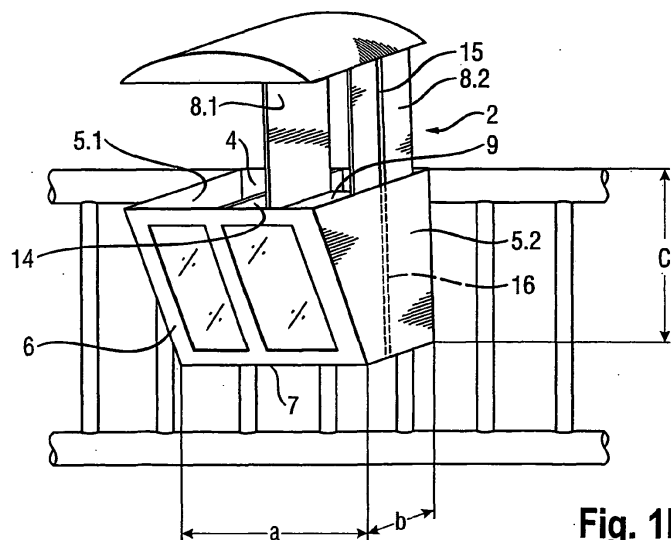


Fig. 1b

Title

Traffic monitoring device with a device housing with vertical drawer

Current assignees

JENOPTIK

ROBOT VISUAL SYSTEMS

Inventors

FLIEGEN MARKUS

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

EXPIRED

Method and device for determining the automobile class of automobiles

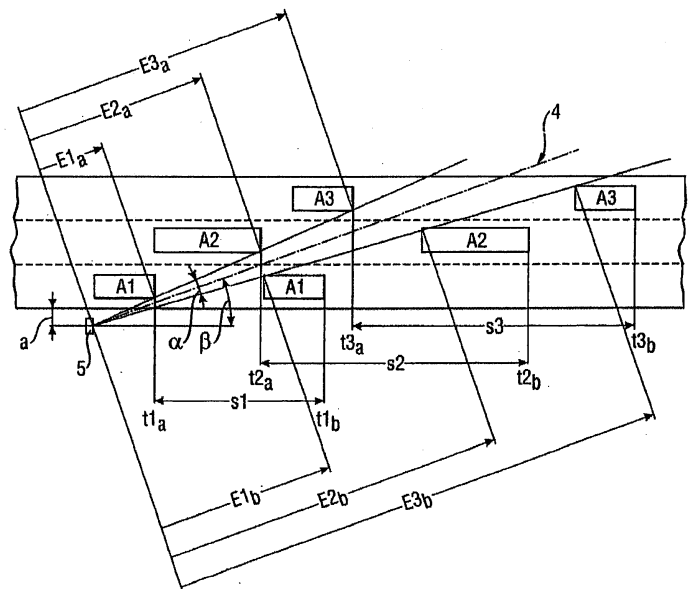
DE102007022372 A1

<p>Current assignees</p> <p>JENOPTIK JENOPTIK ROBOT 40789 MONHEIM ROBOT VISUAL SYSTEMS</p> <p>Inventors</p> <p>BEHRENS ANDREAS</p> <p>Priority data including date</p> <p>2007DE-10022372 2007-05-07 2008EP-0008406 2008-05-05</p>	<p>IPC - International classification</p> <p>G01S-007/41 G01S-013/08 G01S-013/58 G01S-013/92* G08G-001/015 G08G-001/052</p> <p>CPC - Cooperative classification</p> <p>G01S-007/41 G01S-013/92* G08G-001/015</p> <p>PCL - US patent classification</p> <p>PCLO: 342109000* PCLX: 342118000</p>
---	---

Family	
<p>AU2008201990 B2 2011-04-14</p> <p>PL1990654 T3 2010-07-30</p> <p>ES2336968 T3 2010-04-19</p> <p>PT1990654 E 2010-03-19</p> <p>DE502008000235 D1 2010-01-21</p> <p>AT451629 T 2009-12-15</p>	<p>EP1990654 B1 2009-12-09</p> <p>AU2008201990 A1 2008-11-27</p> <p>DE102007022372 A1 2008-11-13</p> <p>US20080278366 A1 2008-11-13</p> <p>EP1990654 A1 2008-11-12</p>

Method for classification of vehicles by its vehicle length, involves positioning radar radiation on track in form of radar pin with opening angle horizontally below top adjusting angle with distance to track

The method involves positioning a radar radiation on a track in form of a radar pin (4) with an opening angle (alpha) horizontally below a top adjusting angle (beta) with a distance (a) to the track. A displacement value is determined from the signals, by which a pass through route is closed, through which the vehicles (A1,A2,A3) pass through the radar pin and the vehicle length is determined from the difference between the driving route (s1,s2,s3) and the pass through route. The vehicle length is compared with typical vehicle length for individual vehicle class, to classify the vehicle. An independent claim is also included for a device for classification of vehicles by its vehicle length.



Title

Method and device for determining the automobile class of automobiles

Current assignees

JENOPTIK

JENOPTIK ROBOT 40789 MONHEIM

ROBOT VISUAL SYSTEMS

Inventors

BEHRENS ANDREAS

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

LAPSED

GRANTED

GRANTED

GRANTED

GRANTED

GRANTED

GRANTED

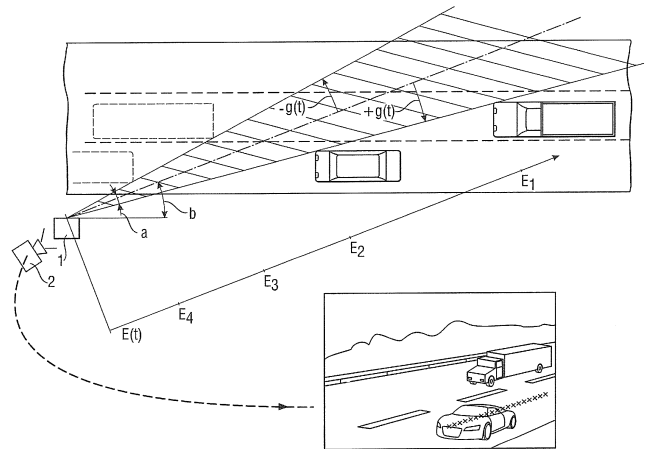
Method for conclusively determining the speed of a vehicle DE102007022373 A1

<p><u>Current assignees</u> JENOPTIK JENOPTIK ROBOT 40789 MONHEIM ROBOT VISUAL SYSTEMS</p> <p><u>Inventors</u> KLEIN CHRISTOPH PROF DR BEHRENS ANDREAS DOHMANN BERNHARD TERLAU NORBERT</p> <p><u>Priority data including date</u> 2007DE-10022373 2007-05-07</p>	<p><u>IPC - International classification</u> G01S-013/58 G01S-013/91 G01S-013/92* G08G-001/052 G08G-001/054</p> <p><u>CPC - Cooperative classification</u> G01S-013/42 G01S-013/58/4 G01S-013/92* G08G-001/04 G08G-001/054</p> <p><u>PCL - US patent classification</u> PCLO: 342107000* PCLX: 340936000 340937000 342066000</p>
---	---

<u>Family</u>	
<p>ES2548099 T3 2015-10-13 </p> <p>EP1990655 B1 2015-07-01 </p> <p>US8115670 B2 2012-02-14 </p> <p>AU2008202015 B2 2011-12-08 </p>	<p>AU2008202015 A1 2008-11-27 </p> <p>DE102007022373 A1 2008-11-13 </p> <p>US20080278365 A1 2008-11-13 </p> <p>EP1990655 A1 2008-11-12 </p>

Vehicle e.g. lorry, speed measuring method, involves using measured values for distance area to characterize track of vehicles with respect to distance to radar device, where track is marked in map for which excess speed is derived

The method involves deriving measured values several times continuously over duration of a passage of vehicles through a measuring area. The derived measured values are concluded with plausibility of previous measured values. The measured values are utilized for a distance area for characterizing a vehicle track of reflecting vehicles with respect to a distance to a radar device. The vehicle track is marked in a map for which an excess speed is derived.



Title

Method for conclusively determining the speed of a vehicle

Current assignees

JENOPTIK

JENOPTIK ROBOT 40789 MONHEIM

ROBOT VISUAL SYSTEMS

Inventors

KLEIN CHRISTOPH PROF DR

BEHRENS ANDREAS

DOHMANN BERNHARD

TERLAU NORBERT

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

LAPSED

GRANTED

GRANTED

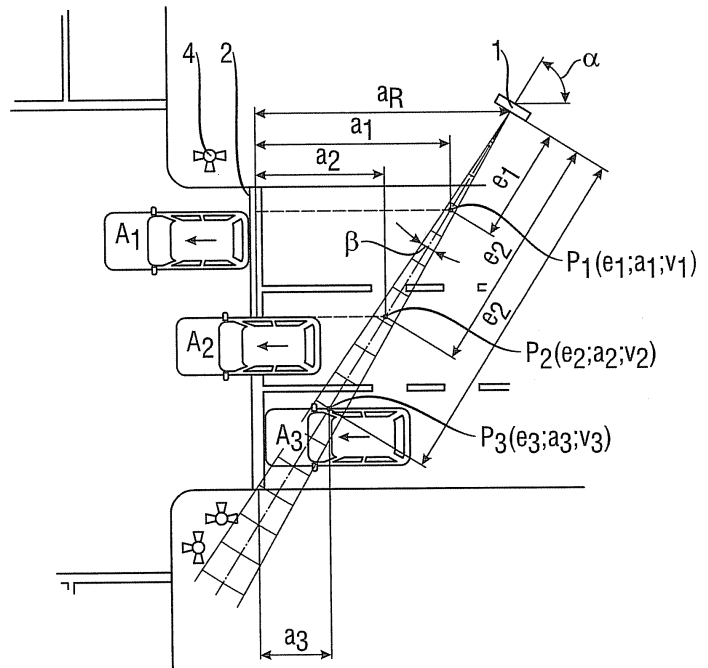
Method for determining and documenting traffic violations at a traffic light EP2048515 A1

<p>Current assignees JENOPTIK ROBOT VISUAL SYSTEMS*</p> <p>Inventors BEHRENS ANDREAS DOHMANN BERNHARD TERLAU NORBERT</p> <p>Priority data including date 2007EP-0403002 2007-10-11</p>	<p>IPC - International classification G01S-013/04 G01S-013/62 G01S-013/91* G01S-013/92 G08G-001/017 G08G-001/054 G08G-001/123</p> <p>CPC - Cooperative classification G01S-013/42 G01S-013/58/5 G01S-013/91* G01S-013/92 G08G-001/017/5</p> <p>PCL - US patent classification PCLO: 342109000* PCLX: 340936000 340937000 342054000 342114000 342115000 342179000</p>
---	--

Family							
ES2393459	T3	2012-12-21	📄 🔗 🏛️ 📄	AU2008229875	A1	2009-04-30	📄 🔗 🏛️ 📄
EP2048515	B1	2012-08-01	📄 🔗 🏛️ 📄	US20090102699	A1	2009-04-23	📄 🔗 🏛️ 📄
AU2008229875	B2	2011-06-02	📄 🔗 🏛️ 📄	EP2048515	A1	2009-04-15	📄 🔗 🏛️ 📄
US7633433	B2	2009-12-15	📄 🔗 🏛️ 📄				

Method for determining and documenting traffic violations of vehicle i.e. car, at traffic light, involves activating camera when time point of passing of vehicle lies outside green phase of traffic lights

The method involves determining a relative position of stop lines (2) provided on lanes, and deriving a relative position of an impact point (P1), lying within an observation area, from radar signals. A vertical distance from the point to one line is determined from the relative positions, and is assigned to the point. Speed is derived from the radar signals and is assigned to the point. The line is closed at a time point of passing of a vehicle based on the speed and the distance. A camera is activated when this time point lies outside a green phase of traffic lights.



Title

Method for determining and documenting traffic violations at a traffic light

Current assignees

JENOPTIK

ROBOT VISUAL SYSTEMS

Inventors

BEHRENS ANDREAS

DOHMANN BERNHARD

TERLAU NORBERT

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

EXPIRED

GRANTED

Traffic monitoring system DE102007051801 A1

<p><u>Current assignees</u> JENOPTIK* JENOPTIK* ROBOT 40789 MONHEIM ROBOT VISUAL SYSTEMS</p> <p><u>Inventors</u> BEHRENS ANDREAS</p> <p><u>Priority data including date</u> 2007DE-10051801 2007-10-26 2008WO-DE50031 2008-10-23</p>	<p><u>IPC - International classification</u> G08G-001/017* G08G-001/054</p> <p><u>CPC - Cooperative classification</u> G08G-001/017/5* G08G-001/054</p>
---	---

<u>Family</u>																	
<p>AU2008316120 B2 2012-12-20</p> <p>ES2373831 T3 2012-02-09</p> <p>AT528739 T 2011-10-15</p> <p>EP2212872 B1 2011-10-12</p> <p>DE112008003523 A5 2010-10-14</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">EP2212872</td> <td style="width: 10%;">A1</td> <td style="width: 20%;">2010-08-04</td> <td style="width: 30%; text-align: right;"> </td> </tr> <tr> <td>AU2008316120</td> <td>A1</td> <td>2009-04-30</td> <td style="text-align: right;"> </td> </tr> <tr> <td>DE102007051801</td> <td>A1</td> <td>2009-04-30</td> <td style="text-align: right;"> </td> </tr> <tr> <td>WO2009/052820</td> <td>A1</td> <td>2009-04-30</td> <td style="text-align: right;"> </td> </tr> </table>	EP2212872	A1	2010-08-04		AU2008316120	A1	2009-04-30		DE102007051801	A1	2009-04-30		WO2009/052820	A1	2009-04-30	
EP2212872	A1	2010-08-04															
AU2008316120	A1	2009-04-30															
DE102007051801	A1	2009-04-30															
WO2009/052820	A1	2009-04-30															

The invention relates to a traffic monitoring system with low power consumption. The object of the invention is to provide an option that compared to prior art contributes to a further reduction of the energy consumption of mobile and/or fixed traffic monitoring systems. The object is achieved by means of a traffic monitoring system composed of the essential functional units of a sensor for registering a road vehicle which travels, for example, at a higher speed than permitted or crosses an intersection at red, a digital camera for recording the registered road vehicle, a computer for storing all the necessary data and a lighting device, such as a flash device, in that, with the exception of the sensor, all the functional units are switched in the stand-by mode and activate one another mutually or are activated by a controller only at necessary times.

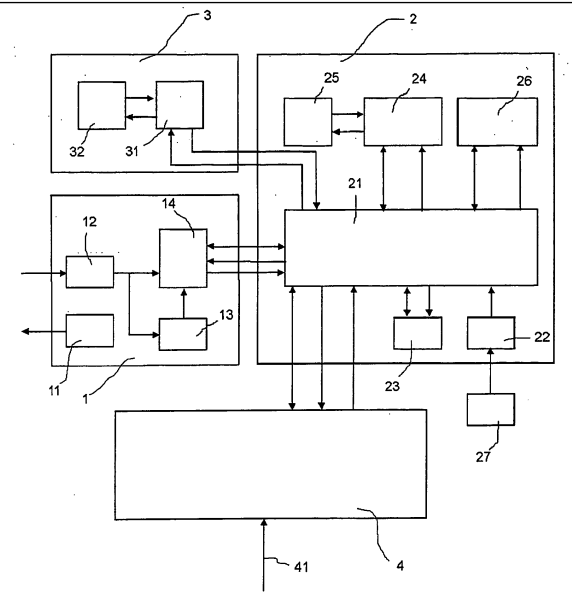


Fig. 1

Title

Traffic monitoring system

Current assignees

JENOPTIK

JENOPTIK ROBOT 40789 MONHEIM

ROBOT VISUAL SYSTEMS

Inventors

BEHRENS ANDREAS

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

LAPSED

LAPSED

GRANTED

GRANTED

GRANTED

Method and device for sophisticated detecting of traffic violations in a restricted area controlled by traffic lights

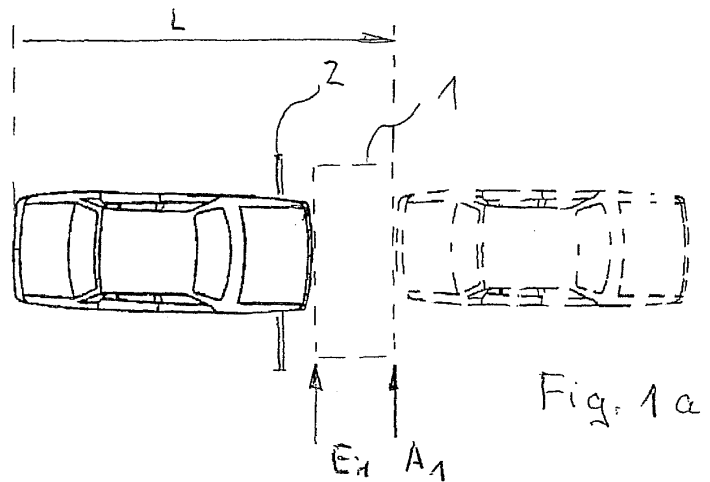
DE102007058742 A1

<p><u>Current assignees</u> JENOPTIK JENOPTIK ROBOT 40789 MONHEIM ROBOT VISUAL SYSTEMS</p> <p><u>Inventors</u> KUESTER HANS-HOLGER</p> <p><u>Priority data including date</u> 2007DE-10058742 2007-12-03 2008EP-0170628 2008-12-03</p>	<p><u>IPC - International classification</u> G08G G08G-001/017* G08G-001/042 G08G-001/054</p> <p><u>CPC - Cooperative classification</u> G08G-001/017/5 G08G-001/042*</p>
---	---

<u>Family</u>	
<p>CY1111593 T1 2015-10-07 </p> <p>DE502008003003 D1 2011-05-12 </p> <p>AT504055 T 2011-04-15 </p> <p>EP2068291 B1 2011-03-30 </p>	<p>HK1134163 A1 2010-04-16 </p> <p>EP2068291 A1 2009-06-10 </p> <p>DE102007058742 A1 2009-06-04 </p>

Vehicle's e.g. motorcycle, traffic violation detection method for use in pedestrian area, involves deriving passing of vehicle to blocked area and inclusion of generation of other entrance and exit signals

The method involves generating an entrance signal (E1) when a vehicle is driven into a detection region, and generating an exit signal (A1) when the vehicle is driven out from the detection region. The passing of the vehicle to the blocked area and the inclusion of generation of other entrance and exit signals are derived from the reception of the former entrance and exit signals. It is derived that the vehicle is entered and stopped in the blocked area and generation of other entrance and exit signals are not expected during same blocked phase, when only the entrance signal is received. An independent claim is also included for a device for differentially detection of a traffic violation in a cross-road blocked area.



Title

Method and device for sophisticated detecting of traffic violations in a restricted area controlled by traffic lights

Current assignees

JENOPTIK

JENOPTIK ROBOT 40789 MONHEIM

ROBOT VISUAL SYSTEMS

Inventors

KUESTER HANS-HOLGER

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

GRANTED

GRANTED

LAPSED

LAPSED

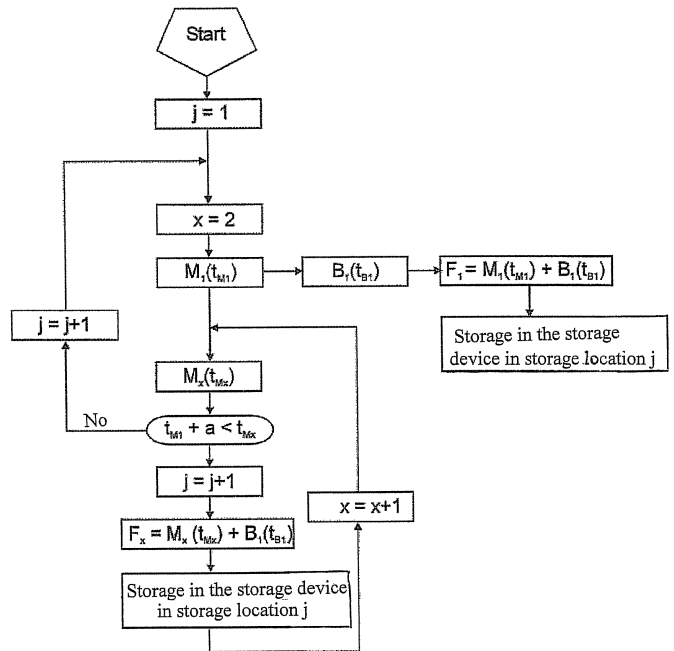
Method for documenting near simultaneous traffic violations DE502007005292 D1

<p>Current assignees JENOPTIK* ROBOT VISUAL SYSTEMS</p> <p>Inventors SCHMITZ RALF</p> <p>Priority data including date 2007EP-0025103 2007-12-27</p>	<p>IPC - International classification G08G G08G-001/00 G08G-001/01 G08G-001/017* G08G-001/054</p> <p>CPC - Cooperative classification G08G-001/017/5 G08G-001/054*</p> <p>PCL - US patent classification PCLO: 340933000* PCLX: 340936000 340937000</p>
--	---

Family	
<p>MY152622 A 2014-10-31 </p> <p>AU2008264155 B2 2013-04-04 </p> <p>US8111173 B2 2012-02-07 </p> <p>ES2353739 T3 2011-03-04 </p> <p>DE502007005292 D1 2010-11-18 </p> <p>AT484048 T 2010-10-15 </p>	<p>EP2075775 B1 2010-10-06 </p> <p>HK1133112 A1 2010-03-12 </p> <p>AU2008264155 A1 2009-07-16 </p> <p>US20090167566 A1 2009-07-02 </p> <p>EP2075775 A1 2009-07-01 </p>

Virtually synchronized traffic violations e.g. speed violations, documentation method for vehicle, involves checking whether measuring time points lie within time intervals and image data packet is reproduced to allocate data packets

The method involves producing a photo by a camera in a recording time point and storing the photo as an image data packet. A temporary correlation is made between the recording time point and measuring time points. Measured data e.g. vehicle speed, for a vehicle are detected by driving a measured region, and the measured data are stored as measured data packets in the measuring time points. A check is made whether the measuring time points lie within time intervals and the image data packet is reproduced to allocate the measured data packets to form a vehicle data packet.



Title

Method for documenting near simultaneous traffic violations

Current assignees

JENOPTIK

ROBOT VISUAL SYSTEMS

Inventors

SCHMITZ RALF

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

GRANTED

GRANTED

GRANTED

LAPSED

LAPSED

GRANTED

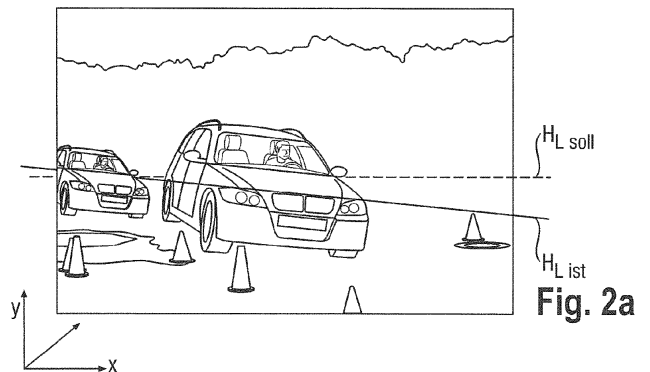
GRANTED

Method for aligning and controlling the alignment of a traffic monitoring device DE102011050659 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING DR MICHAEL</p> <p><u>Priority data including date</u> 2011DE-10050659 2011-05-26</p>	<p><u>IPC - International classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01C-009/06</td> <td>G01S-007/40</td> <td>G01S-007/497</td> </tr> <tr> <td>G01S-013/91</td> <td>G01S-017/88</td> <td>G06T-007/00</td> </tr> <tr> <td>G08G-001/04*</td> <td>G08G-001/054</td> <td>H04N-005/247</td> </tr> <tr> <td>H04N-007/18</td> <td></td> <td></td> </tr> </table> <p><u>CPC - Cooperative classification</u></p> <table style="width: 100%; border: none;"> <tr> <td>G01S-007/40/26</td> <td>G01S-007/4034</td> <td>G01S-007/497/2</td> </tr> <tr> <td>G01S-013/91</td> <td>G01S-017/88</td> <td>G06T-007/80</td> </tr> <tr> <td>G06T-2207/30236</td> <td>G08G-001/04*</td> <td></td> </tr> </table>	G01C-009/06	G01S-007/40	G01S-007/497	G01S-013/91	G01S-017/88	G06T-007/00	G08G-001/04*	G08G-001/054	H04N-005/247	H04N-007/18			G01S-007/40/26	G01S-007/4034	G01S-007/497/2	G01S-013/91	G01S-017/88	G06T-007/80	G06T-2207/30236	G08G-001/04*	
G01C-009/06	G01S-007/40	G01S-007/497																				
G01S-013/91	G01S-017/88	G06T-007/00																				
G08G-001/04*	G08G-001/054	H04N-005/247																				
H04N-007/18																						
G01S-007/40/26	G01S-007/4034	G01S-007/497/2																				
G01S-013/91	G01S-017/88	G06T-007/80																				
G06T-2207/30236	G08G-001/04*																					

<u>Family</u>																					
<table style="width: 100%; border: none;"> <tr> <td style="width: 20%;">EP2528048</td> <td style="width: 20%;">B1</td> <td style="width: 20%;">2016-12-14</td> <td style="width: 40%; text-align: center;"> </td> </tr> <tr> <td>EP2528048</td> <td>A3</td> <td>2014-04-23</td> <td style="text-align: center;"> </td> </tr> <tr> <td>DE102011050659</td> <td>B4</td> <td>2013-01-03</td> <td style="text-align: center;"> </td> </tr> </table>	EP2528048	B1	2016-12-14		EP2528048	A3	2014-04-23		DE102011050659	B4	2013-01-03		<table style="width: 100%; border: none;"> <tr> <td style="width: 20%;">DE102011050659</td> <td style="width: 20%;">A1</td> <td style="width: 20%;">2012-11-29</td> <td style="width: 40%; text-align: center;"> </td> </tr> <tr> <td>EP2528048</td> <td>A2</td> <td>2012-11-28</td> <td style="text-align: center;"> </td> </tr> </table>	DE102011050659	A1	2012-11-29		EP2528048	A2	2012-11-28	
EP2528048	B1	2016-12-14																			
EP2528048	A3	2014-04-23																			
DE102011050659	B4	2013-01-03																			
DE102011050659	A1	2012-11-29																			
EP2528048	A2	2012-11-28																			

Method for aligning and control the orientation of a traffic monitoring device (VÜG) in the with a camera 1, provided with a measuring sensor 3 is connected to the fixed of the VÜG, a plurality of successive images of a region of the object with the camera and is not intended to be created vehicle 1, wherein from the images, while the camera 1 is tilted, the position of an actual horizon line HL ist repeated calculated and in the subsequent images is projected to the projected actual horizon line HL ist target horizon line H in accordance with a predeterminedL soll, runs, whereby the camera 1 is aligned to the road surface.



Title

Method for aligning and controlling the alignment of a traffic monitoring device

Current assignees

JENOPTIK

Inventors

LEHNING DR MICHAEL




























Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

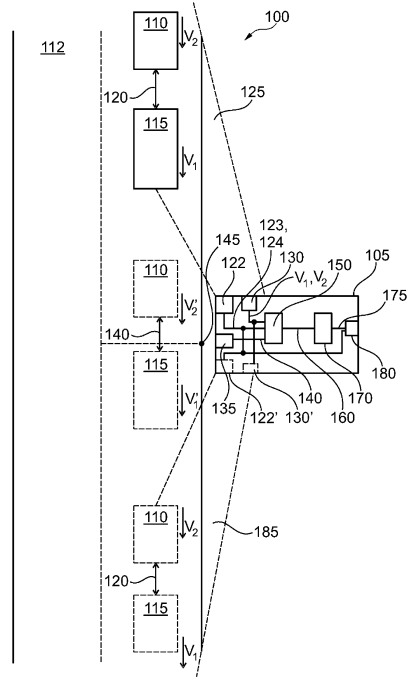
LAPSED

**Method and device for detecting a traffic law violation due to the allowable distance
between a following vehicle and a guide vehicle being undershot
DE102019107279 A1**

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> KIENITZ STEFAN MAAG EINAR SKRZECZYNSKI GREGOR REIS SIEGRUN LEHNING MICHAEL</p> <p><u>Priority data including date</u> 2019DE-10107279 2019-03-21 2020WO-EP55828 2020-03-05</p>	<p><u>IPC - International classification</u> B60W-030/16 G01S-013/92 G08G-001/00 G08G-001/01 G08G-001/015 G08G-001/017* G08G-001/04 G08G-001/052 G08G-001/054</p> <p><u>CPC - Cooperative classification</u> B60W-030/16/2* B60W-2420/403 B60W-2420/52 B60W-2555/60 G01S-013/58/2 G01S-013/58/4 G01S-013/86/7 G01S-013/92 G01S-017/42 G01S-017/58 G01S-017/86 G01S-017/88 G08G-001/01/12 G08G-001/01/16 G08G-001/01/25 G08G-001/01/33 G08G-001/015 G08G-001/017/5* G08G-001/04 G08G-001/054</p>
---	--

<u>Family</u>	
<p>AU2020242599 B2 2023-04-27    </p> <p>US20220161798 A1 2022-05-26    </p> <p>EP3942543 A1 2022-01-26    </p> <p>CN113574576 A 2021-10-29    </p>	<p>AU2020242599 A1 2021-09-30    </p> <p>DE102019107279 A1 2020-09-24    </p> <p>WO2020/187581 A1 2020-09-24    </p>

The invention relates to a method (200) for detecting a traffic law violation due to the allowable distance (D_{min}) between a following vehicle (110) and a guide vehicle (115) being undershot, said following vehicle traveling behind the guide vehicle (115). The method (200) has a step (220) of identifying at least the respective speed (v_1 , v_2) of the following vehicle (110) and the guide vehicle (115) in a detection region (125) in the surroundings of a sensor (130) which supplies speed measurement values, wherein measurement values for identifying the speed (v_1 , v_2) of the following vehicle (110) and the guide vehicle (115) are detected simultaneously in the detection region (125) in particular. The method (200) additionally has a step (230) of detecting and/or ascertaining a reference distance (140) between the following vehicle (110) and the guide vehicle (115) at a reference measurement point (145). The method (200) also has a step (240) of determining at least one following distance (160) between the following vehicle (110) and the guide vehicle (115) in the detection region (125) using the identified speeds (v_1 , v_2) of the following vehicle (110) and the guide vehicle (115) and/or the detected reference distance (140). The method (200) finally has a step (250) of detecting a traffic law violation if the following distance (160) in the detection region (125) continuously falls short of a distance threshold (D_{min}).



Title

Method and device for detecting a traffic law violation due to the allowable distance between a following vehicle and a guide vehicle being undershot

Current assignees

JENOPTIK

Inventors

KIENITZ STEFAN

MAAG EINAR

SKRZECZYNSKI GREGOR

REIS SIEGRUN

LEHNING MICHAEL

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

PENDING

PENDING

LAPSED

PENDING

LAPSED

GRANTED

Service vehicle or aircraft having a carrier platform and a toll checking device, toll checking system, and method for checking a toll payment DE102016109148 A1

<p><u>Current assignees</u> JENOPTIK*</p> <p><u>Inventors</u> LEHNING MICHAEL SCHIFFER LUKAS DOHMANN BERNHARD LEIJSEN MARCO REISS MAIK GRAW PETER</p> <p><u>Priority data including date</u> 2016DE-10109148 2016-05-18 2017WO-EP61842 2017-05-17</p>	<p><u>IPC - International classification</u> G07B-015/06* G08G-001/015 G08G-001/017</p> <p><u>CPC - Cooperative classification</u> G06F-018/256 G06V-020/52 G06V-020/56 G06V-020/625 G06V-020/647 G06V-2201/08 G07B-015/06* G08G-001/01/16 G08G-001/015 G08G-001/017/5 G08G-001/04 G08G-001/054</p>
--	---

<u>Family</u>					
<p>EP3459056 B1 2023-04-05</p> <p>EP3459056 A1 2019-03-27</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 25%; text-align: center; border: none;"> </td> <td style="width: 25%; text-align: center; border: none;"> DE102016109148 A1 2017-11-23 </td> <td style="width: 25%; text-align: center; border: none;"> </td> <td style="width: 25%; text-align: center; border: none;"> WO2017/198710 A1 2017-11-23 </td> </tr> </table>		DE102016109148 A1 2017-11-23		WO2017/198710 A1 2017-11-23
	DE102016109148 A1 2017-11-23		WO2017/198710 A1 2017-11-23		

The invention relates to a service vehicle or aircraft, comprising a carrier platform and a toll checking device (102) for a carrier platform (100). The toll checking device (102) comprises a sensor device (106) for producing vehicle information (110) representing a vehicle (200) in the environment of the service vehicle or aircraft and a control unit (108) having an interface to a toll data processing device (112). The control unit (108) is designed to transmit the vehicle information (110) to the toll data processing device (112) via the interface and to receive from the toll data processing device (112) toll payment information (114), which is produced by using the vehicle information (110) and represents the toll payment associated with the vehicle (200). The toll checking device (102) is or can be arranged on the carrier platform (100) and can be removed from the carrier platform (100).

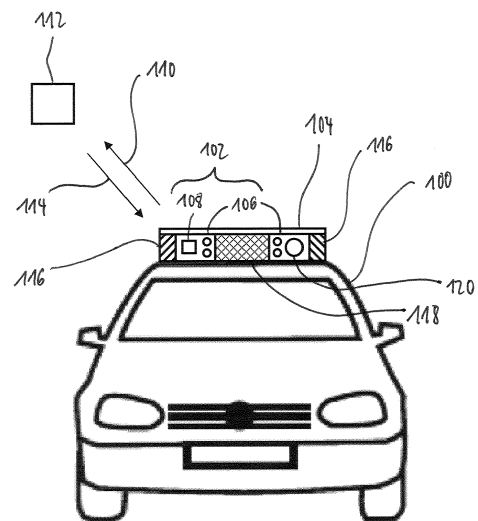


Fig. 1

Title

Service vehicle or aircraft having a carrier platform and a toll checking device, toll checking system, and method for checking a toll payment

Current assignees

JENOPTIK

Inventors

LEHNING MICHAEL

SCHIFFER LUKAS

DOHMANN BERNHARD

LEIJSEN MARCO

REISS MAIK

GRAW PETER

Legal status (Pending, Granted, Revoked, Expired, Lapsed)

GRANTED

LAPSED

PENDING