



Ministero dello Sviluppo Economico

DIREZIONE GENERALE SVILUPPO PRODUTTIVO E COMPETITIVITA'-
UFFICIO ITALIANO BREVETTI E MARCHI

RAPPORTO DI RICERCA

Numero della domanda

IO 94946

IT 201900022041

DOCUMENTI CONSIDERATI DI RILIEVO			
Categoria	Citazione del documento con indicazione, se appropriata, delle parti rilevanti	Rivendicazioni rilevanti	CLASSIFICAZIONE DELLA DOMANDA (IPC)
A	US 2019/071076 A1 (NAKATSUKA MASAYUKI [JP] ET AL) 7 March 2019 (2019-03-07) * paragraphs [0039] - [0045], [0055], [0069] - [0071], [0086] - [0088], [0096] * -----	1-3	INV. B60K28/06 B60W10/06 B60W10/10 B60W10/184 B60W10/20 B60W30/18 B60W50/023 B60W60/00
A	US 2015/012166 A1 (HAULER FLORIAN [DE] ET AL) 8 January 2015 (2015-01-08) * paragraphs [0017] - [0019] * -----	1-3	
A	EP 2 860 078 A1 (AUDI AG [DE]) 15 April 2015 (2015-04-15) * paragraphs [0024] - [0044] * -----	1-3	
A	US 2019/126927 A1 (UEJIMA TAIYO [JP]) 2 May 2019 (2019-05-02) * paragraphs [0031] - [0038], [0065] - [0068], [0070], [0078] * -----	1-3	
A	WO 2019/141596 A1 (VOLKSWAGEN AG [DE]) 25 July 2019 (2019-07-25) * pages 1, 2 * -----	1-3	CAMPI TECNICI RICERCATI (IPC) B60K B60W B62D
Questo rapporto di ricerca è stato redatto sulla base di tutte le rivendicazioni			
Munich		Data di completamento della ricerca 4 August 2020	Esaminatore Nielles, Daniel
CATEGORIA DEI DOCUMENTI CITATI X : di particolare rilevanza se considerato singolarmente Y : di particolare rilevanza se combinato con un altro documento della stessa categoria A : informazione generica O : divulgazione orale P : documento intermedio T : teoria o principio alla base dell'invenzione E : documento brevettuale antecedente, ma pubblicato dopo o alla data di deposito D : documento citato nella domanda L : documento citato per altre ragioni & : membro della stessa famiglia di brevetti, documento corrispondente			

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EPO FORM 1503 07.08 (P04C74)

**ALLEGATO AL RAPPORTO DI RICERCA
SULLA DOMANDA DI BREVETTO ITALIANO N.**

IO 94946
IT 201900022041

Questo allegato enumera i membri della famiglia di brevetti relativi a documenti brevettuali citati nel summenzionato rapporto di ricerca.

I membri sono indicati come da database dell'Ufficio Europeo dei Brevetti al **04-08-2020**

L'Ufficio Europeo dei Brevetti non si assume alcuna responsabilità per queste indicazioni, che vengono fornite a solo scopo informativo.

Documenti brevettuali citati nel rapporto di ricerca	Data di pubblicazione	Membri della famiglia di brevetti	Data di pubblicazione
US 2019071076 A1	07-03-2019	CN 109421713 A	05-03-2019
		JP 6596772 B2	30-10-2019
		JP 2019043364 A	22-03-2019
		US 2019071076 A1	07-03-2019

US 2015012166 A1	08-01-2015	DE 102013213169 A1	08-01-2015
		FR 3008057 A1	09-01-2015
		US 2015012166 A1	08-01-2015

EP 2860078 A1	15-04-2015	DE 102013016436 A1	02-04-2015
		EP 2860078 A1	15-04-2015
		ES 2558607 T3	05-02-2016

US 2019126927 A1	02-05-2019	CN 109760673 A	17-05-2019
		JP 2019084885 A	06-06-2019
		US 2019126927 A1	02-05-2019

WO 2019141596 A1	25-07-2019	NONE	



Ministero dello Sviluppo Economico

DIREZIONE GENERALE SVILUPPO PRODUTTIVO E COMPETITIVITA' -
UFFICIO ITALIANO BREVETTI E MARCHI

OPINIONE SCRITTA

N. dossier IO94946	Data di deposito (gg/mm/aa) 25.11.2019	Data di priorità (gg/mm/aa)	N. domanda IT201900022041
Classificazione Internazionale dei Brevetti (IPC) INV. B60K28/06 B60W10/06 B60W10/10 B60W10/184 B60W10/20 B60W30/18 B60W50/023 B60W60/00			
Richiedente VDPROJECT S.R.L., et al			

Questa opinione fornisce indicazioni riguardanti i seguenti elementi:

- ☒ Riquadro N. I Base dell'opinione
- ☐ Riquadro N. II Priorità
- ☐ Riquadro N. III Non-redazione di un'opinione a riguardo di novità, attività inventiva e applicazione industriale
- ☐ Riquadro N. IV Violazione del requisito d'unità dell'invenzione
- ☒ Riquadro N. V Dichiarazione motivata a riguardo di novità, attività inventiva o applicazione industriale; citazioni e spiegazioni giustificative della dichiarazione
- ☐ Riquadro N. VI Particolari documenti citati
- ☐ Riquadro N. VII Difetti particolari nella domanda
- ☐ Riquadro N. VIII Osservazioni particolari a riguardo della domanda

	Esaminatore Nielles, Daniel
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OPINIONE SCRITTA

N. domanda

IT201900022041

Riquadro N. I Base dell'opinione

1. Questa opinione è stata redatta sulla base delle ultime rivendicazioni depositate prima dell'inizio della ricerca nella tecnica anteriore.
2. Per quanto concerne eventuali sequenze di nucleotidi e/o amminoacidi descritte nella domanda e necessarie per l'invenzione di cui oggetto nelle rivendicazioni, questa opinione è stata redatta sulla base di:
 - a. tipo di materiale:
 - ☐ una sequenza di DNA
 - ☐ una o più tabelle relative alla sequenza di DNA
 - b. formato del materiale:
 - ☐ cartaceo
 - ☐ elettronico
 - c. momento di deposito o presentazione:
 - ☐ depositato insieme alla domanda al momento del deposito della medesima
 - ☐ depositato insieme alla domanda in formato elettronico
 - ☐ presentato successivamente al fine della ricerca d'antiorità
3. ☐ Inoltre, ove sia stata depositata o presentata più di una versione o copia di una sequenza di DNA e/o tabella ad essa relativa, è stata presentata anche la dichiarazione obbligatoria che le informazioni contenute nelle copie successive o addizionali sono identiche a quelle nella domanda come depositata o che, in ogni caso, non vanno oltre il contenuto della domanda depositata originariamente.
4. Note aggiuntive:

OPINIONE SCRITTA

N. domanda

IT201900022041

Riquadro N. V Dichiarazione motivata a riguardo di novità, attività inventiva o applicazione industriale; citazioni e spiegazioni giustificative della dichiarazione

1. 1. Dichiarazione

Novità (N)	Sì: Rivendicazioni 1-3
	No: Rivendicazioni

Attività inventiva (IS)	Sì: Rivendicazioni 1-3
	No: Rivendicazioni

Applicazione industriale (IA)	Sì: Rivendicazioni 1-3
	No: Rivendicazioni

2. 2. Citazioni e spiegazioni

si veda l'allegato

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1 Reference is made to the following documents:
 - D1: US 2019/071076 A1 (NAKATSUKA MASAYUKI [JP] ET AL) 7 March 2019 (2019-03-07)
 - D2: US 2015/012166 A1 (HAULER FLORIAN [DE] ET AL) 8 January 2015 (2015-01-08)
 - D3: EP 2 860 078 A1 (AUDI AG [DE]) 15 April 2015 (2015-04-15)
- 2 D1 (see, for example, paragraphs [0039] to [0045]) is regarded as being the prior art closest to the subject-matter of claim 1, and discloses a system of activation and actuation of automated guidance for road vehicles composed of:
 - A push button or a switch or a lever for manual activation of the system
 - A group of sensors for automatic activation of the system
 - An electronic control unit for calculation of control logics of automated guidance installed on vehicle
 - Two cameras for the monitoring of environment
 - An obstacle detection system.
- 3 The subject-matter of claim 1 is new.
- 3.1 The subject-matter if claim differs from the system according to D1 in the following features:
 - o Two electrical outputs for direct activation of two related brake actuators,
 - o Two electrical outputs for direct activation of emergency lighting on vehicle,
 - o A1 least two electrical outputs for the direct control of steering actuator,
 - o Two electrical outputs for the direct control of transmission insertion,
 - o An internal rechargeable battery for the independent power supply, And at maximum eight cabled electrical lines for communication with the other vehicle on-board electronic control units, coupled in pair for redundancy for the steering electronic control unit, engine or motor or power unit electronic control unit, braking electronic control unit and transmission electronic control unit,
 - At least two receivers for vehicle localisation, one of which is able to work in

partially closed environment,

- the two cameras are positioned at the lateral sides of the vehicle, in addition to at least a frontal or a rear camera,
- An electronic control unit which performs the automatic emergency call, where the emergency call is defined through EN 15722, EN 16072, EN 16102 and similar international standards and regulations,
- A database through which the information about the localisation of SOS emergency lay-bys can be updated, wherein on manual activation through the pressure of button or switch or the like:
- It operates the brake actuators of the vehicle until it detects the vehicle speed under a set value and a minimum safety stopping distance between the controlled vehicle and the vehicle behind it;
- When the vehicle speed results lower than the set level, it decides for the activation of a first automated guidance system which executes at first the deceleration of the vehicle on the current street lane or of a second automated guidance system which:
 - o Calculates the trajectory and the dynamic characteristics of the vehicle as to let the vehicle cross the street lanes until it goes beyond the carriageway and reaches the emergency lane and
 - o Commands all the actuators internal to vehicle necessary for the purpose;
- It activates concurrently with the first braking action the automatic emergency call, adding as optional additional data a word or an acronym which indicates the status of malaise of the driver.

4 The subject-matter of claim 1 is considered as involving an inventive step.

4.1 The problem to be solved by the present invention may be regarded as improving safety of road vehicles.

4.2 Although providing redundant connections and systems as in claim 1 is known from, for example, D2 (paragraphs [0017] - [0019]) and providing an emergency call as in claim 1 is known from, for example, D3 (paragraph [0025]) are known for solving the posed problem, it has not been disclosed in the state of the art that on manual activation of the system:

It operates the brake actuators of the vehicle until it detects the vehicle speed under a set value and a minimum safety stopping distance between the controlled vehicle and the vehicle behind it;

- When the vehicle speed results lower than the set level, it decides for the activation of a first automated guidance system which executes at first the deceleration of the vehicle on the current street lane or of a second automated

guidance system which:

o Calculates the trajectory and the dynamic characteristics of the vehicle as to let the vehicle cross the street lanes until it goes beyond the carriageway and reaches the emergency lane.

- 4.3 These features provide the technical effect of reducing the speed of the vehicle before performing a lane change and stopping the vehicle and credibly solve the stated problem.
- 5 Claims 2 and 3 are dependent on claim 1 whose subject-matter is considered as being new and inventive, as discussed above, and as such said dependent claims also meet the requirements of novelty and inventive step.

TITLE

DESCRIPTION of the invention with the following TITLE:

"AUTOMATIC GUIDANCE SYSTEM SUBSTITUTING THE DRIVER IN CASE OF
MALAISE OR CRITICAL CONDITIONS"

5 in the name of Valentina Daddi, resident in Italy, Prato, Via Francesco de Sanctis no. 82, of
Italian nationality, filed on 25/11/2019 with no. 102019000022041.

ABSTRACT

The here described system is intended for vehicles which can operate also on roads with the
aim of solving the problem of substituting the manual driving action of the driver with the
10 automatic guidance action of the vehicle whenever the driver does not feel like carrying on
with the manual driving action or because of the detection of an abnormal vehicle status
while moving. This is obtained through a peculiar automatic guidance action with the
execution of the control command and with the related data processing completely inside the
vehicle, so as to lead the user to a place for a safe stop of the vehicle and into a safe stop
15 condition of the vehicle, as well as through further automatic functions.

CLAIMS

1. System of activation and actuation of automatic guidance for road vehicles composed of:

- A push button or a switch or a lever for the manual activation of the system
 - 5 - A group of sensors for the automatic activation of the system
 - An electronic control unit for the calculation of the control logic of the on-board automatic guidance and provided at least with:
 - Two electrical outputs for the direct activation of the two related brake actuators,
 - 10 ○ Two electrical outputs for the direct activation of the on-board emergency lighting,
 - Two electrical outputs for direct control of the steering actuator,
 - Two electrical outputs for direct control of the transmission insertion through the arm for the selection of the gear,
 - 15 ○ An internal rechargeable battery for the independent power supply,
- and at most eight cabled electrical lines for the communication with the other on-board electronic control units, coupled that is to say joined in

pairs in a redundant way to communicate with a steering electronic control unit, an engine or motor or power unit electronic control unit, a braking system electronic control unit and a transmission electronic control unit,

- 5 - At least two receivers for localising the vehicle, one of which is able to work in a partially closed environment,
- Two cameras for monitoring the environment which surrounds the vehicle, which are positioned at the sides of the vehicle, in addition to at least a frontal or a rear camera,
- 10 - An obstacle detection system,
- An electronic control unit which performs the automatic emergency call, where the emergency call is defined through EN 15722, EN 16072, EN 16102 and similar international standards and regulations,
- A database through which the information about the localisation of SOS
- 15 emergency lay-bys can be updated,

characterised in that in case of manual activation through the pressure on a button or on a switch or the like:

- It operates the brake actuators of the vehicle until it detects the vehicle speed under a set value and a minimum safety stopping distance between the controlled vehicle and the vehicle behind it;
- When the vehicle speed results lower than the set value, it decides for the activation of a first automatic guidance system which executes first the deceleration of the vehicle in the current street lane or of a second automatic guidance system which:
 - Calculates the trajectory and the dynamic characteristics of the vehicle to let the same vehicle cross the street lanes until it goes beyond the carriageway and reaches the emergency lane and
 - Commands all the actuators inside the vehicle which are necessary for the achievement of the above-mentioned objective;
- It activates the automatic emergency call at the same time as the first braking action, adding as optional additional data a word or an acronym which indicates the state of driver's malaise;

2. System as per previous Claim no. 1 **characterised in that**, if it receives a request for activation which is automatically calculated starting from the measurements of the on-board sensors, it waits the consent of the user before starting the operation and the consent is indicated through the release of the pedals or of the equivalent controls
- 5 for acceleration, braking and clutch disconnection, if present, by the driver for a defined period of time;
3. System as per previous Claim no. 1 **characterised in that**, if it receives a request for activation which is automatically calculated starting from the measurements
- 10 performed with the on-board sensors, it starts to operate only if it measures within a defined period of time a continuously descending profile of the value of engine or motor or power unit revolutions per minute with a decrease rate in absolute value greater than a set value, if no failure or fault condition is detected.