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Datasheet for the decision of 7 September 2017

Case Number: T 1520/12 - 3.4.01

Application Number: 03818087.3

Publication Number: 1657568

IPC: G01S13/66, G01S13/68, G01S13/93, G01S15/93, G08G1/16, B60R21/00

Language of the proceedings: EN

Title of invention:

SYSTEM AND METHOD FOR MONITORING THE EXTERNAL ENVIRONMENT OF A MOTOR VEHICLE

Applicant:

ADASENS Automotive GmbH

Headword:

Relevant legal provisions:

EPC 1973 Art. 54(1), 56

Keyword:

Novelty - (yes)
Inventive step - ex post facto analysis

Decisions cited:

Catchword:

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Case Number: T 1520/12 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 7 September 2017

Appellant: (Applicant)	ADASENS Automotive GmbH Oberhof 13 88138 Weissensberg (DE)
Representative:	Gislon, Gabriele Torner, Juncosa i Associats, S.L. C/Gran Via de les Corts Catalanes, 669bis 1è 2° 08013 Barcelona (ES)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 19 March 2012 refusing European patent application No. 03818087.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	G. Assi
Members:	P. Fontenay
	R. Winkelhofer

Summary of Facts and Submissions

I. The examining division refused European patent application No. 03 818 087.

II. In the decision, reference was made to two previous communications of the examining division in which objections regarding lack of novelty and lack of an inventive step had been raised against the subject-matter of the original claims. In these two communications, particular reference had been made to documents US-A-5 467 283 (D1) and US-A-5 479 173 (D2).

III. An appeal was filed against said decision by the applicant/appellant. The appellant requested that the decision to refuse the application be set aside in its entirety and that a patent be granted on the basis of the claims according to the main request or the auxiliary request, as filed with the statement of grounds of appeal.

IV. The appellant was summoned to oral proceedings.

In a communication pursuant to Art. 15(1) RPBA, the appellant was informed of the provisional opinion of the Board with regard to the appellant's requests.

In particular, the feature of claim 1 of both requests relating to "means for *detecting trajectories for detecting the exact circumstances the vehicle is going through in a determined moment*" was considered unclear, contrary to the requirements of Art. 84 EPC. The absence of a precise definition regarding said circumstances did not permit to identify the exact functionalities of the claimed system.

Moreover, the step of "*detecting trajectories*" was considered ambiguous, as such, in view of the actual disclosure. This aspect appeared all the more essential, under the circumstances, considering the objections regarding lack of novelty which had been raised by the examining division and the diverging interpretations made by the examining division and the appellant, respectively.

In fact, the application as a whole did not include any indication that a "*trajectory*" as such would be detected by the system, independently of whether the past or future path followed by the vehicle was meant. No indication could namely be found in the underlying application suggesting that a continuous chain of positions, i.e. a trajectory, was identified and defined the parameter on the basis of which the supervisory area was determined. It followed from the present application that what was actually detected was the radius of curvature of the curve followed by the vehicle at the moment the calculations were made. It was, namely, this information that was used in order to vary the supervisory area covered by the capturing device.

V. In a submission dated 17 August 2017, the appellant filed a new main request.

VI. On 7 September 2017, oral proceedings took place before the Board in the presence of the appellant.

A new main request consisting of claims 1 to 28 was filed during the oral proceedings. It replaced the previous requests on file.

VII. Claim 1 of the appellant's request reads:

"*1. - System for the supervision of an exterior environment of a motor vehicle, installed in an exterior rear view mirror, being said system adapted for detecting the presence of objects susceptible to collide with said vehicle, within a determined supervisory area behind the vehicle, covering at least one dead angle, and the system comprising:*
- a capturing device (1) suitable to acquire images or information samples regarding presence captured from the exterior, representative of an object included in said supervisory area, and
- one electronic system (4) which comprises at least a system for processing and analyzing first input signals obtained through said capturing device (1), and which generates exit signals as a function of the result of said analysis, said exit signals being warning signals, wherein it further comprises:
- at least means for detecting trajectories (2) for the detection of possible variations in the trajectory of the vehicle including at least the driving along a curve of the vehicle, where said means for detecting trajectories (2) are associated and in cooperation with said electronic system (4) to provide the latter with second signals obtained by said means for detecting trajectories (2), to vary said supervisory area to be covered by the capturing device as a function of said second signals, processed and analyzed by said electronic system (4)."

Claims 2 to 18 depend on claim 1.

Independent claim 19 reads:

"*19. - Method for the supervision of an exterior environment of a motor vehicle, for detecting the*

presence of objects susceptible to collide with said vehicle, within a determined supervisory area behind the vehicle, covering at least one dead angle, using a system installed in an exterior rear view mirror and which comprises a capturing device (1) suitable to acquire images or information samples regarding presence captured from the exterior, representative of an object included within said supervisory area, and an electronic system (4), comprising the detection of the entry of an object in said supervisory area, the obtaining of first signals representative of said detection, the treatment, processing and analysis of said first signals and the generation of exit signals as a result of said analysis, said exit signals being warnings, wherein it further comprises:

- performing, by at least means for detecting trajectories (2):

- the detection of possible variations in the trajectory of the vehicle including at least the driving along a curve of the vehicle,

- the generation of second signals representative of said possible variations in the trajectory and their providing to said electronic system (4); and

- performing, by means of said electronic system (4):

- the treatment, processing and analysis of said second signals representative of said possible variations in the trajectory, and

- the varying of said supervisory area to be covered by the capturing device (1) as a function of said curvature radius calculated value."

Claims 20 to 28 depend on claim 19.

Reasons for the Decision

1. *The appeal is admissible.*

2. *Novelty - Art. 54 EPC*

Document D1 discloses a system for the supervision of an exterior environment of a motor vehicle. The system comprises a capturing device in the form of a radar head unit provided on the front of the vehicle body (cf. column 3, lines 7-10). The radar unit transmits a pulsed laser beam in the forward direction thus allowing detection of obstacles susceptible to collide with the vehicle, within a determined supervisory area in front of the vehicle (cf. Figure 5). The capturing device acquires information samples regarding presence captured from the exterior, representative of an object included in said supervisory area (cf. column 3, lines 10-25). Means for detecting trajectories for the detection of possible variations in the trajectory of the vehicle including at least the driving along a curve of the vehicle are also provided in the system of D1 (cf. column 3, line 26 - column 4, line 14). The means for detecting trajectories of D1 are associated and cooperate with an electronic system to provide the latter with second signals obtained by said means for detecting trajectories. Said second signals permit to vary the supervisory area to be covered by the capturing device as a function of the radius of curvature calculated by the electronic system (cf. Figure 1; column 4, lines 15-32). The electronic system (11) in D1 analyses the input signals obtained from the capturing means and generates signals as a function of said analysis in order to control the automatic braking system (cf. column 4, lines 32-37).

A similar system is disclosed in D2 (cf. Figures 1, 4; column 4, line 1 - column 5, line 59). In D2, a CCD camera contributes to the determination of the current travelling trajectory followed by the vehicle.

The appellant conceded that, in the context of the invention, the operation of "*detecting trajectories*" referred to the determination of a radius of curvature. It follows that the "*means for detecting trajectories*" of claim 1 cannot define any distinguishing feature of the claimed system with regard to the prior art since the systems disclosed in both D1 and D2 similarly calculate the radius of curvature R_1 or R_2 of the path followed by the vehicle (cf. D1, column 3, line 26 - column 4, line 37; D2, column 1, lines 52-64; column 4, line 57 - column 5, line 59).

Independently of whether or not the systems disclosed in D1 or D2 would be installable, i.e. adapted to be installed in an exterior rear view mirror, it is noted that neither D1 nor D2 suggest such an arrangement of the disclosed systems. The feature of the system for the supervision of an exterior environment of a motor vehicle being **installed** in an exterior rear view mirror thus suffices to render the claimed subject-matter new vis-a-vis D1 and D2. As may be derived from the discussion regarding the presence of an inventive step, further distinguishing features however exist.

None of the other available prior art appears to disclose the claimed combination of features or steps.

The subject-matter of independent claims 1 and 19 is thus new in the sense of Art. 54(1) EPC.

3. *Inventive step - Art. 56 EPC*

3.1 Documents D1 and D2 disclose systems for the supervision of an exterior environment of a motor vehicle adapted for detecting the presence of objects susceptible to collide with said vehicle. Both documents thus share a common purpose with the claimed invention.

As submitted by the appellant, it cannot be established beyond doubt that the feature of varying the supervisory area to be covered by the capturing device as a result of the trajectory identified by the corresponding detecting means is present in the system of D2. There is namely no indication to be found in D2 that the radar unit would indeed be controlled as a result of the signals generated by the "*travelling predicting section*".

However, this functionality is explicitly envisaged in D1 which discloses to limit detection by the radar unit to a region along the travelling path selected by the selecting unit (cf. D1, column 4, lines 15-37; column 8, lines 44-59).

For these reasons, document D1 is considered to illustrate the closest prior art.

3.2 The claimed system differs from the system of D1 in that it is installed in an exterior rear view mirror and in that it is adapted to detect the presence of objects susceptible to collide with said vehicle, namely within a determined area behind the vehicle covering at least one dead angle, and to warn the driver accordingly.

The invention permits to warn the driver of risks of collision because of objects present in the area corresponding to the dead angle of a rear view mirror, taking due account of the fact that said dead angle may vary according to the trajectory followed by the vehicle (cf. page 4, lines 7-14).

3.3 The supervision system of D1 is conceived to detect the presence of obstacles in front of the vehicle.

The mere finding that the skilled person would have adapted the system of D1 according to the geometry of the problem to be solved by taking into account the location of the dead angle relative to the vehicle and its trajectory may be correct, but is not conclusive. Such an approach namely relies on the assumption that the skilled person would have indeed considered using the system of D1 for the claimed purpose. Whether such an assumption is justified under the circumstances is, however, doubtful.

3.4 In this respect, it is firstly noted that the supervision system of D1 is used to control an automatic braking system which is automatically activated in situations where the risk of collision is high. It is doubtful whether this course of action, which is perfectly justified for an obstacle in front of the vehicle, would still be adequate in the case of an object present in the dead angle of a rear mirror. Starting from the system disclosed in D1, the skilled person would thus have to dissociate the supervision system from the automatic braking system in order to arrive at the claimed subject-matter, even though D1 does not contain any hint to do so.

More fundamentally, and contrary to the view expressed by the examining division in the communication dated 26 January 2012 (cf. point 4), the system of D1 is not adapted for detecting the presence of objects within the area corresponding to the dead angle of a rear mirror on a vehicle. It is emphasised that the circumstances surrounding the identification of objects susceptible to collide with the vehicle are substantially different, depending on whether the object is expected to be in front of the vehicle or behind it. In the case, for example, of a vehicle moving along a curve turning left, the radar unit of D1 will react by limiting detection to a region along the travelling path, in accordance to the radius of curvature measured. In that particular example, said region will also be moved to the left relative to the direction followed by the vehicle, that is towards the inside of the curve. Since in D1 the control of said region depends *de facto* exclusively on the radius of curvature which has been measured, the system would react in exactly the same way if it were to supervise an area behind the vehicle. In that situation it would also limit detection to a region to the left relative to the axis of the capturing means and radar, that is towards the exterior of the curve. This effect would however be contrary to the aim followed by the invention which would require, in this particular situation, that the supervision area be moved towards the inside of the curve.

It follows that the system of D1 cannot be used, as such, for the claimed purpose. It requires some adaptation in order to take into account the specific geometry of the problem to be solved.

For these reasons, it is doubtful whether the skilled person would have ever envisaged using the system of D1 in order to solve the objective problem identified above. At any rate, in the absence in the prior art of any clear teaching to do so, any objection relying on such an assumption is to be rejected as *ex post facto*.

The same findings apply mutatis mutandis to the subject-matter of independent claim 19 as to the corresponding method for the supervision of an exterior environment of a motor vehicle.

3.5 Consequently, the subject-matter of claims 1 and 19 does not derive in an obvious manner from the prior art. It is thus inventive in the sense of Art. 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to grant a patent on the basis of the following documents as submitted during the oral proceedings of 7 September 2017:

- description pages 1-3, 3a, 4-12,

- claims 1-28,

- figures 1-4.

The Registrar: The Chairman:

R. Schumacher G. Assi

Decision electronically authenticated

Europäisches Patentamt
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Case Number: T 1520/12 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
# of correcting an error in the decision
of 7 September 2017

Appellant: (Applicant)	ADASENS Automotive GmbH Oberhof 13 88138 Weissensberg (DE)
Representative:	Jaime Juncosa Miró Torner, Juncosa i Associats, S.L. C/Gran Via de les Corts Catalanes, 669bis 1è 2° 08013 Barcelona (ES)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 19 March 2012 refusing European patent application No. 03818087.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	G. Assi
Members:	P. Fontenay
	R. Winkelhofer

1. The Board decided upon the case T 1520/12 during the oral proceedings on 7 September 2017, which were held in presence of the appellant's representative Mr Jaime Juncosa Miró from the law firm "*Torner, Juncosa i Associats, S.L.*" in Barcelona.

2. The written decision later issued, however, mentions on its front page Mr Gabriele Gislon from the same law firm as representative of the appellant.

3. In a letter dated 19 October 2017, the representative Mr Jaime Juncosa Miró drew attention to the error.

4. Rule 140 EPC allows correction of obvious mistakes in a decision.

   It is clear from the minutes of the oral proceedings of 7 September 2017 that Mr Jaime Juncosa Miró represented the appellant before the Board as sole professional representative.

5. The decision of 7 September 2017 is therefore corrected in that the mention of Mr Gabriele Gislon is replaced by the mention of Mr Jaime Juncosa Miró from the same law firm.

The Registrar: The Chairman

D. Magliano G. Assi

Decision electronically authenticated