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Datasheet for the decision of 15 July 2025

Case Number: T 0813/23 - 3.5.04

Application Number: 18729197.6

Publication Number: 3640916

IPC: G08G1/16, B60W50/14

Language of the proceedings: EN

Title of invention:
PROCESSING UNIT AND PROCESSING METHOD FOR COLLISION WARNING SYSTEM, COLLISION WARNING SYSTEM, AND MOTORCYCLE

Applicant:
Robert Bosch GmbH

Headword:

Relevant legal provisions:
EPC Art. 56
RPBA 2020 Art. 12(4), 13(2)

Keyword:

Main request - amendment to case - complexity of amendment (no) - admitted (yes)
Main request - inventive step - (no)
Auxiliary request - amendment after summons - cogent reasons for exceptional circumstances (no) - taken into account (no)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 0813/23 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 15 July 2025

Appellant: (Applicant)	Robert Bosch GmbH Postfach 30 02 20 70442 Stuttgart (DE)
Representative:	Isarpatent Patent- und Rechtsanwälte Barth Charles Hassa Peckmann & Partner mbB Friedrichstrasse 31 80801 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 2 January 2023 refusing European patent application No. 18729197.6 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	B. Willems
Members:	A. Seeger
	W. Ungler

Summary of Facts and Submissions

I. The appeal is against the examining division's decision to refuse European patent application No. 18 729 197.6.

II. The prior-art documents cited in the decision under appeal included the following:

D2: US 2016/0267763 A1

D4: US 2017/0144665 A1

III. The decision under appeal was based on the ground that the subject-matter of the claims of the main request and auxiliary requests 1 to 3 pending at that time did not involve an inventive step within the meaning of Article 56 EPC.

IV. The applicant (appellant) filed notice of appeal. With the statement of grounds of appeal, the appellant filed claims according to a new sole request, indicated a basis in the application as filed for the claimed subject-matter and provided arguments to support its opinion that the claims of this sole request met the requirements of Article 56 EPC. Furthermore, it requested reimbursement of the appeal fee.

V. The appellant was summoned to oral proceedings. In a communication under Article 15(1) RPBA the board gave the following preliminary opinion.

(a) The board was inclined to admit the sole request into the appeal proceedings under Article 12(4) RPBA.

(b) The subject-matter of claim 1 did not involve an inventive step within the meaning of Article 56 EPC.

(c) None of the conditions for (partial) reimbursement of the appeal fee set out in Rule 103 EPC appeared to be met.

VI. With its reply dated 10 June 2025, the appellant filed amended claims of a main request and an auxiliary request. It submitted that the claims of the main request were identical to those of its sole request filed with the statement of grounds of appeal and indicated a basis for the amendments made to the claims of the auxiliary request. It provided reasons to support its opinion that the claims of both requests met the requirements of Articles 54 and 56 EPC.

VII. The board held oral proceedings on 15 July 2025.

During the oral proceedings the appellant withdrew its request for reimbursement of the appeal fee.

The appellant's final requests were that the decision under appeal be set aside and that a European patent be granted on the basis of the claims of either the main request or the auxiliary request, both requests filed with the letter dated 10 June 2025.

At the end of the oral proceedings, the Chair announced the board's decision.

VIII. Claim 1 of the main request reads as follows:

"A processing unit (20) for a collision warning system (1) that recognizes a possibility of a collision

occurred to a traveling motorcycle (100) by using an environment detector (11) provided in said motorcycle (100) and warns a rider, the processing unit (20) comprising:
an acquisition section (21) that is arranged to acquire environment information corresponding to output of the environment detector (11);
a determination section (22) that is arranged to determine presence or absence of the possibility of the collision on the basis of the environment information; and
a control section (23) that is arranged to make a warning device (30) output a warning in the case where the determination section (22) determines that there is the possibility of the collision, wherein
during travel of the motorcycle (100),
the acquisition section (21) is arranged to acquire posture information related to a bank angle (θL) of the motorcycle (100), wherein
the control section (23) is arranged to change the warning output by the warning device (30) in accordance with the posture information,
wherein, during the travel of the motorcycle (100),
the control section (23) is arranged to make the warning device (30) output a first warning in the case where the determination section (22) determines that there is the possibility of the collision and the acquisition section (21) acquires the posture information corresponding to the bank angle (θL) that is smaller than a reference bank angle (θLth2),
characterized in that
the control section (23) is arranged to make the warning device (30) output a second warning that differs from the first warning in the case where the determination section (22) determines that there is the possibility of the collision and the acquisition

section (21) acquires the posture information corresponding to the bank angle (θL) that is larger than the reference bank angle (θLth2),
wherein the second warning is a warning whose intensity of output is lower than the first warning and/or a warning that is output in a change pattern of a longer cycle than the first warning."

IX. Claim 1 of the auxiliary request reads as follows (features added compared with claim 1 of the main request are underlined):

"A processing unit (20) for a collision warning system (1) that recognizes a possibility of a collision occurred to a traveling motorcycle (100) by using an environment detector (11) provided in said motorcycle (100) and warns a rider, the processing unit (20) comprising:
an acquisition section (21) that is arranged to acquire environment information corresponding to output of the environment detector (11);
a determination section (22) that is arranged to determine presence or absence of the possibility of the collision on the basis of the environment information; and
a control section (23) that is arranged to make a warning device (30) output a warning in the case where the determination section (22) determines that there is the possibility of the collision, wherein
during travel of the motorcycle (100),
the acquisition section (21) is arranged to acquire posture information related to a bank angle (θL) of the motorcycle (100), wherein
the control section (23) is arranged to change the warning output by the warning device (30) in accordance with the posture information,

wherein, during the travel of the motorcycle (100), the control section (23) is arranged to make the warning device (30) output a first warning in the case where the determination section (22) determines that there is the possibility of the collision and the acquisition section (21) acquires the posture information corresponding to the bank angle (θL) that is smaller than a reference bank angle (θLth2),
characterized in that,
during the travel of the motorcycle (100), the control section (23) is arranged to make the warning device (30) output the warning in the case where the acquisition section (21) acquires the posture information corresponding to the bank angle (θL) that is smaller than a maximum allowable bank angle (θLth1),
wherein the reference bank angle (θLth2) is smaller than the maximum allowable bank angle (θLth1),
wherein, during the travel of the motorcycle (100), the control section (23) is arranged to make the warning device (30) output a second warning that differs from the first warning in the case where the determination section (22) determines that there is the possibility of the collision and the acquisition section (21) acquires the posture information corresponding to the bank angle (θL) that is larger than the reference bank angle (θLth2) and smaller than the maximum allowable bank angle (θLth1), wherein the second warning is a warning whose intensity of output is lower than the first warning and/or a warning that is output in a change pattern of a longer cycle than the first warning,
and wherein during the travel of the motorcycle (100), the control section (23) is arranged to make the warning device (30) output the warning in the case where a state where the determination section (22) determines that there is the possibility of the

collision and the acquisition section (21) acquires the posture information corresponding to the bank angle (θL) that is larger than the maximum allowable bank angle (θLth1) continues for reference duration or longer than reference duration, but otherwise in the case where the acquisition section (21) acquires the posture information corresponding to the bank angle (θL) that is larger than the maximum allowable bank angle (θLth1), not to make the warning device (30) output the warning."

Reasons for the Decision

1. The appeal is admissible.

2. Main request – admittance (Article 12(4) RPBA)

2.1 The claims of the main request are identical to the claims of the sole request filed with the statement of grounds of appeal. This sole request was not identical to any of the requests on which the decision under appeal was based.

2.2 Therefore, the main request constitutes an amendment to the appellant's appeal case within the meaning of Article 12(4) RPBA. Under Article 12(4) RPBA any such amendment may be admitted only at the discretion of the board. The board is to exercise its discretion in view of, *inter alia*, the complexity of the amendment, the suitability of the amendment to address the issues which led to the decision under appeal, and the need for procedural economy.

2.3 The board admits the main request into the appeal proceedings under Article 12(4) RPBA for the following reasons. The amendments to the independent claims of

the main request include editorial amendments and the addition of the features of dependent claims 4 and 5 of the main request underlying the decision under appeal. These amendments are not complex. Furthermore, the examining division has given its opinion regarding inventive step of the subject-matter of dependent claims 4 and 5 of the main request in the decision under appeal. Therefore, examining this request does not run counter to procedural economy.

3. Main request – inventive step (Article 56 EPC)

3.1 The examining division identified document D4 as the closest prior art for assessing inventive step (see decision under appeal, point 4.2). This was not contested by the appellant and the board agrees with this assessment.

3.2 Document D4 discloses a processing unit (see Figure 1: "*Breaking force Controller*" 8) for a collision warning system that recognises a possibility of a collision occurred to a travelling motorcycle (see Figure 2 and paragraph [0073]: "*two-wheeled vehicle driven by a driver sitting on a saddle seat* [...] *vehicle comprises* [...] *an engine*") by using an environment detector provided in said motorcycle (see Figure 2: 10, paragraph [0085]: "*detection means 10 can comprise a radar 10a* [...] *detection means 10 can comprise an image sensor 10c*" and paragraph [0088]: "*The cruise control means 5* [...] *can determine a forward intervehicular distance Y which is a distance relative to the preceding vehicle in a traveling direction* [...] *based on information detected by detection means 10*") and warns a rider (see paragraph [0099]: "*warn a driver that avoidance is necessary due to reduction of the forward intervehicular distance Y when the forward*

intervehicular distance Y becomes smaller than a predetermined value relative to the preceding vehicle"), the processing unit comprising:

an acquisition section that is arranged to acquire environment information corresponding to the output of the environment detector (see Figure 2: 10, paragraph [0085] and paragraph [0096]: "*a distance D from the own vehicle A to the preceding vehicle can be detected by irradiating millimeter wave forward from the own vehicle A using the radar 10a*");

a determination section that is arranged to determine presence or absence of the possibility of the collision on the basis of the environment information (see paragraph [0099]: "*warn* [...] *when the forward intervehicular distance Y becomes smaller than a predetermined value relative to the preceding vehicle*"); and

a control section that is arranged to make a warning device output a warning (see paragraph [0099]: "*warning can be performed by weakly operating the brake of the vehicle*") in the case where the determination section determines that there is the possibility of the collision (see paragraph [0099]: "*warn a driver that avoidance is necessary due to a reduction of the forward intervehicular distance*"), wherein

during travel of the motorcycle, the acquisition section is arranged to acquire posture information related to a bank angle of the motorcycle (see Figure 32(c): "θ_3" and paragraph [0100]: "*the inclination of the own vehicle can be detected by the image sensor 10c*") wherein

the control section is arranged to change the warning output by the warning device in accordance with the posture information (According to paragraph [0100], it is inferred that a vehicle-avoidance operation has been performed if an inclination of the "own" vehicle is detected in response to the warning. According to paragraph [0101], the warning is stopped once it is judged that the vehicle-avoidance operation has been performed. As a result, the warning output by the warning device is stopped, i.e. changed, if an inclination of the "own" vehicle is detected.),

wherein, during the travel of the motorcycle, the control section is arranged to make the warning device output a first warning in the case where the determination section determines that there is the possibility of the collision and the acquisition section acquires the posture information corresponding to the bank angle that is smaller than a reference bank angle (see paragraphs [0015] to [0018]: the warning triggered when the forward inter-vehicular distance becomes smaller than a predetermined value continues if the inclination angle of the "own" vehicle is smaller than a predetermined value).

3.3 The subject-matter of claim 1 therefore differs from the disclosure of document D4 in that claim 1 further specifies that the control section is arranged to make the warning device output a second warning that differs from the first warning in the case where the determination section determines that there is the possibility of the collision and the acquisition section acquires the posture information corresponding to the bank angle that is larger than the reference bank angle, wherein the second warning is a warning whose intensity of output is lower than the first

warning and/or a warning that is output in a change pattern of a longer cycle than the first warning.

3.4 The appellant agreed with this identification of the distinguishing features.

3.5 The appellant argued that the bank angle was used differently in the distinguishing features compared with document D4. In the distinguishing features a relatively high bank angle was an indicator of a risk that alerting the rider too abruptly might cause the rider to lose control of the motorcycle. In contrast, document D4 used an inclination angle of the "own" vehicle as an indicator that the motorcycle had performed an operation to avoid approaching another vehicle.

The appellant submitted that the bank angle related to a physical situation of the motorcycle and the physical forces involved. The distinguishing features therefore had technical character.

According to the appellant the effect of the distinguishing features was to ensure that the rider was warned of the possibility of a collision in such a way that the warning did not distract the rider from an imminent risk of falling due to the actual bank angle of the motorcycle. Alerting the rider too abruptly may cause the motorcycle to have an accident that is even worse than the collision.

3.6 The board is not convinced by these arguments for the following reasons.

Firstly, a measurement of an inclination angle of the motorcycle and thus of the parameter characterising the

physical situation of the motorcycle and the physical forces involved also takes place in a processing unit described in document D4. The distinguishing features only specify how to modify a warning on the basis of this measurement.

Secondly, weighing up the collision risk against the risk of losing control of the motorcycle at a larger bank angle is a non-technical consideration. Outputting a second warning "*whose intensity of output is lower than the first warning and/or a warning that is output in a change pattern of a longer cycle than the first warning*" in the event that the bank angle is larger than the reference bank angle means that the risk of losing control of the motorcycle at a larger bank angle is given a higher weighting than the collision risk. It is this non-technical risk assessment which is specified by the distinguishing features.

3.7 Features which do not contribute to the technical character of the invention cannot support the presence of an inventive step (see Case Law of the Boards of Appeal of the European Patent Office, 10th edition, 2022, I.D.9.1).

3.8 In view of the above, the board finds that the subject-matter of claim 1 does not involve an inventive step within the meaning of Article 56 EPC.

4. Auxiliary request – taking into account (Article 13(2) RPBA)

4.1 Under Article 13(2) RPBA any amendment to a party's appeal case made after notification of a communication under Article 15(1) RPBA shall, in principle, not be taken into account unless there are exceptional

circumstances, which have been justified with cogent reasons by the party concerned.

4.2 The auxiliary request was filed by letter dated 10 June 2025 and thus after the notification of the board's communication under Article 15(1) RPBA (4 March 2025). Therefore, the auxiliary request constitutes an amendment to the appellant's appeal case within the meaning of Article 13(2) RPBA.

4.3 In its letter dated 10 June 2025, the appellant did not provide any reasons why there were exceptional circumstances that would justify taking the auxiliary request into account.

At the oral proceedings, the appellant submitted that the board's preliminary opinion had come as a surprise to it. According to the appellant, the board had raised a different objection of lack of inventive step from the examining division. The board had taken the preliminary view that the subject-matter of claim 1 of the main request lacked inventive step because the distinguishing features were not technical. In contrast, according to the decision under appeal, the person skilled in the art would have arrived at the claimed subject-matter by combining the disclosures of documents D4 and D2.

4.4 The board is not convinced by this argument because point 4.5 of the decision under appeal states: "*In both cases the same date is measured and compared to a threshold. What one chooses then to do is non technical but related to safety or trade-off considerations.*" This passage of the decision under appeal was quoted under point 4.4 of the board's preliminary opinion. It is only in subsequent point 4.5.1 of the decision under

appeal that it is then stated: "*Nevertheless, it is also known from D2* [...] *to change a warning output in accordance with an orientation angle while taking various thresholds into account.*" It is therefore clear that the examining division – in the same way as the board did in its preliminary opinion – considered the distinguishing features to be non-technical. The examining division only raised an objection based on a combination of documents D4 and D2 as a secondary consideration.

4.5 In view of the above, the board finds that there are no exceptional circumstances justified by cogent reasons within the meaning of Article 13(2) RPBA. Therefore, the board does not take the auxiliary request into account under Article 13(2) RPBA.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

K. Boelicke B. Willems

Decision electronically authenticated