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**Datasheet for the decision
of 28 October 2022**

Case Number: T 2206/21 - 3.2.01

Application Number: 14850499.6

Publication Number: 3053799

IPC: B60W40/09, G09B9/052, G09B9/058

Language of the proceedings: EN

Title of invention:

EVALUATION PROGRAM, RECORDING MEDIUM, EVALUATION METHOD,
EVALUATION DEVICE, AND VEHICLE

Applicant:

Yamaha Hatsudoki Kabushiki Kaisha

Headword:

Relevant legal provisions:

EPC Art. 56, 52(2)(a), 52(2)(d)
RPBA 2020 Art. 13(2)

Keyword:

Inventive step - (no) - mixture of technical and non-technical
features - auxiliary request (yes)
Amendment after summons - exceptional circumstances (yes)

Decisions cited:

T 0336/14, T 1802/13, T 1091/17

Catchword:



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Case Number: T 2206/21 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 28 October 2022

Appellant: Yamaha Hatsudoki Kabushiki Kaisha
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Representative: Grünecker Patent- und Rechtsanwälte
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 28 June 2021
refusing European patent application No.
14850499.6 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman G. Pricolo
Members: J. J. de Acha González
P. Guntz

Summary of Facts and Submissions

I. The appeal of the applicant is directed against the decision of the Examining Division to refuse the European patent application on the grounds that the main request and auxiliary request 1 to 4 lacked an inventive step in view of the following documents:

D1: WO 2013/099246 A1, and

D2: EP 2 517 952 A1.

II. Oral proceedings before the Board were held on 28 October 2022 in the form of a videoconference with the consent of the appellant.

The appellant (applicant) requested that the decision under appeal be set aside and that a patent be granted based on the claim set according to the main request underlying the contested decision, or, in the alternative, on the basis of any of the auxiliary requests 1 to 3 underlying the contested decision, or, further in the alternative, on the basis of any of the auxiliary requests 4A to 6. Auxiliary requests 5 to 6 were filed with the statement of grounds of appeal and auxiliary request 4A were filed during the oral proceedings before the Board.

III. Claim 1 of the main request reads as follows (feature numbering according to the appellant):

"An evaluation method of evaluating vehicle driving skills, the evaluation method comprising the steps of:

obtaining (S4) a first evaluation result on the vehicle driving skills based on measured data;

obtaining (S5) a second evaluation result on the vehicle driving skills based on the measured data;

generating conversion information empirically or experimentally, said conversion information being implemented as a conversion map and/or a conversion function;

storing said conversion map and/or said conversion function in an evaluation criterion memory unit in advance;

obtaining (S6) an overall evaluation result from the first evaluation result and the second evaluation result by reading out said conversion map and/or said conversion function from said evaluation criterion memory unit and using said conversion map and/or said conversion function; and

indicating (S7) the overall evaluation result to a driver via an output unit, wherein

the conversion map and/or said conversion function read out from said evaluation criterion memory unit defines the overall evaluation result in such a way that the overall evaluation result decreases as the second evaluation result increases if the first evaluation result is lower than a threshold, and in such a way that the overall evaluation result increases as the second evaluation result increases if the first evaluation result is higher than the threshold."

Claim 1 of auxiliary request 1 differs from claim 1 of the main request as follows (with text additions underlined and text omissions ~~struck through~~):

"An evaluation method of evaluating vehicle driving skills by obtaining an overall evaluation result based on measured data, the evaluation method comprising the steps of:

obtaining (S4) a first evaluation result on the vehicle driving skills based on the measured data;

obtaining (S5) a second evaluation result on the vehicle driving skills based on the measured data;

~~generating conversion information empirically or experimentally, said conversion information being implemented as a conversion map and/or a conversion function;~~

~~storing said conversion map and/or said conversion function in an evaluation criterion memory unit in advance;~~

obtaining (S6) the ~~an~~ overall evaluation result from the first evaluation result and the second evaluation result by reading out conversion information ~~said conversion map and/or said conversion function~~ from an ~~said~~ evaluation criterion memory unit, in which said conversion information has been stored in advance, and using said conversion information ~~map and/or said conversion function~~; and

indicating (S7) the overall evaluation result to a driver via an output unit, wherein

the conversion information ~~map and/or said conversion function~~ read out from said evaluation criterion memory unit defines the overall evaluation result in such a way that the overall evaluation result decreases as the second evaluation result increases if the first evaluation result is lower than a threshold, and in such a way that the overall evaluation result increases as the second evaluation result increases if the first evaluation result is higher than the threshold."

Claim 1 of auxiliary request 2 differs from claim 1 of the auxiliary request 1 as follows (with text additions underlined and text omissions ~~struck through~~):

"An evaluation method of evaluating vehicle driving skills ~~by obtaining an overall evaluation result based on measured data~~, the evaluation method comprising the steps of:

obtaining (S4) a first evaluation result on the vehicle driving skills based on ~~the~~ measured data;

obtaining (S5) a second evaluation result on the vehicle driving skills based on the measured data;

obtaining (S6) ~~the~~ an overall evaluation result from the first evaluation result and the second evaluation result ~~by reading out conversion information from an evaluation criterion memory unit, in which said conversion information has been stored in advance, and using said conversion information;~~ and

indicating (S7) the overall evaluation result to a driver via an output unit, wherein

~~the conversion information read out from said evaluation criterion memory unit defines the overall evaluation result in such a way that the overall evaluation result decreases as the second evaluation result increases if the first evaluation result is lower than a threshold, and in such a way that the overall evaluation result increases as the second evaluation result increases if the first evaluation result is higher than the threshold~~

if the first evaluation result is lower than a threshold, the overall evaluation result decreases as the second evaluation result increases; and

if the first evaluation result is higher than the threshold, the overall evaluation result increases as the second evaluation result increases."

Claim 1 of auxiliary request 3 differs from claim 1 of the auxiliary request 2 as follows (with text additions underlined and text omissions ~~struck through~~):

"An evaluation method of evaluating vehicle driving skills, the evaluation method comprising the steps of:

obtaining (S4) a first evaluation result on the vehicle driving skills based on ~~the~~ measured data;

obtaining (S5) a second evaluation result on the vehicle driving skills based on the measured data;

obtaining (S6) an overall evaluation result from the first evaluation result and the second evaluation result; and

indicating (S7) the overall evaluation result to a driver via an output unit, wherein

if the first evaluation result is lower than a threshold, the second evaluation result is a point-deduction element that decreases the overall evaluation result ~~the overall evaluation result decreases as the second evaluation result increases;~~ and

if the first evaluation result is higher than the threshold, the second evaluation result is a point-addition element that increases the overall evaluation result ~~the overall evaluation result increases as the second evaluation result increases."~~

Claim 1 of auxiliary request 4A differs from claim 1 of the main request as follows (with text additions underlined and text omissions ~~struck through~~):

"An evaluation method of evaluating vehicle driving skills, the evaluation method comprising the steps of:

obtaining (S4) a first evaluation result on the vehicle driving skills based on measured data;
wherein the first evaluation result is a vehicle stability score (Sv) obtained by a vehicle stability evaluation unit (46) based on the yaw rate, the roll rate and the pitch rate,

obtaining (S5) a second evaluation result on the vehicle driving skills based on the measured data;
wherein the second evaluation result is a turning performance score (Tv) obtained by a turning performance evaluation unit (47) based on the roll angle, the pitch angle and the positional information,

generating conversion information empirically or experimentally, said conversion information being implemented as a conversion map and/or a conversion function;

storing said conversion map and/or said conversion function in an evaluation criterion memory unit in advance;

obtaining ~~(S6)~~ an overall characteristic score (G) ~~evaluation result~~ from the first evaluation result and the second evaluation result by an overall evaluation unit (48) by reading out said conversion map and/or said conversion function from said evaluation criterion memory unit and using said conversion map and/or said conversion function; and

indicating (S7) the overall characteristic score (G) ~~evaluation result~~ to a driver via an output unit, wherein the conversion map and/or said conversion function read out from said evaluation criterion memory unit defines the overall characteristic score (G) ~~evaluation result~~ in such a way that the overall characteristic score (G) ~~evaluation result~~ decreases as the second evaluation result increases if the first evaluation result is lower than a threshold (b), and in such a way that the overall characteristic score (G) ~~evaluation result~~ increases as the second evaluation result increases if the first evaluation result is higher than the threshold (b),

the conversion information defines the overall characteristic score (G) in such a way that the overall characteristic score (G) increases as the first evaluation result increases,

such that when the vehicle stability score (Sv) is lower than the threshold (b), a message is given to the driver to require selective enhancement of only the vehicle stability score."

Reasons for the Decision

1. *Main request*

1.1 The subject-matter of claim 1 does not involve an inventive step in view of D1 (Article 56 EPC).

1.2 The Examining Division considered in its decision that D1 did not disclose the following features of the evaluation method of claim 1:

c) generating conversion information empirically or experimentally, said conversion information being implemented as a conversion map and/or a conversion function; storing said conversion map and/or said conversion function in an evaluation criterion memory unit in advance; [...] by reading out said conversion map and/or said conversion function from said evaluation criterion memory unit and using said conversion map and/or said conversion function; and

d) the conversion map and/or said conversion function read out from said evaluation criterion memory unit defines the overall evaluation result in such a way that the overall evaluation result decreases as the second evaluation result increases if the first evaluation result is lower than a threshold, and in

such a way that the overall evaluation result increases as the second evaluation result increases if the first evaluation result is higher than the threshold.

- 1.3 However, in the method of D1 the overall evaluation is carried out by calculating a weighted sum of the first and second evaluation results on the vehicle driving skills (see para. 44 of D1). This calculation falls under a conversion function as in claim 1 which is inevitably stored in the memory of the apparatus of D1 and generated empirically or experimentally (feature c). According to the application, priority is given to the first evaluation result when it is lower than a threshold (with a negative contribution to the overall result of an improvement in the second result) and when the first evaluation is higher than a threshold an improvement of the second value contributes positively to the overall result (feature d).

Consequently and in contrast to the conclusions of the Examining Division, the method of claim 1 only differs from that of D1 on account of the feature defining how the overall evaluation result is obtained (feature d). The appellant also concurs with this conclusion.

- 1.4 As correctly assessed by the Examining Division (see point 2.1.1.4.1 of the contested decision), this distinguishing feature is non-technical: it is of mathematical nature as it relates to calculated values or functions (Article 52(2) (a) EPC). Thus, the feature could only contribute to the acknowledgement of an inventive step if it provided a technical effect together with the other features of claim 1. It pertains to the case law of the Boards of appeal that the output of such calculated values (analogously to

presentation of information, Article 52(2)(d) EPC) might exceptionally contribute to the technical character of an invention if it can be assessed that it credibly assists the user (i.e. the driver) in performing a technical task by means of a continued and guided human-machine interaction process (question related to "why" the content is presented - see T 336/14, point 1.2.4; T 1802/13 page 10, second full paragraph; T 1091/17 point 1.7). This cannot be acknowledged here for the following reasons.

- 1.5 The appellant formulated the technical task as being that of assisting the driver in operating the vehicle in such a way that a more appropriate operation of the vehicle is achieved. Further, the overall evaluation result that considers the first and second evaluation result as input represented the presentation of the internal state of a technical system (the vehicle), since the latter results inevitably related to the state of the vehicle. The method according to claim 1 provided thus an objective guideline, based on the measured data related to the state of the driving system, on which characteristics the driver shall focus first in order to enhance proper driving operation. By outputting the obtained overall evaluation result, the user was reliably guided to operate the vehicle in line with the priority established by the vehicle itself.

However, the overall evaluation result displayed in the output device and obtained from the conversion map and/or conversion function according to feature d does not contain any indications of which of the first and second results have been given a priority for its obtaining. Accordingly, the driver has no idea as to which characteristics of its driving he shall give more focus by simply reading the overall evaluation result

output since he does not know how to interpret the result, as pointed out by the Examining Division in the impugned decision. The method merely obtains and displays an overall evaluation vehicle driving skills result according to a specific criterion applied to two evaluation results on vehicle driving skills based on unspecified measured data. No guidance nor feedback is presented, let alone in real time. The method does not provide any feedback on proper operation of the vehicle but only an overall evaluation on the driving skills. The fact that the driver can try to realize how to improve or worsen the overall evaluation result of its driving skills as displayed by changing its driving behaviour and check the output displayed goes beyond the method according to claim 1 and represents a mental activity of the driver as such.

Finally, it cannot be said from the wording of claim 1 whether the overall evaluation result presents the state of the technical system "vehicle". The overall evaluation result is obtained from the first and second evaluation results on vehicle driving skills and accordingly do not represent the state of the vehicle. Further, the first and second evaluation results are based on measured data. Such data is also not specified as being related to the state of the vehicle.

1.6 Consequently, the mathematical method and the output of its results according to claim 1 does not credibly assists the driver in performing a technical task by means of a continued and guided human-machine interaction process and accordingly lacks technical character.

2. *Auxiliary requests 1 to 3*

2.1 The auxiliary requests 1 to 3 correspond to the auxiliary request 1 to 3 underlying the contested decision.

2.2 Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that it further includes the feature: "*An evaluation method of evaluating vehicle driving skills by obtaining an overall evaluation result based on measured data*" (see figure 2 of D1).

This feature is, however, also known from D1 as pointed out by the Examining Division and implicit in claim 1 of the main request since the overall result is obtained for the first and second evaluation results which are based on measured data.

The same conclusions as for claim 1 of the main request apply therefore for claim 1 of auxiliary request 1.

2.3 The respective claim 1 of the auxiliary requests 2 and 3 suffer from the same problem as for claim 1 of the main request and auxiliary request 1 since they are broader in scope than claim 1 of the main request.

Consequently, the subject-matter of the respective claim 1 of these requests do not involve an inventive step either.

3. *Auxiliary requests 4A*

3.1 The auxiliary request 4A was filed during the oral proceedings as a reaction to an objection on inadmissible extension (Article 123(2) EPC) raised by the Board for the first time during the oral proceedings for the subject-matter of claim 1 of the auxiliary request 4 filed with the statement of grounds

of appeal. The request is considered to be a legitimate reaction to the above mentioned objection. Accordingly, exceptional circumstances justified with cogent reasons by the appellant are present that justify the admission of the request after notification of the summons to oral proceedings under Article 13(2) RPBA 2020 (Rules of Procedure of the Boards of Appeal OJ EPO 2019, A63).

3.2 Claim 1 is based on claims 6 and 7 together with paragraphs [0085], [0091], [0097], [0121], [0132], [0133] and [0152] of the application as originally filed. The subject-matter of claim 1 does not extend beyond the content of the application as originally filed and satisfies the requirements under Article 123(2) EPC.

3.3 The subject-matter of claim 1 of auxiliary request 4A differs from the method of D1 or D2 on account of feature d mentioned above and further on account of the following features:

the conversion information defines the overall characteristic score (G) in such a way that the overall characteristic score (G) increases as the first evaluation result increases, such that when the vehicle stability score (Sv) is lower than the threshold (b), a message is given to the driver to require selective enhancement of only the vehicle stability score.

3.4 The Board is satisfied that with this added features the method credibly assists the driver in performing the technical task of proper operation of the underlying technical system - i.e. the vehicle - by prioritizing the enhancement of its vehicle stability driving skills with respect to the turning performance

of the vehicle, and by a continued and guided human-machine interaction process in which instruction is given to the driver specifying how to operate, i.e. by enhancing the vehicle stability.

- 3.5 The Examining Division argued regarding the above mentioned feature that the calculation of the overall score was not linked to the feedback message given to the driver and to the action required from the driver since the provided message only depended on the stability score alone. The calculated overall score played no role in the message provided to the driver.

However, according to the above mentioned features of claim 1 the threshold used for the condition of giving a message to the driver regarding the vehicle stability score is that used for the calculation of the overall characteristic score. Accordingly, the overall score is linked to the message given to the driver and to the action required from him. Furthermore, the overall characteristic score is given to the driver via the output device together with a message instructing the driver to enhance the vehicle stability.

Such a specific guidance prioritizing the vehicle stability until a specific stability is reached over its turning performance for properly operating the vehicle is neither taught nor rendered obvious by D1 or D2. These documents merely present the vehicle stability score, the turning performance score and/or the overall characteristic score without any guidance to the driver.

Accordingly, the subject-matter of claim 1 is not rendered obvious by any of the methods disclosed in D1 and D2.

- 3.6 The subject-matter of claims 6, 7 and 8 which refer to an evaluation program, a storage medium storing the evaluation program and an evaluation apparatus respectively are also allowable for the same reasons as for the subject-matter of claim 1 since they carry out the method according to claim 1.
4. It follows from the above that the appeal is allowable and that the claim set of auxiliary request 4A fulfills the requirements of the EPC. Since the description needs to be adapted to the set of claims and both the appellant and the Board consider that this can be dealt more expediently by the Examining Division the case is remitted to the Examining Division with the following order.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division with the order to grant a patent on the basis of the claims of auxiliary request 4a as filed during the oral proceedings and a description to be adapted.

The Registrar:

The Chairman:



A. Vottner

G. Pricolo

Decision electronically authenticated