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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROBERT DENARO

Appeal 2019-004161
Application 12/156,269
Technology Center 3600

Before MICHAEL L. HOELTER, RICHARD H. MARSCHALL, and
BRENT M. DOUGAL, *Administrative Patent Judges*.

HOELTER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–21, which constitute all the claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM IN PART.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as “Here Global B.V.” Appeal Br. 2.

CLAIMED SUBJECT MATTER

The disclosed subject matter “relates to a method and system that enables taking a precautionary action in a vehicle, such as providing a warning to a vehicle driver about a potentially difficult or hazardous driving condition on the road network.” Spec. 1:13–15. Method claims 1 and 18, and apparatus claims 8 and 14, are independent. Claims 1 and 8 are illustrative of the claims on appeal and are reproduced below.

1. A method for making, prior to a vehicle's approach to a potentially hazardous location, a component configured for a vehicle system that provides a precautionary action in a vehicle when the vehicle approaches the potentially hazardous location, wherein the component comprises an augmented version of a database that represents a road network in a geographic region, and using the component to provide a precautionary action, the method comprising:

with a computer configured to operate under programming instructions, evaluating data contained in a first version of the database to identify locations along roads throughout the geographic region where a combination of a first condition and a second condition exist together at a same location wherein the first condition comprises a straight road section characterized in the database by no curvature followed by a curved road section characterized in the database by at least some curvature and wherein the second condition comprises a speed limit change between the straight road section and the curved road section;

with the computer configured to operate under programming instructions, upon determining existence of the second condition at the location of the first condition, adding precautionary action data in association with the location to form the augmented version of the database, such that the vehicle system of the vehicle, based upon the vehicle's approach to a location, may determine whether precautionary action data exists in the augmented version of the database in association with the approached location and, based on the existence thereof, take a precautionary action and wherein the vehicle system does not

take a precautionary action based on the precautionary action data when precautionary action data does not exist in the augmented version of the database in association with the approached location;

coupling the augmented version of the database with the vehicle system of the vehicle, the vehicle system comprising a positioning system;

accessing the augmented version of the database based on a location obtained from the positioning system of the vehicle system;

determining whether precautionary action data exists in the augmented version of the database in association with the obtained location; and

providing the result of the determination to the vehicle system.

8. A database stored on a non-transitory computer-readable medium, wherein the database includes data that represents a road network in a geographic region, wherein the database comprises:

data records configured to represent road segments that make up the road network;

data configured to indicate a speed limit change occurs between a straight road section and a curved road section along the road network; and

data configured in advance of operation of a vehicle to indicate precautionary action locations, wherein a precautionary action location is associated with a location where a speed limit change occurs between a straight road section characterized in the database by no curvature and a curved road section characterized in the database by at least some curvature along the road network, wherein the data indicative of a precautionary action location is operative to enable a vehicle system of the vehicle to take a precautionary action when the vehicle system determines that the vehicle is approaching a location associated with data stored in the database indicative of a precautionary action location and not take a precautionary action when the vehicle system determines that the vehicle is approaching a

location not associated with data stored in the database indicative of a precautionary action location; and

wherein the database is further configured to be accessed based on a location from a vehicle system having a positioning system therein, the location provided by the positioning system, determine whether the location is associated with data stored in the database indicative of a precautionary action location, and provide the result thereof to the vehicle system.

EVIDENCE

Name	Reference	Date
Tamura	US 2001/0020902 A1	Sept. 13, 2001
Harumoto et al. ("Harumoto")	US 2004/0193347 A1	Sept. 30, 2004
Donath et al. ("Donath")	US 2005/0149251 A1	July 7, 2005
Kellum et al. ("Kellum")	US 2007/0050127 A1	Mar. 1, 2007
Witmer	US 2009/144030 A1	June 4, 2009

REJECTIONS²

Claims 1–11 and 13–20 are rejected under 35 U.S.C. § 103(a) as unpatentable over Tamura, Kellum, and Donath.

Claim 12 is rejected under 35 U.S.C. § 103(a) as unpatentable over Tamura, Kellum, Donath, and Harumoto.

Claim 21 is rejected under 35 U.S.C. § 103(a) as unpatentable over Tamura, Kellum, Donath, and Witmer.

² "With respect to the rejections under 35 U.S.C. [§] 112, Applicant's arguments have been found persuasive. Therefore, the rejections under 35 U.S.C. [§] 112 are withdrawn." Advisory Action dated August 15, 2018.

ANALYSIS

*The rejection of claims 1–11 and 13–20
as unpatentable over Tamura, Kellum, and Donath*

Independent claim 1 contains limitations (that are addressed below) which are not recited in independent claims 8, 14, and 18. Accordingly, we address independent claim 1 (and its dependent claims 2–7) separate from independent claims 8, 14, and 18 (and their dependent claims).

Independent claim 1

Claim 1 recites the step of “evaluating data contained in a first version of the database” to ascertain if certain conditions “exist together at a same location.” Claim 1 further recites that “upon determining [such] existence . . . adding precautionary action data . . . to form the augmented version of the database.”³ In other words, the database is augmented (provided certain conditions exist) based upon an evaluation of itself. This is consistent with Appellant’s Specification addressing “a data mining function” wherein the conditions sought are “derived from data already collected and present in the database.” Spec. 7:25–28.

The Examiner relies on Tamura for the recited database augmentation teachings. *See* Final Act. 4. Appellant disagrees stating “Tamura relies on prior accident reports in order to augment the disclosed database.” Appeal Br. 8. Appellant explains, “in Tamura, the database is not analyzed at all to add precautionary action data as such data is entered in the database of

³ This is so that, as claimed, “based upon the vehicle’s approach to a location,” the vehicle “may determine whether precautionary action data exists in the augmented version of the database in association with the approached location.”

Tamura based simply on after-the-fact reports of the occurrence of an accident at a location.” Appeal Br. 8; Reply Br. 2.

Tamura teaches a server that “stores accident data regarding the conditions of vehicles involved in past accidents” that “is easy to update.” Tamura ¶¶ 9, 10; *see also* ¶ 15. In other words, Tamura’s server (database) is updated with recent past-accident data from more current sources, and not from an evaluation of itself, as recited.⁴ *See* Appeal Br. 7–9, Reply Br. 2–4.

We agree with Appellant. The Examiner does not make clear how Tamura’s updated database renders obvious Appellant’s evaluation of “a first version of the database” for certain conditions associated with a certain location, and, finding same, adding data “to form the augmented version of the database.” Accordingly, and based on the record presented, we do not sustain the Examiner’s rejection of claim 1 (and dependent claims 2–7) as being obvious over Tamura, Kellum, and Donath.

Independent claims 8, 14, and 18

Neither of these independent claims recite evaluating a first version of the database for certain conditions, and then adding data to that database to form an augmented version of the database, as discussed above. Hence, these three independent claims are addressed separately from our discussion of claim 1 above.⁵ Appellant argues claims 8, 14, and 18 together (and

⁴ “The accident data include accident position data corresponding to positions where accidents occurred and accident vehicle speed data corresponding to speeds of vehicles involved in the accidents at the time the accidents occurred.” Tamura ¶ 11.

⁵ For example, claim 8 recites “data configured in advance of operation of a vehicle to indicate precautionary action locations,” claim 14 recites “a database configured prior to operation of a vehicle,” and claim 18 recites “accessing a database configured prior to operation of the vehicle.”

concurrently with claim 1). *See* Appeal Br. 5–14. We select claim 8 for review, with the remaining claims standing or falling therewith. *See* 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner primarily relies on Tamura for disclosing the limitations of claim 8, but acknowledges certain deficiencies with Tamura, and relies on the teachings of Kellum and Donath to surmount these deficiencies. *See* Final Act. 9–11. Specifically, the Examiner relies on Kellum for disclosing a “database comprising data configured to indicate a speed limit change occurs between a straight road section and a curved road section.” Final Act. 10; *see also* Ans. 8. Regarding any ambiguity that may arise concerning Kellum’s straight and curved road sections, the Examiner relies on Donath for “teach[ing] that a straight road section is characterized in the database by no curvature and a curved road section is characterized in the database by at least some curvature.” Final Act. 10. The Examiner expresses a reliance on Donath “as an alternative or additional technique of defining features of a road, such as straight and curved road sections.” Final Act. 10–11.

Because Appellant argues claims 1–11 and 13–20 together (*see* Appeal Br. 5–14), we need not address Appellant’s arguments therein regarding the lack of an augmented database in Tamura because such limitation is not present in claim 8. *See* Appeal Br. 7–8. We likewise need not address Appellant’s arguments concerning the Examiner “taking Official Notice” regarding the relative risk of an accident between straight and curved road sections (Appeal Br. 8) because “[t]he Examiner has not taken

Official Notice” on this point (Ans. 4).⁶ We further need not address Appellant’s arguments regarding Tamura’s database “never be[ing] as complete as Appellant’s claimed database” because the Examiner is modifying “the teachings of Tamura with the aforementioned teachings of Kellum.” Appeal Br. 9; Final Act. 10. In other words, the Examiner is not relying on Tamura’s database alone, but is also relying on the teachings of Kellum whose database identifies locations where a straight road section is followed by a curved road section, and the posted speed of that curve. *See* Final Act. 10 (referencing Kellum ¶ 19, Fig. 3); *see also* Kellum Fig. 7 (illustrating transitions from an “In-Straight” position to an “Entering Curve” position to an “Exiting Curve” position), Ans. 6. Kellum states that such analysis is to assist the driver “to negotiate the curve” and that such data can “be delivered to the driver when the vehicle **10** is within some distance of or some time before the Curve Start.” Kellum ¶¶ 26, 27. Thus, Appellant’s focus on Tamura’s database as not being complete is not responsive to the Examiner’s rejection that relies on the combination of the teachings of Tamura and Kellum (and that of Donath). *See* Final Act. 9–11.

When addressing Kellum, Appellant contends, “Kellum teaches only examining individual road segments as opposed to the relationship among adjacent road segments.” Appeal Br. 10: *see also id.* at 11, 12; Reply Br. 5–

⁶ The Examiner explains, “[a] person of ordinary skill in the art would readily expect that there is a higher risk of an accident occurring along a curved road section associated with an advisory speed limit (which is lower than a posted speed limit) because, by their nature, advisory speed limits for curved road sections are designed to suggest that the driver slow down and take caution as the safe speed for negotiating the road section is below the legal posted speed.” Ans. 5.

8. Appellant acknowledges “Kellum’s disclosure of separately calculating curvature for each road segment,” but contends that Kellum “does not disclose identification of adjacent straight and curved road segments having different speed limits there between.” Appeal Br. 10; *see also* Reply Br. 5 (“Segment by segment analysis is not the same as analyzing a given segment in combination with another segment.”).

It is not disputed that Kellum teaches “map databases [that] use a series of points to represent a roadway,” with straight roadways “represented by as few as two points” and curved roadways “represented by a plurality of closely spaced points.” Kellum ¶ 16. Further, Paragraph 2 of Kellum states that “[c]urved roadways can be a significant source of roadway departures” because the upcoming curve is not identified “in time to slow down with the result being that the vehicle enters the curve too fast.” Additionally, Figure 3 of Kellum illustrates an exemplary dashboard which displays an advisory speed for an upcoming curve (as compared with present speed). *See* Kellum ¶ 28 (“the vehicle **10** may enter a curve at a speed that exceeds the estimated negotiable speed.”). Consequently, Kellum is able to distinguish an upcoming curved roadway section and provide a warning of the approaching curve to the driver, as well as an advisory speed for that curve. *See also* Kellum ¶ 15, Ans. 8. Thus, Appellant’s contention that “Kellum teaches only examining individual road segments as opposed to the relationship among adjacent road segments” (Appeal Br. 10; Reply Br. 5) is puzzling in view of such explicit disclosures in Kellum of assessing the vehicle’s approach to curved road sections. Further, it is clear from at least Figure 3 of Kellum that this reference discloses an upcoming road segment having a different speed limit. *See also* Kellum Abstract, Figure 1 (box 14

(“calculating estimated negotiable speed”). Accordingly, Appellant’s contentions of Examiner error due to a reliance on Kellum are not well-founded.

Appellant further seeks to distinguish Kellum because Kellum’s “True Curves are determined from candidate curves, meaning that there must be other types of curves other than True Curves in the system of Kellum.” Appeal Br. 11; Reply Br. 7. However, the Examiner seems to already be aware of some possible ambiguity in Kellum regarding curved road segments, and hence the Examiner’s additional reliance on Donath. *See* Final Act. 10–11 (addressing the teachings of Donath as “an alternative or additional technique of defining features of a road.”). As stated above, the Examiner relied on Donath for “teach[ing] that a straight road section is characterized in the database by no curvature and a curved road section is characterized in the database by at least some curvature.” Final Act. 10. Thus, Appellant’s focus on Kellum on this point is not persuasive of error.

Regarding Donath, Appellant contends, “the Examiner has failed to show a sufficient motivation to combine.” Appeal Br. 12. However, as previously expressed, the Examiner notes Donath’s teachings “as an alternative or additional technique.” Final Act. 10–11; *see also* Ans. 9. We have been instructed that “if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007). Here, Appellant does not explain how the implementation of Donath’s distinction between curved and straight road sections is beyond the ability of one skilled in the art. In other words,

Appellant is not persuasive that Donath's differentiation between these segments cannot be an "alternative or additional technique" in discerning between such sections.

Accordingly, and based on the record presented, we sustain the Examiner's rejection of independent claims 8, 14, and 18, and their dependent claims 9–11, 13, 15–17, 19, and 20.

*The rejection of claim 12
as unpatentable over Tamura, Kellum, Donath, and Harumoto*

Claim 12 depends from claim 8. Appellant contends that the additional reliance on "Harumoto does not fill the gaps identified above" with respect to claim 8. Appeal Br. 13. We are not persuaded there are "gaps" in the teachings of Tamura, Kellum, and Donath as indicated above. *See also* Ans. 9. Accordingly, we sustain the Examiner's rejection of claim 12 as being obvious over Tamura, Kellum, Donath, and Harumoto.

*The rejection of claim 21
as unpatentable over Tamura, Kellum, Donath, and Witmer*

Claim 21 depends directly from claim 1. Witmer does not cure the defect of the lack of an augmented database as discussed with respect to claim 1 above. Thus, for similar reasons, we likewise do not sustain the Examiner's rejection of claim 21 as being obvious in view of Tamura, Kellum, Donath, and Witmer.

However, to address Appellant's contentions, we note that claim 21 further recites, "no shape points" being stored in association with a straight road section, and "at least one shape point" being stored in association with a curved road section. The Examiner relies on Witmer for such teachings. *See* Final Act. 18 (referencing Witmer Fig. 3). Appellant's Specification

differentiates between the recited “shape points” and what are described and illustrated as “nodes.” *See* Spec. Fig. 3; *see also* Spec. 4:21–29 (“Shape points indicate the geographic coordinates at points along the road segment between the nodes.”). Witmer, on the other hand, does not differentiate between shape points and nodes, calling all such locations along the roadway “shape points.” *See, e.g.,* Witmer ¶ 84, Fig. 3; *see also* Appeal Br. 13–14, Reply Br. 10 (both stating “Witmer specifically teaches that the points 302, 303, 304, 305, 306, 307 are ALL shape points.”).

As a consequence, Appellant contends, “there is no teaching in Witmer of a straight road segment stored in a database with NO shape points as claimed by Appellant.” Appeal Br. 14, Reply Br. 10. This is because in Witmer, the end points 302, 303 of a straight road section are described as “shape points” whereas in accordance with Figure 1B of Appellant’s Specification, a corresponding straight section has end points 30, 32 described as “nodes.” *See* Reply Br. 9 (“‘node’/‘endpoints’ 30 and 32”). Thus, Appellant makes the above assertion that Witmer lacks a teaching of a straight road segment “with NO shape points.”

Addressing this disparity in terminology, the Examiner analogizes the two straight road sections “comparing Applicant’s Fig. 1B and Witmer’s Fig. 3.” But for a difference in the terminology used to describe their respective end points, there is no difference. *See* Ans. 10–11. In other words, should one skilled in the art apply Appellant’s terminology to Witmer’s disclosure, Appellant does not explain how the limitation of claim 21 would not have been disclosed.

Accordingly, although we are not persuaded by Appellant’s “shape points” arguments specific to claim 21, we nevertheless reverse the

Examiner's rejection of claim 21 in view of a lack of an augmented database as recited in parent claim 1. We thus reverse the Examiner's rejection of claim 21 as being obvious over Tamura, Kellum, Donath, and Witmer.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-7	103(a)	Tamura, Kellum, Donath		1-7
8-11, 13-20	103(a)	Tamura, Kellum, Donath	8-11, 13-20	
12	103(a)	Tamura, Kellum, Donath, Harumoto	12	
21	103(a)	Tamura, Kellum, Donath, Witmer		21
Overall Outcome			8-20	1-7, 21

No period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED IN PART