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Datasheet for the decision of 29 November 2022

Case Number: T 2253/17 - 3.5.04

Application Number: 11844437.1

Publication Number: 2647210

IPC: H04N13/00, H04N13/02

Language of the proceedings: EN

Title of invention:
SYSTEM AND METHOD OF VIEWING AND TRACKING STEREOSCOPIC VIDEO IMAGES

Applicant:
Ultradent Products, Inc.

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (no)

Decisions cited:

Catchword:

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Case Number: T 2253/17 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 29 November 2022

Appellant: (Applicant)	Ultradent Products, Inc. 505 West 10200 South South Jordan, Utah 84095 (US)
Representative:	Forresters IP LLP Skygarden Erika-Mann-Straße 11 80636 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 10 May 2017 refusing European patent application No. 11844437.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairwoman	B. Willems
Members:	M. Paci
	T. Karamanli

Summary of Facts and Submissions

I. The appeal is against the examining division's decision refusing European patent application No. 11 844 437.1, published as international patent application WO 2012/075155 A2.

II. In the decision under appeal, the examining division referred to the following prior-art documents.

D1: GB 2 329 545 A
D2: US 5 961 456 A
D3: US 6 326 994 B1

III. The decision under appeal was based on the following grounds.

- The subject-matter of claim 1 of the **main request and the first and fourth auxiliary requests** then on file did not involve an inventive step in view of document D3 and either document D1 or the skilled person's common general knowledge (Articles 52(1) and 56 EPC).

- The subject-matter of claim 1 of the **second and third auxiliary requests** then on file did not involve an inventive step in view of document D3, document D2 and either document D1 or the skilled person's common general knowledge (Articles 52(1) and 56 EPC).

IV. The applicant (appellant) filed notice of appeal. With the statement of grounds of appeal, the appellant filed sets of claims according to a main request and first to fifth auxiliary requests. It requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of the main request

or, alternatively, on the basis of the claims of one of the first to fifth auxiliary requests. As a precaution, the appellant also requested oral proceedings.

V. The board issued a summons to oral proceedings and a communication under Article 15(1) of the revised version of the Rules of Procedure of the Boards of Appeal (RPBA 2020, OJ EPO 2021, A35). In this communication, the board gave the preliminary opinion that:

- the board was inclined to admit the main request and the first to fifth auxiliary requests into the appeal proceedings (Article 12(4) of the Rules of Procedure of the Boards of Appeal in the version of 2007 (RPBA 2007 -see OJ EPO 2007, 536)
- the system of claim 1 of the main request and the first, second and fifth auxiliary requests did not involve an inventive step in view of the disclosure of D3 and the skilled person's common general knowledge (Article 56 EPC)
- the system of claim 1 of the third and fourth auxiliary requests did not involve an inventive step in view of D3, D2 and common general knowledge (Article 56 EPC)

VI. In its letter of reply dated 31 October 2022, the appellant submitted reasons to support its opinion that the subject-matter of claim 1 of each of the requests on file met the requirements of Article 56 EPC.

VII. By letter received on 1 November 2022, the appellant requested that the oral proceedings scheduled for 29 November 2022 be held by videoconference.

VIII. By communication of the Registry dated 3 November 2022, the appellant was informed that the oral proceedings would be held by videoconference.

IX. In its letter dated 25 November 2022, the appellant submitted additional arguments as to why the subject-matter of claim 1 of each of the requests on file met the requirements of Article 56 EPC.

X. The board held oral proceedings on 29 November 2022.

During the oral proceedings, the board introduced the following documents as evidence of common general knowledge.

D4: S. Reeve et al., "Basic Principles of Stereoscopic 3D", Copyright 2010, retrieved from the internet at https://www.ncl.ac.uk/media/wwwnclacuk/pressoffice/files/pressreleaseslegacy/Basic_Principles_of_Stereoscopic_3D_v1.pdf

D5: D. Runde, "How to Realize a Natural Image Reproduction using Stereoscopic Displays with Motion Parallax", IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, Vol. 10, No. 3, April 2000

The Chair noted that 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 the main request or, alternatively, of one of the first to fifth auxiliary requests, all requests filed with the statement of grounds of appeal.

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

XI. Claim 1 of the appellant's **main request** reads as follows:

"*A system for tracking stereoscopic video images, comprising:*

a first video camera configured to generate a first video feed of a subject;

a second video camera spaced a pupillary distance from the first video camera and configured to generate a second video feed of the subject;

a tracking module associated with the first video camera and the second video camera, the tracking module configured so that the first video camera and the second video camera are directed to a convergent point to generate a stereoscopic video image so that a location of the convergent point is adjusted relative to movement of a tracking point associated with the subject to maintain the stereoscopic video image;

a zooming module associated with the first video camera and the second video camera, the zooming module configured to provide a desired magnification of the stereoscopic video image."

XII. Claim 1 of the appellant's **first auxiliary request** reads as follows:

"*A system for tracking stereoscopic video images, comprising:*

a first video camera configured to generate a first video feed of a subject;

a second video camera spaced a pupillary distance from the first video camera and configured to generate a second video feed of the subject;

a tracking module associated with the first video camera and the second video camera, the tracking module

configured so that both the first video camera and the second video camera are directed to a convergent point to generate a stereoscopic video image and the tracking module is configured so that the location of the convergent point is adjusted relative to movement of a selected tracking point associated with the subject thereby maintaining the stereoscopic video image; and

a zooming module associated with the first video camera and the second video camera, the zooming module configured to provide a desired magnification of the stereoscopic video image."

XIII. Claim 1 of the appellant's **second auxiliary request** reads as follows:

"*A system for tracking stereoscopic video images, comprising:*

a first video camera configured to generate a first video feed of a subject;

a second video camera spaced a pupillary distance from the first video camera and configured to generate a second video feed of the subject;

a tracking module in communication with both the first video camera and the second video camera and wherein the tracking module causes both the first video camera and the second video camera to be directed towards a convergent point relative to a selected tracking point to generate a stereoscopic video image and wherein the location of the convergent point is adjusted by the tracking module relative to movement of the tracking point;

a zooming module associated with the first video camera and the second video camera, the zooming module configured to provide a desired magnification of the stereoscopic video image."

XIV. Claim 1 of the appellant's **third auxiliary request** reads as follows:

"*A system for tracking stereoscopic video images, comprising:*

a first video camera configured to generate a first video feed of a subject;

a second video camera spaced a pupillary distance from the first video camera and configured to generate a second video feed of the subject;

a tracking module associated with the first video camera and the second video camera, the tracking module configured so that the first video camera and the second video camera are directed to a convergent point to generate a stereoscopic video image so that a location of the convergent point is adjusted relative to movement of a tracking point associated with the subject to maintain the stereoscopic video image;

a zooming module associated with the first video camera and the second video camera, the zooming module configured to provide a desired magnification of the stereoscopic video image; and

an optically trackable marker or at least two radio frequency markers configured to be associated with the tracking point to enable a direction of the first video camera and the second video camera to be adjusted based on a change in a location of the optically trackable marker or the at least two radio frequency markers."

XV. Claim 1 of the appellant's **fourth auxiliary request** reads as follows:

"*A system for tracking stereoscopic video images in a dental setting, comprising:*

a first video camera configured to generate a first video feed of a subject;

a second video camera spaced a pupillary distance from the first video camera and configured to generate a second video feed of the subject;

a tracking module associated with the first video camera and the second video camera, the tracking module configured so that the first video camera and the second video camera are directed to a convergent point to generate a stereoscopic video image so that a location of the convergent point is adjusted relative to movement of a tracking point associated with the subject to maintain the stereoscopic video image;

a zooming module associated with the first video camera and the second video camera, the zooming module configured to provide a desired magnification of the stereoscopic video image; and

an optically trackable marker or at least two radio frequency markers configured to be associated with the tracking point to enable a direction of the first video camera and the second video camera to be adjusted based on a change in a location of the optically trackable marker or the at least two radio frequency markers."

XVI. Claim 1 of the appellant's **fifth auxiliary request** reads as follows:

"*A method for viewing and tracking stereoscopic video images, comprising:*

directing a first video camera and a second video camera to a selected area of a subject to generate a respective first video feed and a second video feed of the selected area, wherein the first video camera is separated from the second video camera by a selected distance, and wherein the first video camera and the second video camera are each directed to a convergent point at or near the selected area to provide stereopsis of the selected area;

associating the convergent point with a tracking point on or about the subject;

adjusting a location of the convergent point relative to movement of the selected tracking point; and

displaying the first video feed and the second video feed on a display system that optically separates the first video feed and the second video feed to create a stereoscopic video image."

Reasons for the Decision

1. The appeal is admissible.

Main request - inventive step (Articles 52(1) and 56 EPC)

2. Closest prior art

The board concurs with the examining division and the appellant that document D3 represents the closest prior art for the subject-matter of claim 1 of the main request.

3. Distinguishing features

3.1 The examining division held that document D3 disclosed all the features of the system of claim 1, except the zooming module (see point 12.1 of the Reasons for the decision).

3.2 The board is of the view that D3 discloses the following features of the system of claim 1:

A system for tracking stereoscopic video images, comprising:

a first video camera configured to generate a first video feed of a subject; **[see camera 11 in Figure 1]**

a second video camera spaced a ~~pupillary~~ distance from the first video camera and configured to generate a second video feed of the subject; **[see camera 12 in Figure 1]**

a tracking module **[see controller 15 in Figure 1]** *associated with the first video camera and the second video camera, the tracking module configured so that the first video camera and the second video camera are directed to a convergent point* **[see Figure 9 and the corresponding description in columns 7 to 9]** *to generate a stereoscopic video image so that a location of the convergent point is adjusted relative to movement of a tracking point* **[which may be the same as the convergent point according to page 12, lines 18 and 19, of the application as filed]** *associated with the subject to maintain the stereoscopic video image;*

~~a zooming module associated with the first video camera and the second video camera, the zooming module configured to provide a desired magnification of the stereoscopic video image~~.

3.3 In light of the above, the board considers that the system of claim 1 differs from D3 by the following distinguishing features:

(a) The distance between the first and second video cameras is a pupillary distance.
(b) The zooming module as defined in claim 1.

3.4 The appellant submitted that, in addition to the zooming module, D3 did not disclose a tracking module which controls both cameras (see pages 7 to 9 of the statement of grounds of appeal and pages 4 to 6 of the

appellant's letter of 31 October 2022). The appellant's arguments may be summarised as follows.

(a) It is wrong to consider the **whole** controller 15 (see Figure 2 of D3) as a tracking module as defined in claim 1. Only the sub-parts "*moving object detector 21*" and "*pan-and-tilt controller 22*" of controller 15 perform tracking. These two sub-parts only control one camera (camera 11), unlike the tracking module of claim 1. The remaining sub-parts "*pattern matching 23*" and "*pan-and-tilt controller 24*", which control the second camera (camera 12), allow that camera to follow a moving object by pattern matching but do not perform tracking of the object.

(b) The tracking module of claim 1 allows **both** cameras to **always** be directed at the convergent point on the object, as can be derived from the expression "*to maintain the stereoscopic video image*" in the definition of the tracking module in claim 1. In contrast, in D3, the first camera is directed at the object and only then, after pattern matching, the second camera is also directed at the object. Hence, in D3, both cameras are not **always** directed at the convergent point.

3.5 The board does not find these arguments persuasive for the following reasons.

3.5.1 Re argument (a)

The tracking module as defined in claim 1 is essentially a module which allows directing the first and second video cameras to a convergent point on the object to maintain a stereoscopic video image even if the object moves. The location of the convergent point

is adjusted relative to a tracking point (which may be the convergent point itself according to page 12, lines 18 and 19 of the description) associated with the object.

The controller 15 (see Figures 1 and 2) of D3 performs the steps shown in the flow-chart of Figure 9 and described in columns 7 to 9, the result of which is that both cameras are directed to and focused on a convergent point on the object. Since the convergent point corresponds to a (central) point of the object obtained from pattern matching distinguishing features of the object, such as corners of the outline and line segments, it automatically moves with the object (see from column 8, line 43 to column 9, line 5).

The appellant argued that the tracking control means in D3 only controls the first camera. However, this argument is based on the tracking control means of D3 comprising only moving object detector 21 and first pan-and-tilt controller 22, which constitute only a part of controller 15 (see Figure 2). The whole controller 15, however, controls both cameras. Indeed, the second camera also tracks the convergent point in that it follows the convergent point as the object moves. The fact that the "*tracking*" of the second camera involves pattern recognition does not change the fact that it nevertheless tracks the convergent point.

For these reasons, **argument (a)** is not persuasive and, as correctly held by the examining division, the controller 15 of D3 anticipates the tracking module of claim 1.

3.5.2 Re argument (b)

The appellant is correct that in D3 the first camera is directed at the object first and only then, after pattern matching, the second camera is also directed at the object, as shown in steps S103 to S105 of Figure 9. However, according to column 7, lines 61 and 62 of D3, these steps are performed "*frame by frame*". Since a video camera typically generates 25 to 30 frames per second, the time lag between the tracking of the first and second cameras would be less than 1/25th of a second and would be too short for any human observer to notice. The board thus considers that the system of D3 also "*maintains the stereoscopic video image*".

For these reasons, the board does not find **argument (b)** persuasive either.

4. Objective technical problem

In the board's view, the technical effect of distinguishing feature (a) is that the convergent angle feels more natural and less tiring to the user because the cameras are separated by the same distance as their own eyes.

The technical effect of the zooming module (in combination with the tracking module) is that the zooming module provides a desired magnification of the stereoscopic video image.

In view of the above technical effects, the board regards it as appropriate to formulate the objective technical problem, without pointers to the solution, as **how to improve the stereoscopic system of D3.**

The board notes that the above objective technical problem is similar to that proposed by the appellant on page 9, 12th paragraph, of the statement of grounds of appeal. However, during the oral proceedings, the appellant argued that the objective technical problem should be formulated as "*the provision of an improved system for tracking stereoscopic video images that allows you to work precisely on small objects even if the object moves*".

The board does not regard this objective technical problem as correct for the following reasons.

(1) The word "*small*" may be regarded as a pointer to the solution, i.e. to provide a zooming module.

(2) Without the word "*small*", the objective technical problem would imply that the system of claim 1 tracks objects better than that of D3, something the board is not convinced of.

(3) The objective technical problem does not cover the technical effect achieved by distinguishing feature (a), i.e. that the convergent angle feels more natural and less tiring to the user because the cameras are separated by the same distance as their own eyes.

5. Obviousness

5.1 Re distinguishing feature (a)

5.1.1 The board regards it as common general knowledge that the convergent angle of the cameras should feel natural to the user and that a pupillary distance between the two cameras was a well-known way to achieve that.

5.1.2 The appellant disputed that the above was common general knowledge and requested that the board backed its assertion with documentary evidence (see pages 8 and 9 of the appellant's letter of 31 October 2022).

5.1.3 Although the board does not consider that it was under an obligation to provide evidence for such a well-known technical fact in the technical field of stereoscopic imaging, it nevertheless introduced during the oral proceeding documents D4 and D5 as documentary evidence of the alleged common general knowledge.During the oral proceedings, the board referred, *inter alia*, to the following passages.

- The sentence "*A pair of matched cameras, **typically** spaced at roughly adult eye 'interocular' distance (approx 6cm) is used to capture the image.*" (emphasis by the board) on page 3 of D4 under the heading "*S3D Cinematography*" meaning "*Stereoscopic 3D Cinematography*".

- The sentence "*In order to capture the correct views for both eyes, the distance between the cameras (camera base BK) is identical to the interocular distance (BA)*" in the right column on page 376 of D5.

Document D4 is a technical publication summarising the "*Basic Principles of Stereoscopic 3D*", as indicated in its title, and thus was compelling documentary evidence of common general knowledge, provided that it referred to basic principles known before the priority date of the current application. The priority date of the current application is 2 December 2010. Document D4 bears the mention "*@2010*" on its last page, thus document D4 was finalised at the latest on 31 December

2010, i.e. at the latest 29 days after the priority date. The board regards it as beyond doubt that the basic principles described in D4 were established at least 30 days before the finalisation of document D4. Accordingly, the board considers document D4 as referring to basic principles of stereoscopic 3D known before the priority date.

Moreover, document D5, a scientific paper published in 2000, i.e. ten years before the priority date, further corroborates that it was well known to place two stereoscopic cameras at a pupillary distance from each other.

For the above reasons, the board, having evaluated the above evidence under the principle of free evaluation of evidence enshrined in the case law of the boards (see Case Law of the Boards of Appeal of the EPO, 10th edition 2022, III.G.4.1), considers it sufficiently proven that it was common general knowledge that placing two stereoscopic cameras at a pupillary distance from each other was commonly used and generally resulted in stereoscopic images feeling natural to the viewer.

5.1.4 The appellant's sole reaction to the introduction by the board of documents D4 and D5 was to point out that these documents were late filed.

5.1.5 The admission of late-filed evidence is governed by the provisions of the EPC and the Rules of Procedure of the Boards of Appeal (RPBA). According to Article 114(2) EPC, the EPO may disregard facts or evidence which are not submitted in due time by the **parties concerned** (emphasis by the board). The RPBA 2007 and 2020 contain precise provisions on amendments to **parties'** cases (see

Articles 12(4) and 13 RPBA 2007 and Articles 12(4) to (6) and 13 RPBA 2020). All these provisions refer to parties' submissions and they explicitly leave the admission of late-filed evidence to the board's discretion. However, there is no provision in the EPC, the RPBA or elsewhere that documents introduced into the proceedings by a board of appeal can be considered as "late-filed".

Apart from that, even if there were a "late-filed"-concept for documents introduced into the proceedings by the boards of appeal, the board does not regard the documents D4 and D5 introduced during the oral proceedings as "late filed" because the appellant disputed the above common general knowledge and requested documentary evidence for the first time in its letter of 31 October 2022, i.e. only four weeks before the date of the oral proceedings.

5.1.6 Although the appellant did not allege that its right to be heard enshrined in Article 113(1) EPC had been violated by the introduction of documents D4 and D5 during the oral proceedings, the board regards it as appropriate to make the following observations.

The appellant was given sufficient opportunity and time at the oral proceedings to present comments on documents D4 and D5. During the oral proceedings, the appellant was given in particular as much time as it requested to study these documents. The board pointed out the relevant passages (only a few sentences) in those documents. The documents were not cited as new prior-art documents but merely as documentary evidence for the common general knowledge that the board had brought to the appellant's attention in its

communication under Article 15(1) RPBA 2020 presenting the preliminary opinion of the board.

5.1.7 The appellant argued that even if it had been common general knowledge to space the cameras apart by the pupillary distance, the person skilled in the art would have had no incentive to apply this knowledge to the teaching of document D3. In the case at hand, in view of the above common general knowledge, the board considers that it would have been an obviously advantageous choice for the skilled person to place the two cameras of D3 at a pupillary distance from each other.

5.2 Re distinguishing feature (b)

5.2.1 As acknowledged by the appellant on page 1 of the statement of grounds of appeal, stereoscopic video images, i.e. video images in which depth can be perceived, were well known to be useful in a range of professions including dentistry, medicine, research, teaching, microbiology, electronics, jewel cutting and watch repair.

In several of these professions, the need to see minute details made a zoom function indispensable. Prior-art document D1, for instance, mentions such a zoom function in a stereoscopic video imaging system (see paragraph bridging pages 11 and 12 of the description). Such a zoom function is also implied in prior-art document D2 by the provision of a surgical stereoscopic microscope (see M in Figure 3, column 5, lines 59 to 64 and column 7, lines 1 to 6 and 39 to 43).

The board considers that it was common general knowledge in the technical field of imaging, including

in stereoscopic imaging, that a zooming functionality could advantageously be added for applications which required magnification. In the board's view, documents D1 and D2 provide evidence of this.

In the board's view, the provision of a zoom function in the stereoscopic system of D3 would have been an obviously desirable feature for known applications such as dentistry, medicine, research, microbiology, electronics, jewel cutting and watch repair.

5.2.2 The appellant's arguments may be summarised as follows.

(1) Although a zooming function for a single camera was common general knowledge, the board did not provide evidence that it was also the case for a pair of cameras in a stereoscopic system. Prior-art documents D1 and D2 did not provide evidence of such common general knowledge.

(2) Even if a zooming function was common general knowledge, the skilled person would have had no incentive to apply it to the system of D3, which was for virtual reality and games (see page 10, first paragraph of the statement of grounds of appeal).

5.2.3 The board does not find these arguments persuasive for the following reasons.

Re argument (1)

As acknowledged by the appellant during the oral proceedings, it was common general knowledge before the priority date that a video camera could be equipped with a zoom. Prior-art documents D1 and D2 provide evidence that a zooming function (i.e. a magnifying

function) was also well known for a pair of cameras in a stereoscopic system (see the paragraph bridging pages 11 and 12 of D1 and the stereoscopic microscope (M) with cameras (61,62) in Figure 3, column 5, lines 59 to 64 and column 7, lines 1 to 6 and 39 to 43 of D2).

Re argument (2)

The board does not find this argument persuasive either because document D3 is not limited to virtual reality and games. The only mention of virtual reality and games is in column 1, lines 14 to 17 of D3 under the heading "*Description of the Related Art*" and reads as follows:

"*Considerable research and development has been carried out on three-dimensional image display techniques using a head-mounted display and a head-up display and so on for applications such as virtual reality and games.*"

In the board's view, the above sentence does not limit the system of D3 to virtual reality and games. Moreover, the system of D3 tracks a real moving object with its two cameras. This is hardly compatible with virtual reality and games.

Finally, the board sees no technical difficulty in adding a zoom function to the system of D3. Since the two cameras are automatically focused on the same convergent point of the subject, a magnified stereoscopic video image of the convergent point can easily be obtained by changing the zoom factor on both cameras by the same amount.

6. Conclusion on inventive step

For the above reasons, the board considers that the subject-matter of claim 1 of the main request does not involve an inventive step in view of document D3 and common general knowledge.

First auxiliary request - inventive step (Articles 52(1) and 56 EPC)

7. Claim 1 of the first auxiliary request differs from claim 1 of the main request by the following amendments (additions are underlined, deletions are struck-through):

"a tracking module associated with the first video camera and the second video camera, the tracking module configured so that both the first video camera and the second video camera are directed to a convergent point to generate a stereoscopic video image and the tracking module is configured so that ~~a~~the location of the convergent point is adjusted relative to movement of a selected tracking point associated with the subject ~~to maintain~~thereby maintaining the stereoscopic video image;"

8. The board is not convinced by the appellant's argument presented during the oral proceedings that these amendments clarify that the cameras move in a unified manner, i.e. that both cameras are always directed at the convergent point. These amendments do not further distinguish the claimed subject-matter from the system of D3 for the reasons given in section 3.5 above. Hence, the board's reasoning on inventive step set out above for claim 1 of the main request also applies to claim 1 of the first auxiliary request.

9. Conclusion on inventive step

For the above reasons, the board considers that the subject-matter of claim 1 of the first auxiliary request does not involve an inventive step in view of document D3 and common general knowledge.

Second auxiliary request - inventive step (Articles 52(1) and 56 EPC)

10. Claim 1 of the second auxiliary request differs from claim 1 of the main request by the following amendments (additions are underlined, deletions are struck-through):

"a tracking module ~~associated~~ in communication with both the first video camera and the second video camera, and wherein the tracking module ~~configured so that~~ causes both the first video camera and the second video camera ~~are~~ to be directed ~~to~~ towards a convergent point relative to a selected tracking point to generate a stereoscopic video image ~~so that a~~ and wherein the location of the convergent point is adjusted by the tracking module relative to movement of ~~a~~ the tracking point ~~associated with the subject to maintain the stereoscopic video image~~;"

11. In the board's view, the above additional feature that the tracking module is in communication with both cameras was known from D3 because controller 15 in D3 is in communication with both the first video camera (11) and the second video camera (12) (see Figures 1 and 2).

12. The appellant repeated the argument made for the main request that the tracking module in D3 was not the whole controller 15 but only a sub-part of it (see point 3.4 above).

13. The board refuted the appellant's argument under point 3.5.1 above.

14. Conclusion on inventive step

For the above reasons, the board considers that the subject-matter of claim 1 of the second auxiliary request does not involve an inventive step in view of document D3 and common general knowledge.

Third auxiliary request - inventive step (Articles 52(1) and 56 EPC)

15. Claim 1 of the third auxiliary request differs from claim 1 of the main request by the following additional feature:

"*an optically trackable marker or at least two radio frequency markers configured to be associated with the tracking point to enable a direction of the first video camera and the second video camera to be adjusted based on a change in a location of the optically trackable marker or the at least two radio frequency markers*."

16. Optically trackable markers on an object to provide reference points were well known in the art, including in the field of stereoscopic video imaging (see document D2, optical markers 50, 51 and 52 in Figure 3; the corresponding description in column 6, lines 34 to 37; and claim 10).

The board thus considers the positioning of optical markers on an object to be a well-known way of establishing the position of the object. Such positioning of optical markers had obvious pros and cons. The main advantage was that it allowed a precise positioning of the cameras relative to the object. The main disadvantage was that optical markers had to be positioned on the object. In the board's view, for stereoscopic applications such as surgery or dentistry, in which the above advantage of optical markers outweighed the above disadvantage, it would have been desirable to use such optical markers for determining both the position of the object and of the convergent point relative to both cameras. In the board's view, it would have been straightforward to add such optical trackers to the system of D3 as a selectable alternative to the automatic tracking of D3. In this respect, the board notes that the automatic tracking of D3 may be switched on and off (see S102 in Figure 9 and column 7, lines 38 to 40).

For the above reasons, the skilled person would have arrived at the optical-marker alternative in the additional feature of claim 1 without inventive activity.

17. The appellant argued that the skilled person would not have applied the teaching of document D2 on markers to the system of D3 because in D2 the markers (50,51,52) were in a fixed positional relationship with the pair of cameras (61,62).

18. The board does not find this argument persuasive because the skilled person would understand from the use of markers in the context of stereoscopic imaging in D2 that they were a suitable tool for establishing

the relative position of the object, be it in 3D space or with respect to the camera.

19. Conclusion on inventive step

For the above reasons, the board considers that the subject-matter of claim 1 of the third auxiliary request does not involve an inventive step in view of document D3, document D2 and common general knowledge.

Fourth auxiliary request - inventive step (Articles 52(1) and 56 EPC)

20. Claim 1 of the fourth auxiliary request differs from claim 1 of the third auxiliary request only by the limitation to the system of it being suitable for use "*in a dental setting*".

21. As acknowledged by the appellant on page 1 of the statement of grounds of appeal, stereoscopic video images, i.e. video images in which depth can be perceived, were well known to be useful in a range of professions including dentistry, medicine, research, teaching, microbiology, electronics, jewel cutting and watch repair.

22. Hence, the limitation of the system of claim 1 to being suitable for use in a dental setting cannot render the claimed subject-matter inventive.

23. The board is not convinced by the appellant's argument presented during the oral proceedings that the mention of the use in a dental setting has any bearing on the definition of the features specified in the claim.

24. Conclusion on inventive step

For the above reasons, the board considers that the subject-matter of claim 1 of the fourth auxiliary request does not involve an inventive step in view of document D3, document D2 and common general knowledge.

Fifth auxiliary request - inventive step (Articles 52(1) and 56 EPC)

25. Claim 1 of the fifth auxiliary request is identical to claim 14 of the main request. It claims a method having steps essentially corresponding to the features of the system of claim 1 of the main request, except that the term "*pupillary distance*" has been replaced by "*specific distance*", there is no step corresponding to the zooming module of claim 1 of the main request and the step of "*displaying the first video feed and the second video feed on a display system that optically separates the first video feed and the second video feed to create a stereoscopic video image*" having no corresponding feature in the system of claim 1 of the main request has been added.

26. Since D3 discloses such a displaying step (see Figures 5 to 8 and the corresponding description), the reasons given above for lack of inventive step of the system of claim 1 of the main request also apply mutatis mutandis to the method of claim 1 of the fifth auxiliary request.

27. The appellant did not provide arguments specific to the fifth auxiliary request but instead referred to its arguments for the main request.

28. Conclusion on inventive step

For the above reasons, the board considers that the subject-matter of claim 1 of the fifth auxiliary request does not involve an inventive step in view of document D3 and common general knowledge.

Conclusion

29. Since none of the appellant's requests is allowable, the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

K. Boelicke B. Willems

Decision electronically authenticated