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**Datasheet for the decision
of 19 May 2023**

Case Number: T 0479/19 - 3.4.01

Application Number: 13710542.5

Publication Number: 2956792

IPC: G01S7/00, G01S15/89, G01S7/52,
G06F9/50

Language of the proceedings: EN

Title of invention:
MULTI-CLIENT ULTRASOUND IMAGING SYSTEM

Applicant:
B-K Medical ApS

Headword:
Multi-client ultrasound imaging - B-K Medical ApS

Relevant legal provisions:
EPC Art. 84, 123(2)

Keyword:
Decision in written proceedings (yes)
announcement of non-attendance of the oral proceedings

Decisions cited:



Beschwerdekammern
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Case Number: T 0479/19 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 19 May 2023

Appellant: B-K Medical ApS
(Applicant) Mileparken 34
2730 Herlev (DK)

Representative: Gevers Patents
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Holidaystraat 5
1831 Diegem (BE)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 11 October 2018
refusing European patent application No.
13710542.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman P. Scriven
Members: P. Fontenay
R. Winkelhofer

Summary of Facts and Submissions

I. The application was refused on the ground that the requests on file did not meet the requirement of novelty (Articles 52 and 54 EPC). Inter alia, the Examining Division held that the subject-matter of independent claims 1 and 11 of the main and first auxiliary requests, and claim 1 of the second auxiliary request, were not new in view of document:

D1: ARIE MEIR et al.: "Distributed Network, Wireless and Cloud Computing Enabled 3-D Ultrasound; a New Medical Technology Paradigm", PLOS ONE, vol. 4, no. 11, 19 November 2009; page e7974.

II. The applicant appealed the decision, requesting that the impugned decision be set aside and that a patent be granted on the basis of a new main request or, in the alternative, of an auxiliary request, both submitted with the statement of grounds. The main request differs from the main request underlying the impugned decision, essentially, in that the two-part form has been amended to better reflect the content of D1.

III. The claims of the main request read (reference signs omitted):

1. *An ultrasound imaging scanner, comprising:
an ultrasound input device of a plurality of ultrasound input devices, the*

ultrasound input device including an array of transducer elements and transmitting an ultrasound signal and receiving ultrasound data produced in response thereto;

a multi-client ultrasound imaging data processing system including processing resources shared by the plurality of ultrasound input devices, the processing resources including a plurality of ultrasound signal processing units each including a plurality of ultrasound signal processing blocks configured to process ultrasound data; and

at least two ultrasound user interfaces, each of the at least two ultrasound user interfaces being temporarily paired with the ultrasound input device and being unavailable to be paired with another ultrasound input device, a first of the at least two ultrasound user interfaces being configured for visually presenting a first image and a second of the at least two ultrasound user interfaces being configured for visually presenting a second image,

characterized in that the multi-client ultrasound imaging data system temporarily allocates at least two ultrasound signal processing units configured for processing the same received ultrasound data of the ultrasound input device through at least two different chains of processing blocks to generate the first image and the second image indicative of the same received ultrasound data, the first image being different from the second image.

2. The ultrasound imaging scanner of claim 1, wherein each of the at least two different chains of processing blocks includes two or more processing blocks.

3. The ultrasound imaging scanner of claim 2, wherein the two or more processing blocks perform different processing functions.

4. The ultrasound imaging scanner of claim 3, wherein the multi-client ultrasound imaging data processing system further comprises:
a processing resources manager that allocates the plurality of processing blocks to the ultrasound input devices, including allocating the at least two different chains of processing blocks to the ultrasound input device.

5. The ultrasound imaging scanner of claim 4, wherein the processing resources manager allocates the at least two different chains of processing blocks to the ultrasound input device based on a predetermined allocation.

6. The ultrasound imaging scanner of claim 4, wherein the processing resources manager dynamically allocates the at least two different chains of processing blocks to the ultrasound input device in response to receiving the ultrasound data based on available and required processing.

7. The ultrasound imaging scanner of claim 6, wherein the processing resources manager allocates the at least two different chains of processing blocks between multiple ultrasound input devices competing for at least one of the at least two different chains of processing blocks based on a predetermined priority.

8. The ultrasound imaging scanner of any of claims 4 to 7, wherein the processing resources manager de-allocates the allocated at least two different chains of processing blocks for allocation to another ultrasound input device in response to the ultrasound input device no longer needing the allocated at least two different chains of processing blocks.

9. The ultrasound imaging scanner of claim 1, wherein the first ultrasound user interface and the second ultrasound user interface are located in two different viewing rooms.

10. The ultrasound imaging scanner of claim 1, wherein at least one of the first and the second ultrasound user interface is unpaired with the ultrasound input device and available for pairing with another ultrasound user interface.

11. A method, comprising:
pairing an ultrasound input device of a plurality of ultrasound input devices with at least two ultrasound user

interfaces of a plurality of ultrasound user interfaces;

registering the paired ultrasound input device and the least two ultrasound user interfaces with a multi-client ultrasound imaging data processing system including processing resources which are shared by the plurality of ultrasound input devices and which include a plurality of ultrasound signal processing units, each including a plurality of ultrasound signal processing blocks configured to process the ultrasound data;

acquiring ultrasound data with the ultrasound input device;

temporarily allocating at least two ultrasound signal processing units configured for processing the same ultrasound data of the ultrasound input device through at least two different chains of processing blocks to generate a first image and a second image indicative of the same received ultrasound data, the first image being different from the second image; and

visually displaying each of the at least two different images on a different one of the at least two ultrasound user interfaces.

- IV. Claim 1 of the auxiliary request corresponds to claim 3 of the main request. It reads (reference signs omitted):

1. An ultrasound imaging scanner, comprising:

an ultrasound input device of a plurality of ultrasound input devices, the ultrasound input device including an array of transducer elements and transmitting an ultrasound signal and receiving ultrasound data produced in response thereto;

a multi-client ultrasound imaging data processing system including processing resources shared by the plurality of ultrasound input devices, the processing resources including a plurality of ultrasound signal processing units each including a plurality of ultrasound signal processing blocks configured to process ultrasound data; and

at least two ultrasound user interfaces, each of the at least two ultrasound user interfaces being temporarily paired with the ultrasound input device and being unavailable to be paired with another ultrasound input device, a first of the at least two ultrasound user interfaces being configured for visually presenting a first image and a second of the at least two ultrasound user interfaces being configured for visually presenting a second image, characterized in that the multi-client ultrasound imaging data system temporarily allocates at least two ultrasound signal processing units configured for processing the same received ultrasound data of the ultrasound input device through at least two different chains of processing blocks,

each of the at least two different chains of processing blocks including two or more processing blocks that perform different processing functions, to generate the first image and the second image indicative of the same received ultrasound data, the first image being different from the second image.

- V. Claims 2 to 8 of the auxiliary request correspond to claims 4 to 10 of the main request. Claim 9 of the auxiliary request is a revised version of claim 11 of the main request, amended in line with claim 1.
- VI. In a communication under Article 15(1) RPBA 2020, annexed to a summons to oral proceedings, the appellant was informed of the Board's provisional opinion. It was, in particular, stressed that the main request and auxiliary request did not meet the requirements of clarity (Article 84 EPC) and added subject-matter (Article 123(2) EPC).
- VII. With regard to novelty and inventive step, it was noted that said issues hinged primarily on the question of whether the process of D1 implied two different chains of processing blocks, as assumed by the Examining Division. It was further noted that the notion of "processing block" in claim 1 of the auxiliary request was still quite broad and was not to be reduced to the general functionality consisting of projecting 3D volume data along selected directions, but also extended to the specific processing consisting of projecting data along a specific direction.

VIII. The appellant informed the Board that they would not attend the oral proceedings and that a decision could be taken on the file as it stood.

IX. The oral proceedings were cancelled.

X. The passages of the Board's communication relevant for the present decision read:

...

Main request - Added subject-matter and clarity (Articles 123(2) and 84 EPC)

1. *Claim 1 comprises the feature of*

"at least two ultrasound user interfaces, each of the at least two ultrasound user interfaces being temporarily paired with the ultrasound input device and being unavailable to be paired with another ultrasound input device ..."

The limitation regarding the unavailability of each of the at least two ultrasound user interfaces to be paired with another ultrasound input device is unclear (Article 84 EPC) since it suggests that said unavailability applies in general and that it is thus not simply limited to the period when the at least two ultrasound user interfaces are paired with the ultrasound input device. The unclear wording also

leads to an extension of the claimed subject-matter beyond the content of the application as filed (Article 123(2) EPC) which limits said unavailability to the pairing duration.

2. Claims 1, 4-8, and 10 are further unclear in that they incorporate features regarding steps of the underlying scanning process. The recited wording suggests that protection is sought for the ultrasound imaging scanner when in use. This concerns, more specifically, the steps of allocating the various resources ("allocates"; "de-allocates"). ...

3. Claim 9 refers to the first and second ultrasound user interfaces being located in two viewing rooms, thus suggesting that protection is sought for an imaging scanner with the user interfaces present at specific locations. It is, in particular, not clear what limitations in terms of functionalities result from the recited wording.

...

Auxiliary request

13. Claim 1 of the auxiliary request incorporates the additional feature that each of the at least two different chains of processing blocks includes two or more

processing blocks that perform different processing functions.

14. The comments made above as to added subject-matter and clarity with regard to the main request apply mutatis mutandis to the auxiliary request.

Reasons for the Decision

1. The Board indicated, under points 1 to 3, 13, and 14 of its communication (reproduced above), why, in its opinion, the main and auxiliary requests did not meet the requirements of clarity (Article 84 EPC) and added subject-matter (Article 123(2) EPC).
2. This preliminary assessment was not challenged by the appellant.
3. The Board does not see any reason to deviate from its preliminary assessment.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



D. Meyfarth

P. Scriven

Decision electronically authenticated