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Datasheet for the decision of 25 June 2021

Case Number: T 2448/16 - 3.4.03

Application Number: 10762532.9

Publication Number: 2394240

IPC: G06Q10/00

Language of the proceedings: EN

Title of invention:
EDITING OF 2D SOFTWARE CONSUMABLES WITHIN A COMPLEX 3D SPATIAL APPLICATION

Applicant:
On24, Inc.

Headword:

Relevant legal provisions:
EPC Art. 56, 123(2)
RPBA 2020 Art. 13(2)

Keyword:
Inventive step - (no) - mixture of technical and non-technical features
Amendments - allowable (no)
Amendment after summons - exceptional circumstances (yes) - exercise of discretion - taken into account (Auxiliary Request 2) (yes) - taken into account (Auxiliary Request 3) (no)

Decisions cited:
T 0641/00, G 0003/08, G 0001/19, T 1080/15

Catchword:

Europäisches Patentamt
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Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 2448/16 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 25 June 2021

Appellant: (Applicant)	On24, Inc. 799 Market Street San Francisco, CA 94103 (US)
Representative:	Betten & Resch Patent- und Rechtsanwälte PartGmbB Maximiliansplatz 14 80333 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 17 May 2016 refusing European patent application No. 10762532.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	G. Eliasson
Members:	A. Böhm-Pélissier
	T. Bokor

Summary of Facts and Submissions

I. The appeal is against the decision of the Examining Division to refuse European patent application No. 10 762 532. The refusal was based on the ground of lack of inventive step (Article 56 EPC).

II. At the end of the oral proceedings held before the Board the Appellant confirmed its request that the decision under appeal be set aside and that a patent be granted on the basis of the Main Request filed with the grounds of appeal dated 27 September 2016, or alternatively on the basis of Auxiliary Request 2, filed with letter dated 21 May 2021, or alternatively on the basis of Auxiliary Request 3, filed during the oral proceedings before the Board.

III. **Reference** is made to the following documents:
D1 = US 6 628 279
D5 = US 2003/071810 A1
D5 was cited during a parallel procedure before the USPTO for a family member of the present application.

IV. **Highlighting** (additions/emphasis, ~~deletions~~, **bold**) and labelling in citations was introduced by the Board.

V. **Claim 1** of the **Main Request** reads:
(A) A system for generating an application, comprising:
(B) a computer system that executes a construction tool that is used by a technical user and a business user to generate an application in a three dimensional environment;

(C) a repository associated with the computer system that stores the data associated with the construction tool and the application in the three dimensional environment,
(D) wherein the repository further comprises a consumable object for each piece of content,
(E) wherein the consumable object further comprises a language code parameter that contains a language for the consumable object,
(F) wherein the language code parameter permits the language of the consumable object to be changed without changing one or more other parameters of the consumable object;
(G) an application run-time platform executed on a computer system that runs the application in the three dimensional environment;
(H) an end user application that includes the application in the three dimensional environment and the application run-time platform;
(I) and wherein the construction tool further comprises a projection matrix component that adjusts a projection matrix to align with a three-dimensional image,
(J) wherein the projection matrix component clips and scales the projection matrix to align the application with the three-dimensional image,
(K) and an authoring component that places one or more software consumables onto the three-dimensional image,
(L) wherein the system is further adapted to generate the application in the three dimensional environment that has the three dimensional image and the one or more software consumables
(M) such that the one or more software consumables maintain perspective relative to the three dimensional image.

VI. **Claim 1** of the **Auxiliary Request 2** reads:

[Features (A)-(I)],
(J2) wherein the projection matrix allows specification of a two-dimensional image of the application as the three-dimensional image,
(J3) wherein the projection matrix is adjusted until a grid of the t[h]*ree-dimensional image lines up with parallel and perpendicular lines in the two-dimensional image of the application,*
(K2) and an authoring component that, when the projection matrix is set, places one or more software consumables onto the three-dimensional image,
[Features (L)-(M)].

VII. **Claim 1** of the **Auxiliary Request 3** reads:
[Features (A)-(D)],
(E3) wherein the consumable object comprises a two-dimensional object and further comprises a language code parameter that contains a language for the consumable object [Features (F)-(H)]
(I3) ~~and~~ wherein the construction tool is arranged to be used by the technical user for importing a three-dimensional image as a background image of the application and further comprises a projection matrix component that adjusts a projection matrix to align with ~~a~~ the three-dimensional image by using a grid,
[Features (J), (J2)],
(J3') and is adjusted by the technical user via a user interface, showing the grid overlaid onto the three-dimensional image, when the technical user adjusts the grid on the three-dimensional the image,
(J3'') wherein the projection matrix is adjusted to align with the three-dimensional image ~~until~~ when parallel lines in the three-dimensional image match parallel lines in the grid and perpendicular lines in the three-dimensional image match perpendicular lines in the grid ~~a grid of the tree-dimensional image lines~~

~~up with parallel and perpendicular lines in the two-dimensional image of the application, and~~
(K3) wherein the construction tool further comprises an authoring component that, ~~when~~ after the adjustment of the projection matrix ~~is set~~, is arranged to place~~s~~ one or more software consumables onto the three-dimensional image in response to the business user adding the one or more software consumables using his user interface, [Features (L)-(M)].

VIII. Oral proceedings were appointed for 25 June 2021. Following the summons to oral proceedings, the Board sent the appellant a communication under Article 15(1) RPBA stating that the Main Request was not inventive over D1. With the consent of the Appellant the oral proceedings were held by videoconference on the duly appointed date. During the oral proceedings the Appellant withdrew Auxiliary Request 1 and requested the possibility to submit a new request in order to counter objections under Article 123(2) and 56 EPC against Auxiliary Request 2.

IX. The appellant's arguments, insofar as they are relevant to the present decision, may be summarised as follows:
(a) D1 does not discloses a projection matrix;
(b) D1 does not disclose a a three-dimensional grid overlaid onto a two-dimensional picture;
(c) D1 is silent about language parameters.
(d) Under Article 13(2) RPBA 2020 a party should be allowed to file new requests during oral proceedings in order to overcome new objections which arose during oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. The invention as claimed

2.1 The application relates to positioning a consumable in a three-dimensional ("3D") simulation, e.g. of a virtual room. A consumable may be an image, a video, a text or any kind of software element (page 6, line 6ff of the application).

2.2 It takes trial and error to position a single 3D consumable. This is difficult because there are six variables that must simultaneously be adjusted (x, y, z, θx, θy, and θz). Therefore creating a great amount of content in a short period of time is impractical.

2.3 It is an object of the invention to provide a system for placing content in a 3D environment onto a two-dimensional ("2D") picture wherein the user does not need to be intimately familiar with 3D tools (page 3, first paragraph, of the application).

2.4 The invention proposes hardware and a graphical user interface (GUI) with different tools, e.g. a projection matrix, for placing and adjusting the consumable via a "drag and drop" operation.

3. Main Request - Inventive step (Article 56 EPC)

3.1 Technicality

3.1.1 The Board in general agrees with the reasoning of the Examining Division in sections 2-6 of the impugned decision. Many of the features (A)-(M) of system claim 1 (and in analogy of method claim 10) relate to non-technical features where technical character only arises because a general purpose computer system is claimed in order to automate the method steps.

3.1.2 The cognitive meaning of providing/storing language information as well as adjusting, placing and generating an image do not have any non-obvious technical implication for the functioning of the computer device and its interactive graphical user interface (GUI). The underlying technical operation can be carried out by any conventional computer (see Fig. 1 of the application).

3.1.3 Furthermore, the method steps are mainly of administrative nature and neither the claim nor the application as a whole describe any technical interaction between these steps and the technical features which would go beyond the mere automation of the steps relating to administration (see T 641/00, G 3/08, G 1/19, "Case Law of the Boars of Appeal", 9th edition, I.D.9.1.2- I.D.9.1.4).

3.1.4 In addition, the Board is of the opinion that all features of claim 1 are disclosed by D1, except features (E)/(F), these latter being obvious:

3.2 **Closest prior art**

D1 is considered as closest prior art, because it discloses a 2D image of a 3D object. Additional 2D/3D objects can be placed in a 3D environment.

3.3 D1

3.3.1 It was undisputed that D1 discloses **features (A) to (D) and (G) to (H).** D1 discloses a 3D CAD design program, where 3D objects (consumables) can be placed in a 3D simulation of a house (cf. Figures 21A to 21E, 25). The 3D objects may be a dormer or a window and are added to the design of a house represented in a 3D grid. A

technical user in D1 may be defined as a person designing the house, a business user may be defined as a user adding the dormers and windows. All the coordinates of the 3D objects (house, dormer, window) may be considered as a matrix and are saved in a database (see column 12, line 65ff).

3.3.2 Furthermore, the Board does not see any difference in the profile of a business user and a technical user. The claim does not define that a technical user manually overlays and adjusts the projection matrix to the 2D picture. Since the wording of claim 1 is rather broad, the claimed definition of a "business user" and a "technical user" fails to make a distinction over Dl.

3.3.3 The interface language in the figures of D1 is English. The language parameter for English therefore is usually set either in the application software or in the operating system software. However, the Board agrees with the Appellant that in D1, there was no disclosure of setting, assigning or change of language. Therefore, D1 does not disclose **features (E) to (F)**.

3.3.4 As to **features (I) to (J)** the Appellant argued that D1 was silent on any projection matrix being clipped and scaled by a projection matrix component. These features simplified the creation of the application and thereby solved a technical problem. In D1, the 3D environment and objects were pre-determined, and did not need to be adjusted later to each other. In the present invention a technical user manually adjusted to align a 3D projection matrix in form of a grid to the predetermined background 3D image represented as a 2D background picture.

3.3.5 Also in this respect, the Board is of the opinion that the wording of these features is rather broad and not sufficiently specific in order to make a distinction over the disclosure of D1. A "projection matrix" is equivalent to a matrix of coordinates and the grid of the designed objects. A "projection matrix" is a mathematical concept (see present application, page 7, line 16ff) and is inherent for the construction of a 3D object:

> (page 7, line 4ff) "*a projection matrix is a square matrix (as defined in Mathematics) used in a method of mapping three-dimensional points to a two-dimensional plane. A conceptual aid to understanding the mechanics of this projection involves treating the two dimensional ("2D") projection as being viewed through a camera viewfinder*".

3.3.6 The inherent 3D "projection matrix" therefore is always aligned with the 3D object (house) and the software module therefore automatically adjusts the "projection matrix" (e.g. coordinates/ grid of the dormer or window in Figs. 21A to 21E) to align the added object (dormer) with the house (see Fig 21A, column 24, line 59ff).

3.3.7 Figs. 10H, 10I, 10J and 10L illustrate how the grid matrix of the dormer ("consumable") is adjusted to the new position when the dormer is shifted from one position to another position. The "projection matrix component" therefore clips and scales the "projection matrix" to align the dormers with the house. The dormers 1062, 1063 can be deplaced and fitted to the correct position (see also column 18, line 6ff).

3.3.8 Therefore, the Board is of the opinion that the term "projection matrix" of claim 1 refers to the well-known

fundamental mathematical concept of construing 3D objects based on a 3D matrix. The matrix goes in general in perspective view to a single point in infinity such that all objects maintain perspective relative to the 3D image. This concept is known in painting since several hundreds of years. An equivalent concept is used in D1 in order to construe a 3D representation of a house in a 3D coordinate system maintaining perspective relative to the 3D image (**feature (M)**). The 3D coordinate system, the coordinates of the house/consumables and the grid forming the structure of the house/consumables in D1 therefore can be considered as a "projection matrix". D1 therefore discloses features (I) to (J) and (M).

3.3.9 As to **feature (K)** D1 discloses a protractor for placing the components/consumables (see column 26, line 59 ff). The protractor is managed by an "authoring component" (software activating e.g. protractor 2416, 2444, 2448, 2462, cf. Figs. 24B, 24F, 24G, 24K) that places one or more software consumables onto the 2D/3D image.

3.4 Difference

Consequently, the Board is of the opinion that D1 discloses all the features of claim 1 except features (E)/(F).

3.5 Effect - Problem

These features have the effect that the language of the CAD software and specific consumables can easily be changed.

3.6 Obviousness

3.6.1 As to features (E)/(F) the description of the present application does not provide any specific detail, effect or technical problem solved. Fig. 25 of D1 shows a standard PC. Such PCs require a standard operating system. The operating language of any operating system (Windows, iOS, etc.) and applications can in general be changed in the options.

3.6.2 It is a normal option that the computer system of D1 comprises a parameter, which sets the language to a preferred language, e.g. English. Such a parameter is a common option and is well-known in the art. It is furthermore a normal option that the language parameter can be changed for specific software elements (consumables).

3.6.3 Therefor the Board is of the opinion that the subject-matter of the Main Request does not involve an inventive step within the meaning of Article 56 EPC.

4. **Auxiliary Request 2**

4.1 **Article 13(2) RPBA 2020**

4.1.1 The Appellant argued that Auxiliary Requests 1 and 2 were a response to the Board's opinion. They intended to focus on the differences over D1. There was no disclosure in D1 of the added features of Auxiliary Request 2. The preliminary opinion of the Board set out in the summons to oral proceedings raised new aspects which were not treated in the decision under appeal, because in the impugned decision no detailed assessment of the claims was made with respect to D1. The impugned decision was based only on a general purpose computing system as closest prior art.

4.1.2 The Board agrees that the Appellant was indeed faced with new arguments in the preliminary opinion of the Board. A detailed assessment of D1 was made for the first time in this communication. The Board therefore accepts the presence of an exceptional situation. However, given that the requests are not convergent (not all of the added features of Auxiliary Request 1 appear in Auxiliary Request 2) the Appellant withdrew Auxiliary Requests 1 and maintained only Auxiliary Request 2 which was admitted under Article 13(2) RPBA 2020 by the Board.

4.2 **Article 123(2), 83 and 84 EPC**

4.2.1 Firstly, the Board is of the opinion that some features taken over from the description from specific embodiments cannot be isolated from the remaining features of the embodiments. E.g. the requirement of a user interface is missing, leading to an intermediate generalisation. Other features should have been taken up as well, e.g. the role of the technical and business user. The claim therefore is broader than the disclosure of the description

4.2.2 Feature (J2) "*wherein the projection matrix allows specification of a two-dimensional image of the application as the three-dimensional image*" does not have a basis in the application as originally filed. The description only discloses specification of a 2D picture as a 3D object (page 7, line 8ff) which relates to something different than what is claimed, because the 2D background picture itself is not manipulated in the present invention, but only overlaid with a 3D object.

4.2.3 The Appellant argued that the role of the user and the user interface were inherent in the claim on its proper interpretation, in light of the description. The Appellant however was prepared to take up additional features.

4.2.4 The Board is furthermore of the opinion that the wording of feature (J2) is not clear. In particular, the skilled person cannot derive a technical meaning of the term "specification of a 2D image as a 3D image". The description is not sufficient to describe how this "specification" takes place, because according to the whole disclosure of the application the 2D background picture itself is not manipulated in the present invention, but only overlaid with a 3D object. Therefore, non-compliance with the requirements of Article 83 EPC arises.

4.3 **Inventive step - Difference**

4.3.1 The Appellant argued that similar arguments applied as for the Main Request. The new features underlined the differences over D1, i.e. that the alignment was relative to a starting image and was adjusted by a user with the help of a grid. This idea was not shown in D1 and the presumption of the use of the projection matrix in D1 was based on hindsight. At the date of priority, only simple pictures were overlaid on a 2D image with standard photo-editing tools.

4.3.2 The Board however maintains its opinion that the 3D object in D1 inherently contains a projection matrix: D1 shows a 2D image of the application, being treated as a 3D image and vice versa the 3D object is projected as 2D image. The 2D representation therefore corresponds to a 3D object in a 3D coordinate system

(matrix). D1 therefore discloses that the projection matrix allows "specification of a 2D image of the application as the 3D image".

4.3.3 Furthermore, the 3D objects in D1 inherently contain a matrix which is automatically aligned with the grid of the 3D object (grid of the house). D1 therefore discloses that the projection matrix is adjusted until a grid of the 3D image lines up with parallel and perpendicular lines in the 2D image of the application (2D image projection of the 3D object). D1 furthermore discloses an "authoring component" (software tool, e.g. protractor) that, when the projection matrix is set, places one or more software consumables (dormer, window) onto the 3D image (house as 3D object). D1 therefore discloses Features (J2), (J3) and (K2). These features therefore do not further distinguish claim 1 of Auxiliary Request 2 over D1.

4.3.4 In summary, claim 1 of Auxiliary Request 2 only differs in features (E)/(F) from D1.

4.4 **Effect - Problem - Obviousness**

4.4.1 The same effect and problem can therefore be considered as for the Main Request. Consequently, the solution is obvious for the same reasons as discussed in section 3.6.

4.4.2 Independent of this reasoning, taking a 2D image as an input for a 3D CAD drawing tool, i.e. a tool as shown in D1, seems to be obvious. E.g. the 2D image could be a background image into which the 3D model of the house shown in D1 and its environment is projected.
Furthermore D5 teaches the projection of 2D images on a 3D grid in order to correctly arrange 2D images in 3D

space (cf. Figs. 4, 6A, 6B, 7 and 10a as well as paragraph [0056]).

4.4.3 The Board therefore comes to the conclusion that the subject-matter of Auxiliary Request 2 does not involve an inventive step over the prior art within the meaning of Article 56 EPC, while the Board also maintains its reservations under Articles 83, 84 and 123(2) EPC.

5. Auxiliary Request 3 - Article 13(2) RPBA 2020

5.1 According to Article 13(2) RPBA 2020 any amendment to a party's appeal case made after the expiry of a period specified by the Board in a communication under Rule 100, paragraph 2, EPC shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

5.2 The Appellant submitted that the request was a reaction to objections against Auxiliary Request 2 heard for the first time at the oral proceedings. The purpose of oral proceedings was to give the Appellant the possibility to be heard, also on such new issues.

5.3 The Board however is of the opinion that these reasons do not represent exceptional circumstances, because the Appellant could not expect that any new objections concerning the late filed Auxiliary Requests 1 and 2 would be raised by the Board earlier. The Board furthermore considers that the objection raised in the Board's communication was a mere development of the objection originally raised by the examining division (see T 1080/15, reasons 5.4). From an admission of a request under Article 13(2) RPBA 2020 (see section 4.1

above) the Appellant cannot derive any right for further admissions under Article 13(2) RPBA 2020.

5.4 Furthermore, in Auxiliary Request 3 a number of new features from different parts of the description have been added to claim 1 of Auxiliary Request 2 to which the Board already had raised reservations under Articles 83, 84 and 123(2) EPC. The amendments are based on at least six passages of the the description (page 5, line 21, page 6, lines 6-7, lines 16-17, lines 17-20, page 9, lines 15-17, page 10, lines 24-26). Feature (J2) which was already objected to in the context of claim 1 of Auxiliary Request 2 (see section 4.2.2 above) is still present in claim 1.

5.4.1 Given the complexity of the amendments the Board cannot exclude that further deficiencies under Article 123(2) EPC have been introduced. As for Auxiliary Request 2 the Board doubts whether all features taken over from the specific embodiments could be isolated from the remaining features of the embodiments, most likely leading to an intermediate generalisation.

5.5 Furthermore, most likely an additional search of the added features would have been necessary. The supplementary search of the Examining Division in the first instance did not reveal any new documents and the Examining Division did not make a detailed assessment of any of the cited documents, because most of the features had been treated as being non-technical. Furthermore, as closest prior art only a general purpose computer system has been assessed. No document from more specific and more suitable classes was cited. Consequently, the Board cannot assume that all embodiments, in particular those forming basis for the amendments, have been searched in detail.

5.5.1 At the very late stage of the procedure it cannot be expected that the Board examines all these new and complex issues in detail under Articles 123(2), 83, 84 and 56 EPC.

5.6 The Board therefore decides not to admit Auxiliary Request 3, because the amendments presented are too complex to deal with in this late stage of the procedure and the criteria of exceptional circumstances justified by cogent reasons do not apply.

6. In summary, since none of the admitted requests on file meets the requirements of the EPC, the Examining Division's decision refusing the application is confirmed and the appeal has to be dismissed (Articles 97(2) EPC and 111(1) EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

S. Sánchez Chiquero G. Eliasson

Decision electronically authenticated