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Datasheet for the decision of 17 August 2020

Case Number: T 1636/17 - 3.5.05

Application Number: 13182817.0

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IPC: G08G5/00, G01C21/20, G06Q10/04

Language of the proceedings: EN

Title of invention:
Optimized flight plan management system

Applicant:
The Boeing Company

Headword:
Optimal flight/BOEING

Relevant legal provisions:
EPC Art. 54(1), 54(2), 56, 123(2)

Keyword:
Main request - Novelty - (no)
Auxiliary requests 1 and 2 - Inventive step - (no)
Auxiliary requests 3 to 5 - Amendments - added subject-matter (yes)

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Case Number: T 1636/17 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 17 August 2020

Appellant: (Applicant)	The Boeing Company 100 North Riverside Plaza Chicago, IL 60606-1596 (US)
Representative:	Hylarides, Paul Jacques Arnold & Siedsma Bezuidenhoutseweg 57 2594 AC Den Haag (NL)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 21 February 2017 refusing European patent application No. 13182817.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	A. Ritzka
Members:	E. Konak
	E. Mille

Summary of Facts and Submissions

I. The appeal is against the examining division's decision to refuse the application on the ground that the then main request and then auxiliary requests 1 to 6 lacked inventive step (Article 56 EPC) with regard to the following document:

D2: WO 2011/128836 A2

Auxiliary request 6 was also found not to be clear (Article 84 EPC). Auxiliary request 7 was not admitted into the examination proceedings (Rule 137(3) EPC).

II. With its statement setting out the grounds of appeal, the appellant filed a main request and auxiliary requests 1 to 5. It requested that the decision be set aside and that a patent be granted on the basis of one of these requests. It requested oral proceedings as an auxiliary measure.

III. In its preliminary opinion issued in preparation for the oral proceedings, dispatched on 22 June 2020, the board raised objections under, *inter alia*, Articles 54(1) and (2), 56, 84 and 123(2) EPC.

IV. The appellant did not reply in substance, but withdrew its request for oral proceedings and requested a decision based on the present status of the file. It also requested a partial reimbursement of the appeal fee. The scheduled oral proceedings were thus cancelled.

V. Claim 1 of the main request reads as follows:

"A method for flight planning in a flight planning manager (104), the method comprising:
receiving input through in an input system (120);
identifying from the input routes from a start point to an end point for a flight of an aircraft (108) from a database (200) of routes in which a plurality of different types of routes is present in the database of routes, wherein the plurality of different types of routes comprises at least one of previously cleared routes, previously flown routes, airline preferred routes, airways, and ocean tracks;
identify a number of characteristics (130) of the aircraft using an aircraft model database (204);
applying a number of characteristics of the aircraft (108) to the routes to identify a performance of the aircraft for the routes using a number of weather conditions for the flight, the weather conditions having been received from the weather source (210);
ranking the routes based on the performance of the aircraft on the routes in meeting a number of goals for the flight to form ranked routes; and
displaying a portion of the ranked routes on a display device (144);
receiving a selection of a route from the portion of the ranked routes displayed; and
submitting the route selected for approval."

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

"A method for flight planning in a flight planning manager (104), the method comprising:
receiving input through in an input system (120), including a selection of a number of goals;
[...]

ranking the routes based on the performance of the aircraft on the routes in meeting ~~a~~ the number of goals for the flight to form ranked routes; and
displaying a portion of the ranked routes comprising a plurality of routes on a display device (144);
receiving a selection of a route from the ~~portion of the ranked~~ plurality of displayed routes ~~displayed~~; and
submitting the route selected for approval."

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

"A method for flight planning in a flight planning manager (104), the method comprising:
receiving input through in an input system (120)~~,~~ ~~including a selection of a number of goals~~;
[...]
receiving a selection of goals from at least one of speed, comfort level, and likelihood of clearance;
ranking the routes based on the performance of the aircraft on the routes in meeting the number of goals for the flight to form ranked routes; and
displaying a portion of the ranked routes on a display device (144) comprising a plurality of routes ~~on a display device (144)~~;
[...]"

VIII. Claim 1 of auxiliary request 3 differs from claim 1 of auxiliary request 2 as follows (with the additions underlined):

"A method for flight planning in a flight planning manager (104), the method comprising:
[...]

receiving a selection of goals from at least one of speed, comfort level, and likelihood of clearance, as well as weights and/or priorities for the selected goals;
[...]"

IX. Claim 1 of auxiliary request 4 differs from claim 1 of auxiliary request 3 as follows (with the additions underlined and the deletions ~~struck through~~):

"A method for flight planning in a flight planning manager (104), the method comprising:
[...]
identify a first number of characteristics (130) of the aircraft using an aircraft model database (204);
identifying a model of the aircraft and a second number of characteristics of the aircraft, the second number of characteristics comprising actual characteristics (130) of the specific aircraft including fuel usage and speed, wherein the actual characteristics of the specific aircraft are identified from a history of data collected from prior flights of the aircraft;
applying ~~a~~ the first and second number of characteristics of the aircraft (108) to the routes to identify a performance of the aircraft for the routes using a number of weather conditions for the flight, the weather conditions having been received from the weather source (210);
receiving a selection of goals from at least one of furl efficiency, speed, comfort level, and likelihood of clearance, as well as weights ~~and/or priorities~~ for the selected goals;
weighting the selected goals based on the received weights;
ranking the routes based on the performance of the aircraft on the routes in meeting the number of

weighted goals for the flight to form ranked routes;
[...]"

X. Claim 1 of auxiliary request 5 differs from claim 1 of auxiliary request 4 as follows (with the additions underlined):

"A method for flight planning in a flight planning manager (104), the method comprising:
[...]
identify a first number of characteristics (130) of the aircraft using an aircraft model database (204), wherein the first number of characteristics (130) include fuel usage, speed, turning capabilities, and other characteristics that aircraft (108) actually has during the flight (107);
[...]
applying the first and second number of characteristics of the aircraft (108) to the routes to identify a performance of the aircraft for the routes using a number of weather conditions for the flight, the weather conditions having been received from the weather source (210), wherein applying the number of characteristics of the aircraft to the routes to identify the performance of the aircraft for the routes using the number of weather conditions for the flight comprises:
running simulations for the routes using the number of characteristics of the aircraft and the number of weather conditions expected along each of the routes; and
identifying the performance of the aircraft for the routes from the simulations of the routes;
[...]"

Reasons for the Decision

1. Main request - Novelty (Article 54(1) and (2) EPC)

1.1 The main request is identical to the main request on which the contested decision is based, save for the correction of a punctuation error.

1.2 The appellant does not dispute that D2 constitutes the closest prior art. Nor does it dispute the distinguishing features of claim 1 over D2 as identified by the examining division, i.e.:

A. displaying a portion of the ranked routes; and
B. receiving a selection of a route from the portion of the ranked routes displayed.

1.3 According to the examining division, D2, page 29, second and third paragraphs disclosed selecting an optimal route for an aircraft but the route was selected automatically.

1.4 As the board already informed the appellant in its preliminary opinion, it cannot follow this reading. D2, page 29, third paragraph discloses that "*the most fully optimised [route] is selected and presented to the flight crew for acceptance or for other input should they wish to do so*". The next paragraph discloses that "*the output from the flight planning process is presented to the flight crew [...]. The flight crew are able to view a graphical depiction of the route of the planned flight and to accept the flight plan, or to make alterations to it*". It follows unambiguously from these passages that a "portion" of the ranked routes, namely one of them, is displayed to the flight crew (feature A) and a selection of a route from this

displayed information, namely either its acceptance or alteration, is received (feature B). It is beyond any doubt in these passages that the most optimal route displayed is subject to manual review, approval and modification. Thus, D2 discloses both of the alleged distinguishing features of claim 1.

1.5 Therefore, the subject-matter of claim 1 of the main request is not new (Article 54(1) and (2) EPC).

2. Auxiliary request 1 - Inventive step (Article 56 EPC)

2.1 Claim 1 of auxiliary request 1 differs from claim 1 of the main request on account of two additional features:

(i) the received input includes a selection of a number of goals (feature C in the contested decision), and

(ii) the displayed portion of ranked routes comprises a plurality of routes.

2.2 Whereas feature (i) was already present in auxiliary request 1 on which the contested decision is based, feature (ii) was added with the filing of the appeal to further distinguish the claimed subject-matter from D2, in which only one of the ranked routes is displayed (see the statement setting out the grounds of appeal, page 3, last paragraph).

2.3 As the board already informed the appellant in its preliminary opinion, given the level of generality of the words "number" (which can obviously be 1) and "goal" in the wording of claim 1, feature (i) does not have any further limiting effect beyond the received input in claim 1 of the main request, which comprises "a start point" and "an end point". Flying from a start

point to an end point is in itself a "goal". Therefore, the board does not agree with the contested decision, which seems to have given the word "goal" a particular meaning which is not derivable from the wording of the claim.

2.4 Regarding feature (ii), D2 discloses ranking a plurality of routes (page 27, penultimate line to page 28, second line). However, the crew is shown only one: the one with the highest ranking or "the most fully optimised route". When a process produces a ranked list of results, deciding how many to output or present for selection is an obvious matter of design or personal preference.

2.5 Therefore, claim 1 of auxiliary request 1 does not involve an inventive step (Article 56 EPC).

3. Auxiliary request 2 - Inventive step (Article 56 EPC)

3.1 With respect to claim 1 of auxiliary request 1, claim 1 of auxiliary request 2 has the additional feature that it specifies the received selection of goals (feature (i) above in 2.1) as being "at least one of speed, comfort level, and likelihood of clearance".

3.2 The optimisation algorithm in D2, however, already uses flight time (page 6, lines 4 to 6) as one of the contributing factors for optimisation, which is the same as "speed" in the wording of the application in hand. While D2 does not disclose that these particular goals are received as part of a selection by the pilot, having a system that lets its user input their preferences does not involve an inventive step.

3.3 The appellant argues that while D2 discloses (page 6, lines 4 to 6) that the *"optimization is configurable by adjusting the relative weight of contributing factors such as fuel consumption, cost and flight time"*, it does not disclose that these weights may be adjusted prior to every instance of flight planning - it could well be that this relates to the initial configuration of the algorithm when the aircraft is first delivered (see the statement setting out the grounds of appeal, page 4, third paragraph). However, these arguments are irrelevant for auxiliary request 2 since it does not mention weights at all.

3.4 Therefore, claim 1 of auxiliary request 2 does not involve an inventive step (Article 56 EPC).

4. Auxiliary requests 3 to 5 - Added subject-matter (Article 123(2) EPC)

4.1 As the board already informed the appellant in its preliminary opinion, the amendment in the independent claims of auxiliary request 3 to the effect that the claimed method receives a selection of goals "as well as weights and/or priorities for the selected goals" contains subject-matter extending beyond the content of the application as filed.

4.2 Auxiliary request 3 is based on auxiliary request 4 on which the contested decision is based. This request was filed with the letter of reply dated 2 November 2016 and the appellant gave paragraph [0083] of the published application as the basis for this amendment. However, this is actually irrelevant for the purposes of Article 123(2) EPC since this provision refers to the "application as filed". Page 12, lines 1 to 5 of the application as filed, which seems to have the same

text, merely states that "*when more than one goal is present in number of goals 220, those goals may be weighted or given priorities*". The origin of these weights and priorities is not directly and unambiguously derivable from this sentence. Therefore, the amendment to the effect that they are also received together with the selection of goals adds subject-matter (Article 123(2) EPC).

4.3 This amendment without the option "and/or priorities" was also made in the independent claims of auxiliary requests 4 and 5, which, therefore, also contain subject-matter extending beyond the content of the application as filed (Article 123(2) EPC).

5. Request for partial reimbursement of the appeal fee

5.1 According to Rule 103(4)(c) EPC the appeal fee shall be reimbursed at 25% if any request for oral proceedings is withdrawn within one month of notification of the communication issued by the board of appeal in preparation for the oral proceedings and no oral proceedings take place.

5.2 In this case, the communication in preparation for oral proceedings was dispatched on 22 June 2020 and thus notified on 2 July 2020. The one-month time limit ended on 3 August 2020, but 2 August 2020 was a Sunday. The withdrawal of the request for oral proceedings was received on 3 August 2020, i.e. within the time limit established in Rule 103(4)(c) EPC. Thus, the appeal fee has to be reimbursed at 25%.

Order

For these reasons it is decided that:

The appeal is dismissed.
The appeal fee is reimbursed at 25%.

The Registrar: The Chair:

A. Chavinier-Tomsic A. Ritzka

Decision electronically authenticated